

# **NUCLEAR REGULATORY COMMISSION ISSUANCES**

## **OPINIONS AND DECISIONS OF THE NUCLEAR REGULATORY COMMISSION WITH SELECTED ORDERS**

**July 1, 1983 - December 31, 1983**

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**Volume 18  
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Ivan W. Smith



## PREFACE

This is the eighteenth volume of issuances (1 - 1482) 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 July 1, 1983 to December 31, 1983.

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

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

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

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

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

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



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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

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

**In the Matter of**

**Docket Nos. 50-289**  
**50-320**  
**(Civil Penalty)**

**GENERAL PUBLIC UTILITIES**  
**CORPORATION**  
**(Three Mile Island Nuclear**  
**Station, Units 1 and 2)**

**July 22, 1983**

The Commission authorizes the NRC staff to issue a Notice of Violation and Proposed Imposition of Civil Penalties against the Licensee for its (1) material false statements concerning the qualifications of an individual operator and (2) failure to properly implement its operator re-training program.

**STATEMENT OF THE COMMISSION**

The Executive Director for Operations has recommended to us that civil penalties be proposed for imposition against the Licensee: first, in the amount of \$40,000, for the Licensee's failure to properly implement its Operator Accelerated Retraining Program, and second, in the amount of \$100,000, for material false statements associated with an August 3, 1979 letter to the Commission certifying a particular individual's satisfactory completion of an accelerated-requalification program and with a November 15, 1979 application by the individual for renewal of his Senior Operator License. The Commission has approved the recom-

mendation and has authorized the staff to issue a Notice of Violation and Proposed Imposition of Civil Penalties.

The dissenting views of Commissioner Roberts are attached.

For the Commission

SAMUEL J. CHILK  
Secretary of the Commission

Dated at Washington, D.C.,  
the 22nd day of July, 1983.

**DISSENTING VIEW OF  
COMMISSIONER THOMAS M. ROBERTS**

On Friday, July 15, the Commission authorized the Staff to propose imposition of a civil penalty in the amount of \$140,000 on General Public Utilities (Licensee). This penalty is comprised of two parts:

- (1) \$40,000 for failure to implement properly the Licensee's Operator Accelerated Retraining Program (OARP). This program was established by Licensee in response to the Commission's August 9, 1979 Order. 10 NRC 141, 144 (1979).
- (2) \$100,000 for material false statements related to the certification by the Station Manager of Operator VV as having satisfactorily completed the requalification program.

As I believe the underlying basis of each of these penalties is significantly flawed, I dissented from the Commission's action.

I do not support the \$40,000 penalty because I do not believe the Commission has the legal authority to impose it. The program undertaken by Licensee was voluntary; it was not required by any statute, regulation, order, or license condition. In effect, the Commission is penalizing Licensee for inadequate implementation of a voluntary commitment. Although I do not condone cheating, I believe imposition of a civil penalty for a voluntary commitment exceeds the Commission's authority.

With regard to the \$100,000 penalty, while I agree that material false statements were made to the NRC in a 1979 application for a senior reactor operator license, I do not believe the Commission may use statutory authority not in effect in 1979 to impose a higher penalty.



The Commission justifies use of the statutory authority granted to the NRC in June 1980 by saying that willful material false statements are continuing violations. The Commission's theory is that in 1979 Licensee and VV made willful material false statements in that they knew at the time the statements were made that they were incomplete. The Commission believes that, in light of this willfulness, the Licensee was under a duty every day after its submission of material false statements to correct these statements and that this duty continued in effect up to and after June 30, 1980 when Section 234 of the Atomic Energy Act was amended to permit the imposition of higher penalties. This conclusion that a material false statement can be a "continuing violation" is viewed merely as an extension of the rationale in *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), CLI-76-22, 4 NRC 480 (1976) (omissions may be material false statements).

Other Federal agencies have attempted to treat material false statements and reporting failures as continuing violations in order to increase the size of the penalty levied. These efforts have been rejected by the courts. Thus, I do not believe the Commission's theory is legally correct or proper. My analysis of the flaws in these proposed penalties follows.

### **FACTUAL BACKGROUND AND LEGAL ANALYSIS OF \$40,000 PENALTY**

In the course of its evaluation of the accident at Three Mile Island Unit 2, the Commission identified concerns which led it to order that Unit 1 remain in a cold shutdown condition. The Commission decided that a hearing would be conducted prior to restart of this unit. In an August 9, 1979 Order which made that shutdown effective immediately, the Commission listed the subjects to be litigated in that hearing. It also stated that satisfactory completion of certain short-term actions and reasonable progress toward completion of certain long-term actions was required prior to restart. One of the short-term actions involved the recommendation of the Director of Nuclear Reactor Regulation (NRR) that the Licensee augment 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, that all operators receive training at the B&W simulator on the TMI-2 accident, and that the Licensee conduct a 100% reexamination of all operators in these areas. 10 NRC 141, 144. The Commission's Order further explained that those short-term and long-term actions to be considered "required" were those determined by the Commission,

after review of the Licensing Board's decision, to be necessary and sufficient to provide adequate protection of the public health and safety. 10 NRC 141, 146. Thus, it is quite clear that this Order did not impose any requirements but rather prescribed a procedure whereby requirements for restart would be determined and imposed.

On September 12, 1979, Licensee voluntarily committed to establish an Operator Accelerated Retraining Program (OARP) to accomplish the training outlined in the Commission's August 9 Order. During the hearing prescribed by the Commission, allegations were made that Licensee employees cheated on both Licensee- and NRC-administered exams. The Hearing Board appointed a Special Master to develop a factual record on these allegations. Both the Special Master's Report and the Board's decision concluded that G, H, O, W, and GG cheated on Licensee-administered tests. In addition, both the Special Master and the Board criticized the Licensee's OARP and suggested that deficiencies in it created an atmosphere in which cheating could occur. It is these findings that have brought about the proposed \$40,000 penalty. While I do not condone cheating, the cheating occurred on tests that Licensee volunteered to give. Only NRC-imposed requirements are enforceable by the NRC. Thus, I believe the Commission exceeded its authority when it authorized imposition of a civil penalty for failure to implement a voluntary commitment.

### **FACTUAL BACKGROUND REGARDING THE MATERIAL FALSE STATEMENT**

Section 55.33 of the Commission's rules requires that each licensed individual demonstrate his continued competence every two years in order for his license to be renewed. Competence may be demonstrated by satisfactory completion of a requalification program which has been reviewed and approved by the NRC. During the 1978-1979 requalification year, VV, a senior reactor operator, was found deficient in four areas of training and was enrolled in the Fundamentals and Systems Review (FSR) Program for retraining in these areas. On July 2, 1979, he turned in completed take-home tests for each of the four areas. Parts of two of the tests were submitted in someone else's handwriting. VV's scores on the section, and the handwriting found on each are as follows:

SECTION	SCORE	HANDWRITING
A	89.1%	VV and O
E	75.6	VV
G	80.5	VV
H	64.0	VV and O

Licensee's administrative procedures require that an individual be relieved of his licensed duties and enter an accelerated requalification program (ARP) if that individual receives a grade of less than 80% overall or less than 70% on any section on the annual examination. Upon successfully passing a second written or oral examination and certification of satisfactory rating by the director of Three Mile Island Unit 1, the individual will be returned to licensed duties. Thus, in accordance with this procedure, VV was enrolled full time in an ARP to be retrained and retested.

On August 3, 1979, the Station Manager certified to the NRC that VV had received a satisfactory rating based upon his completion of an accelerated requalification program in which he had achieved a score of 99.8. After citing the scores VV had received in the four areas of the FSR as shown above, the Station Manager further stated that the specially tailored ARP was instituted because VV received two scores less than 80%. He did not mention the handwriting discrepancy, the fact that one of the sections for which VV received a score greater than 80% was completed at least in part in another person's handwriting, or the fact that he had directed that VV be retrained on this section.

On November 15, 1979, VV submitted to the NRC an application for renewal of his senior operator license. That application included the statement that he had "satisfactorily completed the Metropolitan Edison Company Operator Requalification Program."

### ANALYSIS

The statements that (1) VV had received scores of 89.1, 75.6, 80.5 and 64.0 on the FSR, (2) that VV had received two scores less than 80%, and (3) that VV had satisfactorily completed the operator requalification program were made in 1979. At that time, Section 234 of the AEA provided that the maximum civil penalty that could be imposed for a single violation was \$5,000 per day and \$25,000 for all violations occurring within a thirty day period. Effective June 30, 1980, however, Section 234 was amended to provide for much larger civil penalties, up

to \$100,000 per violation per day. As noted earlier, the Staff has concluded, with Commission concurrence, that Licensee's provision of material false statements was willful and that this willfulness gives rise to a duty on the part of Licensee to correct the statements.<sup>1</sup> This duty to correct persists until Licensee corrects the statements or the NRC discovers their falsity. As the Licensee did not fulfill this duty to correct, a continuing violation has been committed and a larger penalty may be levied under the amended Section 234.

There has been no interpretation of the phrase "continuing violation" under Section 234 of the AEA. The concept is not uncommon, however, and other government agencies have attempted to use the concept to increase the size of civil penalties in cases similar to that at issue here. These efforts have not met with success in the courts. A limited sampling of those cases follows.

In a case under the Communications Act,<sup>2</sup> the FCC attempted to exact a civil forfeiture for a licensee's "continued" failure to adhere to the FCC's "personal attack" rule. *United States v. WIYN Radio Inc.*, 614 F.2d 495 (5th Cir. 1980). In rejecting the FCC's interpretation, the court held:

In a continuous violation, like those noted above, there exists a continuing or persistent legal duty that the violator steadily fails to fulfill. In the instant case, there was but a single, pointed duty, admitting of only a single dereliction. The broadcast of the arguable personal attack gave rise to a discreet duty under section 73.123(a), to transmit "within a reasonable time and in no event later than one week after the attack" (1) notification of the attack, (2) a script or tape, and (3) an offer of opportunity to respond over the licensee's facilities. When in such a situation the prescribed period passes without the broadcaster having made the required overtures, a dereliction of this duty, and therefore a violation, occurs at that point. Though the *effect* of this failure to act within the prescribed period persists, the violation itself cannot be said to "occur" each day thereafter within the meaning of section 503(b)(1). Conversely, even if the broadcaster acts after the prescribed period to ameliorate the *effects* of his dereliction by transmitting what might earlier have been a satisfactory notification and offer of opportunity to respond, such an overture can have no effect on the fact of the violation.

614 F.2d at 497.

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<sup>1</sup> In this case the statements made by the Station Manager in his certification of VV were true. The violation of having made material false statements arises from the failure of the Station Manager to provide additional information such as the fact that VV cheated on the FSR. The Fourth Circuit has held that the proscription in Section 186 against material false statements extends to omissions as well as to affirmative statements. It is also important to note that NRC regulations do not require that a Licensee inform the NRC on which areas an individual operator must be retested. All material statements in an application should, however, be true.

<sup>2</sup> 47 U.S.C. 503(b)(1).

Similarly, in a prosecution under 18 U.S.C. 1001 (the law which imposes criminal penalties for material false statements made to the federal government), the prosecution charged a conspiracy to make false, fictitious, and fraudulent statements as to material facts in a matter within the jurisdiction of the Department of Labor. *United States v. Davis*, 533 F.2d 921 (5th Cir. 1976). The defendants made false statements in a contract proposal which was submitted on August 13, 1969 and was accepted by DOL on September 8, 1969. An indictment was returned on September 5, 1974. The government charged that overt acts in furtherance of the conspiracy had occurred within the five year period before the date of the indictment. On appeal the court found the prosecution barred by the five-year statute of limitations:

Although the contract itself was signed by representatives of [DOL] on September 8, 1969, any inducement of that action by the appellants occurred when the false statements and the representations were submitted to the Department on or prior to August 13, 1969. Indeed, the United States Attorney conceded that the appellants submitted the contract proposal to the Department prior to September 8, 1969 and that the government was unaware of any specific act by the appellants on September 8, 1969. *The fact that the appellants never corrected the false statements contained in the contract proposal does not make the conspiracy charged in the indictment a continuing one, and thereby extend the statute of limitations. Neither was the limitation period extended because [DOL] relied upon the falsifications within five years prior to the return of the indictment. The conspiracy charged in this indictment had run its course with the submission of the false statements to the Department on August 13, 1969, and the subsequent issuance of the contract by the Department in reliance on the falsifications was not for purposes of the statute of limitations an overt act in furtherance of the conspiracy.*

533 F.2d at 928 (emphasis added; footnotes and citations omitted).

In yet another case interpreting the phrase "continuing violation," the Supreme Court held:

The emphasis should not be placed on mere continuity [of impact from the act of discrimination]; the critical question is whether any present *violation* exists.

*United Airlines, Inc. v. Evans*, 431 U.S. 553, 558 (1977) (emphasis in original).

The key element then of a continuing violation is a continuing or persistent legal duty. The cases stress that emphasis should not be placed on the mere continuity of the effect or impact of the violation but on whether, once a false statement has been made, a new duty arises to correct that statement. In a criminal prosecution, the Fifth Circuit held squarely that "[t]he fact that the appellants never corrected the false

statement . . . does not make the [violation] a continuing one." 533 F.2d at 928.

### SOME OBSERVATIONS

In conclusion, I would like to comment on some of the views expressed by my fellow Commissioners on Friday. Despite a detailed awareness of the significant legal weaknesses in this enforcement action, the view is widely held that Licensee will not challenge this penalty. In other words, the Commission believes that it can get away with imposing a substantial civil penalty without sound legal basis because Licensee will not sue. Additionally, the Commission expressly decided that even if it were sued and even if it lost, a large civil penalty should be proposed so that the world will know how seriously the Commission regards this violation. Finally, the view was expressed that the question of whether the Commission could issue this penalty was a policy matter. This reflects the apparent belief that when legal constraints limit the ability of the Commission to take a particular action, a viable way out of the dilemma is labelling the problem a policy question.<sup>3</sup>

When the Commission imposes large fines for the reasons described above, it is obviously bad public policy. Rarely mentioned, however, is how unfair such action is. Penalties, directly or indirectly, are paid by the consumers. It is extremely unfair to make consumers pay for substantial civil penalties that don't have sound legal and factual foundations. It is similarly unfair to the customers of a particular utility to make them bear the cost of a penalty that the Commission has increased in size so that it will be a lesson to all other NRC licensees. I believe that the Commission's decision in this case is improper and does not serve the public interest.

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<sup>3</sup>The Commission also appears to believe that *Virginia Electric and Power Co. v. NRC*, 571 F.2d 1289 (4th Cir. 1978), provides a legal basis for its ever-expanding interpretations of the phrase "material false statement." The Commission's reliance on the Fourth Circuit decision to me seems misplaced. That decision affirmed the Commission's determinations that *scienter* is not a necessary element of the phrase "material false statement" and that an omission can be a material false statement. The court's brief decision rested explicitly on the fact that the case involved false statements *in a license application* and implicitly on the fact that VEPCO's failure to inform the Commission of a possibly capable fault below the North Anna Units had a clear nexus to the Commission's ability to protect the public health and safety. That decision does not support the theory that willful material false statements are continuing violations. *Ibid.*

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

**Alan S. Rosenthal, Chairman**  
**Dr. John H. Buck**  
**Thomas S. Moore**

**In the Matter of**

**Docket No. 50-409**

**DAIRYLAND POWER COOPERATIVE**  
**(La Crosse Boiling Water Reactor)**

**July 13, 1983**

The Appeal Board in this consolidated proceeding (involving, *inter alia*, the conversion of the long-standing La Crosse provisional license to a full-term operating license) affirms, *sua sponte*, three Licensing Board decisions: LBP-81-7, 13 NRC 257 (1981); LBP-82-58, 16 NRC 512 (1982); and LBP-83-23, 17 NRC 655 (1983).

**DECISION**

This is a consolidated proceeding involving (1) the application of the Dairyland Power Cooperative for a full-term operating license for its La Crosse nuclear facility to replace a long-standing provisional license; and (2) a February 25, 1980 show cause order issued by the Director of the

Office of Nuclear Reactor Regulation and concerned with the liquefaction potential at the La Crosse site.<sup>1</sup> The extended history of the proceeding is adequately summarized in LBP-82-58, 16 NRC 512 (1982), and requires no rehearsal here. Suffice it to say that, in an April 21, 1983 initial decision, the Licensing Board determined the last issue remaining before it. See LBP-83-23, 17 NRC 655. Because no exceptions to that decision have been filed, we are now called upon to review it on our initiative. Also at hand for like review are two earlier Licensing Board substantive opinions that similarly were not appealed — LBP-82-58, *supra*, and LBP-81-7, 13 NRC 257 (1981). We deferred consideration of them to await the final outcome of the proceeding below.

Our examination of the findings and rulings contained in the three opinions, and the record on which they are based, has disclosed no error warranting corrective action. Accordingly, each is *affirmed*.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

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<sup>1</sup> More particularly, the show cause order — on which an evidentiary hearing was held — raised the question whether the licensee should be required to install a site dewatering system to prevent liquefaction (*i.e.*, the flow of soil under the site), were an earthquake to occur in the vicinity. In order to determine the liquefaction potential, and thus the need to take protective measures against it, the Licensing Board had to ascertain, *inter alia*, the ground vibratory motion (*i.e.*, acceleration) that might be associated with the postulated earthquake. See ALAB-618, 12 NRC 551 (1980).



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

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

**In the Matter of**

**Docket Nos. 50-443-OL,  
50-444-OL**

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

**July 19, 1983**

The Appeal Board denies an intervenor's petition for directed certification of a May 11, 1983 Licensing Board ruling granting summary disposition against one of intervenor's contentions in this operating license proceeding.

**RULES OF PRACTICE: INTERLOCUTORY APPEALS**

Interlocutory appellate review of a licensing board's ruling will not be granted absent a showing that the ruling (1) is not only legally erroneous but, additionally, "affect[s] the basic structure of the proceeding in a pervasive or unusual manner," or (2) threatens the petitioner with "immediate and serious irreparable impact which, as a practical matter, could not be alleviated by a later appeal." *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-405, 5 NRC 1190, 1192 (1977).

## **RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES**

An opposition to a directed certification petition should include at least some discussion of the petitioner's claim of Licensing Board error. How comprehensive the discussion of the merits need be will depend upon the totality of the circumstances of the particular case. Where the Licensing Board has summarily disposed of a principal contention of a party on a subject having as much potential safety significance as does quality assurance, the respondents to the petition should treat the merits in reasonable detail.

## **RULES OF PRACTICE: INTERLOCUTORY APPEALS**

The mere fact that legal error may have occurred below does not justify interlocutory appellate review in the teeth of the long-standing articulated Commission policy generally disfavoring such review. See 10 C.F.R. 2.730(f). *Houston Lighting & Power Co.* (Allens Creek Nuclear Generating Station, Unit No. 1), ALAB-635, 13 NRC 309, 310-11 (1981).

## **APPEARANCES**

**Diane Curran**, Washington, D.C. (with whom **William S. Jordan, III**, Washington, D.C., was on the brief), for the intervenor, New England Coalition on Nuclear Pollution.

**R.K. Gad, III**, Boston, Massachusetts (with whom **Thomas G. Dignan, Jr.**, Boston, Massachusetts, was on the brief), for the applicants, Public Service Company of New Hampshire, *et al.*

**Roy P. Lessy** (with whom **William F. Patterson, Jr.**, and **Robert G. Perlis** were on the brief) for the Nuclear Regulatory Commission staff.

## **MEMORANDUM AND ORDER**

The New England Coalition on Nuclear Pollution (Coalition), an intervenor in this operating license proceeding, has petitioned for directed

certification of so much of the Licensing Board's May 11, 1983 memorandum and order as granted summary disposition against it on Coalition Contention II.B.4. For the following reasons, the petition is denied.<sup>1</sup>

1. The quality assurance criteria for nuclear power plants are set forth in Appendix B to 10 C.F.R. Part 50. Pursuant to 10 C.F.R. 50.34(b)(6)(ii), the Final Safety Analysis Report (FSAR) accompanying an application for an operating license must include "a discussion of how the applicable requirements of Appendix B will be satisfied." In Contention II.B.4, the Coalition asserted that the Seabrook FSAR failed to fulfill this mandate insofar as the applicants' operational quality assurance program for replacement parts and repair work is concerned.<sup>2</sup>

In granting the motions of the applicants and the NRC staff for summary disposition of the contention, the Board took note of the acknowledged absence of any genuine issue of material fact and concluded that, as a matter of law, the FSAR complied with the dictates of 10 C.F.R. 50.34(b)(6)(ii). The conclusion rested on the following considerations:

In [FSAR] § 17.2.2.4 Applicants have committed to conform to the recommendations of Regulatory Guide 1.33, February 1978, "Quality Assurance Program Requirement[s] (Operation)"....

Applicants have committed to satisfy § 5.2.13 [of a standard of the American National Standards Institute], "Procurement Materials Control," which requires that purchased materials and components associated with safety-related structures or systems be purchased to specifications equivalent to those specified for the original equipment. . . .

Applicants have committed to a program that requires that spare and replacement parts must be purchased to meet the technical and quality level equal to that of equipment originally purchased, that inspection be made to assure proper installation of replacement parts and materials, that repaired or reworked items must be inspected or tested to assure their acceptability, and that documentation of design changes will be acceptable to personnel. . . .

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<sup>1</sup> Another intervenor in the proceeding filed an appeal from, and in the alternative sought directed certification of, a discrete ruling contained in the same Licensing Board order. We dismissed the appeal and denied directed certification in ALAB-731, 17 NRC 1073 (1983).

<sup>2</sup> The full text of the contention is as follows:

The Quality Assurance Program for operations as described in the FSAR does not demonstrate how the Applicant will assure that replacement materials and replacement parts incorporated into structures, systems, or components important to safety will be equivalent to the original equipment installed in accordance with proper procedures and requirements, and otherwise adequate to protect the public health and safety. Similarly, the Quality Assurance Program does not assure or demonstrate how repaired or reworked structures, systems, or components will be adequately inspected and tested during and after the repair or rework and documented in "as built" drawings.

The NRC Staff indicated that at a later date the Applicants must submit a QA manual which will set forth the actual procedures that are being developed. That manual will be inspected by Region I personnel prior to the Applicants' receipt of an operating license. . . .

At this point in time . . . Applicants have sufficiently outlined in the FSAR how they will meet the quality assurance requirements.

May 11, 1983 memorandum and order (unpublished) at 28-30.

2. Before us, the Coalition argues that interlocutory appellate review is warranted because the ruling below on Contention II.B.4 is not only legally erroneous but, additionally, "affect[s] the basic structure of the proceeding in a pervasive or unusual manner" within the meaning of *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-405, 5 NRC 1190, 1192 (1977).<sup>3</sup> In essence, the Coalition's position is that the acceptance by the Licensing Board of applicants' "commitments" to meet the Appendix B quality assurance criteria cannot be squared with the Section 50.34(b)(6)(ii) directive that the FSAR describe *how* those criteria will be satisfied. We are further told by the Coalition that the Board's ruling has "critical implications . . . for the validity of the overall licensing decision." Petition at 9.

For their part, both the applicants and the staff maintain that, whether correct or erroneous, the Licensing Board's ruling does not warrant our interlocutory review. In its written response to the petition, the staff went on to defend the ruling on the merits.<sup>4</sup> According to the staff, the "commitment" to which the Licensing Board attached the greatest significance was the applicants' adoption in their FSAR of the detailed guidelines established in Regulatory Guide 1.33 (February 1978), which in turn incorporates standards promulgated by the American National

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<sup>3</sup> *Marble Hill* established two alternative criteria for the grant of directed certification. There is no claim here that the other test is also satisfied; *i.e.*, the Coalition does not maintain that the challenged ruling threatens it with "immediate and serious irreparable impact which, as a practical matter, could not be alleviated by a later appeal." 5 NRC at 1192.

<sup>4</sup> In an unpublished June 20, 1983 memorandum and order scheduling the Coalition's petition for oral argument, we noted our disapproval of the applicants' failure to have treated the merits of the controversy in their written response. For the guidance of our Bar as a whole, we reiterate the concluding paragraph of our discussion on the point:

[O]ur general expectation is that an opposition to a directed certification petition will include at least some discussion of the petitioner's claim of Licensing Board error. (Indeed, more broadly, the response to *any* motion (and a petition for directed certification falls in that category) is incomplete if it totally ignores assertions advanced in support of the relief sought by the movant.) How comprehensive the discussion of the merits need be will depend, of course, upon the totality of the circumstances of the particular case. Where, as here, the Board below has summarily disposed of a principal contention of a party on a subject having as much potential safety significance as does quality assurance, the respondents to the petition should treat the merits in reasonable detail.

June 20, 1983 memorandum and order at 4-5.

Standards Institute (ANSI). As the staff sees it, that adoption — coupled with the FSAR description of the overall quality assurance program — sufficed to meet the applicants' Section 50.34(b)(6)(ii) obligation. Any further detail, so the argument proceeds, can await the issuance of the applicants' quality assurance manual in implementation of the program outlined in the FSAR. Once the manual becomes publicly available, the Coalition will be free to submit a new contention if it deems the procedures set forth therein to be inadequate to insure compliance with the Appendix B criteria. See p. 16, *infra*.

3. As seen, the Coalition's petition would have us decide at this interlocutory stage whether the treatment in the FSAR of the applicants' quality assurance program for replacement parts and repair work — which includes a commitment to comply with the relevant provisions of Regulatory Guide 1.33 and the ANSI standards incorporated therein — is a sufficient "discussion of how the requirements of Appendix B will be satisfied" within the meaning of 10 C.F.R. 50.34(b)(6)(ii). Insofar as we are aware, that portion of the regulation has not received prior adjudicatory scrutiny. And it may be that the Coalition is right that the phrase in question should be interpreted as calling for greater illumination of the details of the quality assurance program than has been supplied in this FSAR. But it scarcely follows that the directed certification standard has been met. Contrary to the Coalition's claim, it does not appear to us that the Licensing Board's interpretation and application of Section 50.34(b)(6)(ii) — even if of doubtful validity — perforce will have a pervasive or unusual effect upon the basic structure of this proceeding. And, as we stressed in *Houston Lighting & Power Co.* (Allens Creek Nuclear Generating Station, Unit No. 1), ALAB-635, 13 NRC 309, 310-11 (1981), the fact that legal error may have occurred does not of itself justify interlocutory appellate review in the teeth of the long-standing articulated Commission policy generally disfavoring such review. See 10 C.F.R. 2.730(f).

4. Notwithstanding the foregoing considerations, there was one aspect of the Licensing Board's ruling that became of concern to us early in our appraisal of the Coalition's petition. Although deeming the description of the operational quality assurance program in the FSAR to be sufficient compliance with 10 C.F.R. 50.34(b)(6)(ii), the Licensing Board took pains to point out that, prior to commencement of facility operation, the applicants must supplement that description with a quality assurance manual in which "the actual procedures that are being developed" are set forth. See p. 14, *supra*.<sup>5</sup> The Board did not go on to ad-

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<sup>5</sup> This obligation appears to have its roots in Section II of Appendix B to 10 C.F.R. Part 50.

dress explicitly the question whether, when the manual became publicly available, the Coalition might file a new contention directed to the adequacy of those procedures. But, as previously noted, the staff took a position on that question in its response to the Coalition's petition. In the staff's view, the grant of summary disposition on Contention II.B.4 was "without prejudice . . . to a later assertion by [the Coalition] in the form of a contention that the actual procedures, once they are submitted, are deficient." Response at 11. In this connection, the staff pointed to our decision in *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460, 469 (1982). We there held that "as a matter of law a contention cannot be rejected as untimely if it (1) is wholly dependent upon the content of a particular document; (2) could not therefore be advanced with any degree of specificity (if at all) in advance of the public availability of that document; and (3) is tendered with the requisite degree of promptness once the document comes into existence and is accessible for public examination."

In common with the staff, it seemed to us that the Coalition's opportunity to challenge the adequacy of the applicants' quality assurance procedures should not hinge upon whether the procedures were fully spelled out in the FSAR (as the Coalition has insisted they should have been) or, rather, were reserved for a later-issued manual (as the Licensing Board implicitly concluded is permissible). What the staff response left unclear, however, was whether, as a practical matter, the Coalition would be able to avail itself of our *Catawba* holding.

Although Appendix B requires the formulation of detailed quality assurance procedures (*see* note 5, *supra*), neither it nor any other Commission regulation of which we are aware specifies how far in advance of reactor operation the procedures are to be submitted. For present purposes, all that was before us on that score was the applicants' representation in Section 17.2.2.1 of the FSAR that their quality assurance program would be "implemented at least 90 days prior to fuel loading." By that time, of course, the evidentiary record in this proceeding well could be closed.

In the circumstances, we decided to hear oral argument on the petition and to direct the parties to discuss at argument, *inter alia*, the question of the remedy that would be open to the Coalition were the detailed quality assurance procedures not to become publicly available until after the evidentiary record had closed. June 20, 1983 memorandum and order at 5-6.

5. Between the issuance of our June 20 order and the date of argument (July 13), there were two developments having a bearing on our inquiry. *First*, on June 30, the Commission reversed in part our *Catawba*

decision. CLI-83-19, 17 NRC 1041. The Commission held that, even if it were to satisfy the three-part test we laid down in ALAB-687 (*see* p. 16, *supra*), a belated contention nonetheless is amenable to rejection on the strength of a balancing of all five of the late intervention factors set forth in 10 C.F.R. 2.714(a).<sup>6</sup> *Second*, in a July 5 letter, applicants' counsel advised us that a number of the detailed quality assurance procedures within the scope of Contention II.B.4 are now both formulated and available for inspection and that the balance would be so available no later than October 1, 1983.<sup>7</sup> (Presumably, the totality of the procedures constitutes the manual to which the Licensing Board referred.)

Given these developments, at oral argument we sought the views of counsel for the applicants and the staff respecting whether, *in the event that the Coalition were to prevail on the good cause factor (i.e., to satisfy each element of the three-part Catawba test)*, there might nonetheless be room for the Licensing Board to reject a new quality assurance contention on the basis of the other Section 2.714(a) factors — particularly, the fifth factor.<sup>8</sup> (As scarcely requires elaboration, the outcome of the balancing of the five factors in a specific case will turn upon the particular circumstances of that case.) Both counsel responded in the negative — without, of course, conceding that, in fact, the Coalition will be able to make the requisite good cause showing. App. Tr. 41-42, 44, 52, 55. We agree with that assessment. This being so, we are now persuaded that, far from doing violence to the basic structure of the proceeding or to the Coalition's participational rights, the Licensing Board's interpretation of Section 50.34(b)(6)(ii) is of relatively little true significance.<sup>9</sup>

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<sup>6</sup> Those five 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.

The Commission did agree that our "three-part test constitutes a reasonable and useful test of the good cause factor as applied to late-filed contentions based solely on information contained in institutionally unavailable licensing-related documents." CLI-83-19, 17 NRC at 1047. It held in effect, however, that, in a particular case, a Board might conclude that, although there was good cause for the late submission of the contention, the other four factors operated to outweigh that consideration.

<sup>7</sup> As we understand it, in no event will the evidentiary record in this proceeding close prior to this December.

<sup>8</sup> Patently, the acceptance of the contention would broaden the issues and might bring about some measure of delay in concluding the proceeding (the fifth factor).

<sup>9</sup> One of the prongs of the *Catawba* good cause test is that the contention be "tendered with the requisite degree of promptness once the document comes into existence and is accessible for public examination." *See* p. 16, *supra*. Although portions of the quality assurance procedures may have been available for some time, counsel for the applicants acknowledged that, "through no fault" of its own,

(Continued)

To be sure, the Coalition would have preferred the FSAR to contain greater detail regarding the implementation of the applicants' quality assurance program for replacement parts and repair work. And it is equally true that, had that detail been provided (as the Coalition maintains was mandated by the regulation), the Coalition might not be faced with the possible future burden of justifying the filing of a late contention from the standpoint of the good cause factor as delineated in *Catawba*. But that burden should not be a difficult one to fulfill if whatever contention the Coalition were to advance following receipt of the complete quality assurance manual rests upon the disclosures in that manual, rather than upon information that was available to it from other sources at the time Contention II.B.4 was filed.

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The Coalition's petition for directed certification is *denied*.  
It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

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the Coalition had not been previously aware of the piecemeal release and that, in any event, the procedures are intended to be made available for review and inspection as a single unit. App. Tr. 32-33. See also App. Tr. 70. In this case, therefore, the clock will start to run for the Coalition on the date that the last quality assurance procedure dealing with replacement parts and repair work becomes publicly available.



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

**Alan S. Rosenthal, Chairman**  
**Christine N. Kohl**  
**Dr. Reginald L. Gotchy**

**In the Matter of**

**Docket Nos. STN 50-454-OL**  
**STN 50-455-OL**

**COMMONWEALTH EDISON COMPANY**  
**(Byron Nuclear Power Station,**  
**Units 1 and 2)**

**July 27, 1983**

The Appeal Board dismisses the NRC staff's appeal from, and denies its alternative motion for directed certification of, the Licensing Board's unpublished July 1, 1983 memorandum and order in which the Board, *inter alia*, directed the staff to present evidence that the staff asserts would require it to disclose information about confidential investigations that could result in their compromise.

**RULES OF PRACTICE: INTERLOCUTORY APPEALS**

Almost without exception, an appeal board will undertake discretionary interlocutory review only where the ruling below either (1) threatened the party adversely affected by it with immediate and serious irreparable impact which, as a practical matter, could not be alleviated by a later appeal or (2) affected 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).

## **ADJUDICATORY HEARINGS: RESOLUTION OF FACTUAL ISSUES (REPRESENTATIONS OF COUNSEL)**

Questions of fact are not susceptible of resolution on the basis of nothing more than the generalized representations of counsel who are unequipped to attest on the basis of their own personal knowledge to the accuracy of the representations. *See, e.g., Charles River Park "A" Inc. v. Department of Housing and Urban Development*, 519 F.2d 935, 939 (D.C. Cir. 1975). *See also Cohen v. Massachusetts Bay Transportation Authority*, 647 F.2d 209, 213-14, (1st Cir. 1981); *Stokes v. United States*, 652 F.2d 1 (7th Cir. 1981). *Cf. Fed. R. Civ. P. 56(e); 10 C.F.R. § 2.749(b)*.

## **RULES OF PRACTICE: PROTECTIVE ORDERS**

In the absence of evidence to support a belief of a risk of breach, a licensing board may assume a protective order will be obeyed. *Houston Lighting & Power Co. (Allens Creek Nuclear Generating Station, Unit 1)*, ALAB-535, 9 NRC 377, 400 (1979).

## **FEDERAL COURTS: COLLATERAL ORDER DOCTRINE**

The "collateral order doctrine" in federal practice permits the immediate appeal of orders that "finally determine claims of right separable from, and collateral to, rights asserted in the action, too important to be denied review and too independent of the cause itself to require that appellate consideration be deferred until the whole case is adjudicated." *Cohen v. Beneficial Industrial Loan Corp.*, 337 U.S. 541, 546 (1949).

## **APPEARANCES**

**Steven C. Goldberg and Mitzi A. Young** for the Nuclear Regulatory Commission staff.

**Jane M. Whicher**, Chicago, Illinois, for the intervenors, the Rockford League of Women Voters and DAARE/SAFE.

**Joseph Gallo, Robert G. Fitzgibbons, Jr., and Lisa C. Styles**, Washington, D.C., for the applicant, Commonwealth Edison Company.

Thomas Devine, Billie Pirner Garde, and John Clewett, Washington, D.C., for the *amicus curiae*, Government Accountability Project, Institute for Policy Studies.

## MEMORANDUM AND ORDER

The NRC staff has appealed from, and in the alternative moved for directed certification of, an unpublished July 1, 1983 memorandum and order of the Licensing Board in this operating license proceeding ("July 1 order"). Responses to the motion for directed certification were filed by the applicant, the joint intervenors,<sup>1</sup> and the Government Accountability Project of the Institute for Policy Studies as *amicus curiae*.<sup>2</sup> On full consideration of the papers before us, and for the reasons set forth below, we deny directed certification. In addition, the staff's appeal is dismissed.

1. It is not necessary to canvass in great detail here the background of the controversy. Suffice it to say that the July 1 order was preceded by a June 21, 1983 unpublished memorandum and order ("June 21 order") in which, on the motion of the joint intervenors, the Licensing Board reopened the record on quality assurance issues. That motion was founded upon the sworn statement of John Hughes, a quality assurance inspector formerly assigned to the Hatfield Electric Company (a construction subcontractor for the Byron facility). In that statement, Mr. Hughes asserted a number of specified irregularities in the execution of the quality assurance program pertaining to the work performed by Hatfield.<sup>3</sup>

For its part, the July 1 order served principally to memorialize the substance of conferences that the Licensing Board had held with the parties by telephone in the wake of the June 21 order. The Board first took note of the directive in the June 21 order that the parties be prepared "to present a full evidentiary showing and explanation of the pertinent investigations of Hatfield Electric's quality assurance program and the subsequent reinspections." July 1 order at 1. In this connection, the Board

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<sup>1</sup> The Rockford League of Women Voters and DAARE/SAFE.

<sup>2</sup> The Project's motion for leave to file an *amicus curiae* brief, which accompanied its response, is hereby granted.

<sup>3</sup> In a companion order issued on the same day, the Licensing Board granted the joint intervenors' further request to allow the testimony of Mr. Hughes.

alluded to the previously received direct testimony of NRC officials in Region III (which has territorial inspection jurisdiction over facilities located, as is Byron, in Illinois) that:

Three additional persons have provided allegations related to work performed or being performed by the Hatfield Electric Company and these allegations are now under NRC investigation. These allegations are in the areas of records, QC [quality control] inspector qualification and certification, hardware, design and drawing control, corrective action, housekeeping, and inspector independence. Approximately half of these allegations were previously identified by routine and nonroutine inspections, and will be resolved by routine inspector followup. The remaining allegations are being evaluated jointly and severally by the Office of Investigations and Region III. The results of the inspections or investigations will be documented at some future time.

*Id.* at 1-2. The Board went on to reiterate that, as it had explained in one of the telephone conferences, the ordered evidentiary presentation is to cover "all aspects of the Hatfield QA/QC program referred to in the Region III testimony." *Id.* at 2.

The Licensing Board then addressed the staff's insistence that it would not comply with the directive to present evidence elaborating on the Region III testimony because, " 'as a matter of policy, [it] will not disclose detailed information about allegations which are the subject of ongoing inspections and investigations (including those by the Office of Investigations) because such disclosure has the potential to compromise the inspection and investigation of the matters.' " *Ibid.* On that score, the Board observed, *inter alia*, that the staff "has failed to explain or even discuss why traditional procedures such as *in camera* hearings and protective orders would not serve to protect the effectiveness of the investigations and inspections. Nor does the Staff provide an explanation why it believes, if it does, the Board can proceed to a decision on the factual issue without the evidence covered by the order." *Id.* at 3. Indeed, the staff had not provided "any advice to the Board whatever, other than to advise [it] to accept the premise that [it] cannot inquire into pending investigations." *Ibid.* Accordingly, as the Board saw it, it was "left with no choice but to direct the Staff to present evidence on the cited portion of the Region III testimony." *Ibid.*

Finally, the Licensing Board addressed the question whether the staff should be required "to provide in advance of the hearing relevant information on the confidential investigations." *Id.* at 3-4. Observing that the staff opposed the imposition of such a requirement "on the basis of 10 C.F.R. 2.790[(a)](7) which may exempt from disclosure investigatory records compiled for law enforcement purposes," the Board responded:

Here again the staff would not consider the possibility of protective orders as anticipated by 10 CFR 2.744(e) and, of course, the Board has no way of knowing whether all of the information is covered by exemption (7) of Section 2.790 or whether an exception to exemption (7) is in order. Accordingly, the Staff is directed to produce relevant documents in advance of the reopened proceeding. This order does not prohibit the Staff from declining to produce documents exempt from production on other grounds, e.g., privilege, or from seeking a protective order against improper disclosure by other parties.

*Id.* at 4.<sup>4</sup>

2. The standards for the grant of directed certification are well established:

Almost without exception in recent times, we have undertaken discretionary interlocutory review only where the ruling below either (1) threatened the party adversely affected by it with immediate and serious irreparable impact which, as a practical matter, could not be alleviated by a later appeal or (2) affected 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). The staff does not maintain here that the second of these criteria is satisfied. Rather, its motion rests entirely upon the first criterion. We are told that "the disclosure of detailed information regarding allegations which the NRC has not yet inspected or investigated could seriously compromise the inspection and investigations of the pending allegations and the Commission's ability to pursue future investigations of safety-related matters, thereby injuring the Commission's ability to protect the public health and safety." Motion at 10-11. This same broad assertion is repeated throughout the motion, with respect to both the evidentiary presentation and the prehearing disclosure of documents that has been ordered by the Licensing Board. See, e.g., *id.* at 12, 15, 17.

The difficulty with this line of argument is that it is advanced by staff counsel, entirely unsupported by the affidavit of any NRC official actually responsible for the conduct of either inspections or investigations. Whether a particular NRC investigation or inspection might be compromised by disclosures of the type ordered by the Licensing Board here is a question of fact, not of law. As such, it is not susceptible of resolution in the staff's favor on the basis of nothing more than the generalized representations of counsel who are unequipped to attest on the basis of

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<sup>4</sup> At the conclusion of the order, the Board announced that the reopened hearing would commence on August 9, 1983. It now appears, however, that the required staff evidentiary presentation in controversy here will not, in any event, be received at that time. See Licensing Board Memorandum and Order Denying Stay Application, LBP-83-40, 18 NRC 93, 103 n.7 (1983).

their own personal knowledge to the accuracy of the representations. See, e.g., *Charles River Park "A" Inc. v. Department of Housing and Urban Development*, 519 F.2d 935, 939 (D.C. Cir. 1975). See also *Cohen v. Massachusetts Bay Transportation Authority*, 647 F.2d 209, 213-14 (1st Cir. 1981); *Stokes v. United States*, 652 F.2d 1 (7th Cir. 1981). Cf. Fed. R. Civ. P. 56(e); 10 C.F.R. 2.749(b) (affidavits in support of a motion for summary judgment or disposition "shall set forth such facts as would be admissible in evidence and shall show affirmatively that the affiant is competent to testify to the matters stated therein").

In its motion (at 2 n.2), the staff pointed out that the "inspection" and "investigation" functions that it lumps together in its argument are performed by two separate entities within the Commission: "inspections are done by NRC Regional personnel and investigations by the Office of Investigations (OI)." The footnote goes on to stress that OI is not represented by the Office of the Executive Legal Director (*i.e.*, the office that authored the motion and the assertions therein).<sup>5</sup> Nonetheless, we are told, "reference to investigations is appropriate because the potential compromise of NRC activities is equally important with respect to both inspections conducted by the Staff and investigations undertaken by OI." *Ibid.* (emphasis supplied).

In these circumstances, crucial significance attaches to the failure of the staff to have buttressed its pivotal assertion with the affidavits of officials of *both* Region III and OI possessing firsthand knowledge of the possible impact of the Licensing Board's disclosure order on the carrying out of their respective responsibilities. Surely, if they in fact subscribed to staff counsel's sweeping claim, it is reasonable to suppose that those officials would have been prepared not merely to go on record to that effect but, as well, to provide under oath the requisite underlying detail. Be that as it may, absent any such undertaking, neither the Licensing Board nor we could justifiably accept the claim.<sup>6</sup>

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<sup>5</sup> For organizational purposes, OI is regarded as a "Commission staff" office; *i.e.*, it reports directly to the Commission rather than (as do the Region III personnel concerned with reactor inspections) to the Executive Director for Operations. The Office of the Executive Legal Director is not charged with the responsibility of representing Commission staff offices in adjudicatory matters or providing them with legal advice. Rather, as we understand it, such offices must look to the Office of the General Counsel for any desired representation and advice.

<sup>6</sup> On July 22, 1983 Ben B. Hayes, the OI Director, responded to a letter sent over a month earlier (on June 21) by Judge Ivan W. Smith, the Licensing Board Chairman, to Eugene T. Pawlik, the Director of the OI field office located in Region III. (OI is headquartered in Bethesda, Maryland, but has field personnel stationed in each of the five NRC regions.) In his letter, Judge Smith requested the voluntary cooperation of OI in certain particular respects with regard to the further evidentiary hearing on the reopened quality assurance issues. (OI is not a party to this proceeding.) Although stating his belief that compliance with some of Judge Smith's specific requests of OI might compromise the ongoing investigation, Mr. Hayes did not address explicitly or implicitly the Licensing Board's July 1 order. Moreover, Mr. Hayes' letter neither was before the Licensing Board nor properly can be treated as part of the record before us.

Even were we to overlook these considerations and to adopt uncritically 'counsel's premise that *public* disclosure of the sought information might compromise inspections and investigations, the staff's request for our intercession at this juncture would still be lacking a sufficient foundation. We do not understand the Licensing Board to be insistent that the information supplied by the staff be made publicly available. See p. 22, *supra*. The staff appears to recognize as much but argues that, even if the information were disclosed to the parties *in camera* and under an appropriate protective order, there would remain the risk that, inadvertently or otherwise, the protective order would be violated and the information communicated to individuals who are the target of the investigation or inspection. Motion at 12.

But the same could be said of the disclosure of any information to the parties to an adjudicatory proceeding under the aegis of a protective order. Up to this point at least, licensing and appeal boards have acted on the assumption that protective orders will be obeyed. *Houston Lighting & Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-535, 9 NRC 377, 400 (1979). On that assumption, boards have permitted the disclosure to parties of a wide variety of sensitive information — including the details of plant security plans. See, e.g., *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-592, 11 NRC 744, 746, and ALAB-600, 12 NRC 3 (1980); *Consolidated Edison Co.* (Indian Point Station, Unit No. 2), ALAB-177, 7 AEC 153 (1974). But see *Houston Lighting & Power Co.* (South Texas Project, Units 1 and 2), ALAB-639, 13 NRC 469, 477 (majority), 484-85 (dissent) (1981). To our knowledge, there has never been a breach of an NRC protective order that seriously threatened the confidentiality of the information revealed under that order. If, nevertheless, the staff has some basis for believing that there is an actual, as opposed to purely theoretical, risk of such a breach here, it had the obligation to document that basis.

In sum, the staff has failed to buttress adequately on the record its claim that the ongoing inspections and investigations into the pertinent allegations might be seriously compromised. Thus, it has failed to satisfy the first of the two *Marble Hill* criteria (see p. 23, *supra*), and there is simply no cause for our stepping into the controversy. We therefore deny the staff's motion without prejudice to its seeking Licensing Board reconsideration of the July 1 order.<sup>7</sup> Any motion for such relief,

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<sup>7</sup> For a like reason, we reject the applicant's suggestion that the Licensing Board's order warrants ultimate referral to the Commission to "reconcile conflicting policy considerations." Response at 29.

however, must be grounded upon a concrete showing, through appropriate affidavits rather than counsel's rhetoric, of potential harm to the inspection and investigation functions relevant to this case.

3. In light of the foregoing, there is also no justification for keeping the staff's appeal from the July 1 order on our docket. That appeal is founded on the "collateral order doctrine" set out in *Cohen v. Beneficial Industrial Loan Corp.*, 337 U.S. 541, 546 (1949).<sup>8</sup> As the staff acknowledges (Motion at 3 n.4), we have previously observed that "[w]hether a disclosure order of the kind in question" comes within that doctrine "is an issue about which the federal courts are themselves divided." *South Texas*, *supra*, 13 NRC at 472.<sup>9</sup> We see no need here to endeavor to reconcile the conflicting judicial views respecting the reach of the doctrine. For, even were we to conclude that it lies, the appeal would be unsuccessful for essentially the same reason as the motion for directed certification has been denied, *i.e.*, the failure of the staff to establish that it has a substantial claim of Licensing Board error. This being so, the appeal is dismissed.

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The staff's motion for directed certification and appeal are, respectively, *denied* and *dismissed* without prejudice to the filing of a motion with the Licensing Board for reconsideration of that Board's July 1, 1983 order.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

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<sup>8</sup> As described in *Cohen*, the doctrine permits the immediate appeal of orders that "finally determine claims of right separable from, and collateral to, rights asserted in the action, too important to be denied review and too independent of the cause itself to require that appellate consideration be deferred until the whole case is adjudicated." 337 U.S. at 546.

<sup>9</sup> In this regard, see *In re United States*, 565 F.2d 19, 21 (2d Cir. 1977), *cert. denied sub nom. Bell v. Socialist Workers Party*, 436 U.S. 962 (1978), and *Southern Methodist Univ. Ass'n v. Wynne & Jaffe*, 599 F.2d 707, 711-12 (5th Cir. 1979), cited in n.8 of the *South Texas* opinion.



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

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

**In the Matter of**

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

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

**July 6, 1983**

The Licensing Board rules that although pipe supports expand when heated by environmental conditions that occur in the containment during a loss-of-coolant accident, the stresses that occur within those supports due to thermal stress are not required either by the staff guidance or applicable code provisions to be considered in designing the supports. However, intervenors are not barred from introducing evidence that failure to consider thermal stress would lead to design instabilities that are unacceptable under the Commission's general design criteria. Although thermal stress need not be considered, the expansion of a pipe support under loss-of-coolant accident conditions will place stress on its end points. These stresses on anchors, concrete and pipes must be considered during the design of these systems.

## **LOSS-OF-COOLANT ACCIDENT: PIPE SUPPORTS**

Stress that would be placed on supports and pipes by the expansion of pipe supports under LOCA conditions must be considered in the design of those supports and pipes. However, under applicable staff guidance and industry codes, design consideration need not be given to thermal stress that occurs within the pipe supports because the expansion of the support is constrained. Intervenor may, however, introduce evidence that casts doubt on the stability of individual supports as a result of thermal stress not having been considered in the design of those supports.

## **ASME CODE**

When the American Society of Mechanical Engineer's (ASME) Code is applicable to a nuclear plant pursuant to Commission regulations, the Board must interpret the Code to determine its applicability to the licensing proceeding. The general principle of the Code that only ASME may interpret its Code is not binding on licensing boards.

## **REGULATORY GUIDES**

It is appropriate for a licensing board to interpret a Regulatory Guide that applies an ASME Code section. To the extent that the Guide applies a Code provision in a setting for which it was not originally intended, interpretation of the Guide does not constitute a Board interpretation of a Code provision.

## **TECHNICAL ISSUES CONSIDERED**

- Thermal stress in pipe supports (under LOCA conditions)
- LOCA (thermal stress in pipe supports)
- Free-end displacement
- Expansion stresses
- Self-balancing stress
- Design conditions (meaning under the ASME Code)
- Repetitive loads
- Elastic action
- Shakedown into elastic action.

## MEMORANDUM AND ORDER

### (Thermal Stress in Pipe Supports)

Citizens Association for Sound Energy (CASE) has argued that the pipe supports attached to piping systems that must function during a loss-of-coolant accident (LOCA) must be analyzed to determine whether they would function properly under the elevated temperatures in the containment that would be expected to occur during a LOCA.

There is no argument with CASE's basic proposition. Obviously, plant systems which are designed to mitigate a LOCA must be able to operate in the environmental conditions that would occur in the containment during a LOCA.

There also is no basic disagreement with the way in which a LOCA would affect the pipe supports. LOCA conditions would cause a temperature rise in the containment of somewhere between 180°F and 210°F. The steel pipe supports would expand more and would heat far more rapidly than the concrete containment. Because the supports lie between anchors fixed in the concrete, or between concrete surfaces, or between a concrete surface and a pipe, this thermal expansion would be constrained. This constraint will generate forces on the surfaces to which the supports are affixed and it also will generate stress within the support itself.

There is no argument among the parties about the need to analyze the effect of this thermal expansion on the anchors, surfaces and pipes to which pipe supports are affixed. The Staff of the Nuclear Regulatory Commission (staff) and Texas Utilities Generating Company, *et al.* (applicant) agree that these stresses due to the expansion of the supports must be analyzed.

The difference among the parties is solely with respect to how thermal stresses, lying entirely within the supports themselves, should be treated. CASE argues that these forces must be analyzed in combination with other forces acting on the supports in order to determine whether they would "fail" from these combined loads. Applicant and staff argue, on the other hand, that there is no regulation, regulatory guide or provision of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) that requires applicant to analyze thermal stresses in the design of pipe supports. They argue that these forces, which they consider to be "self-limiting" and of minimal engineering

importance, are easily accommodated within the design margins being used at Comanche Peak.<sup>1</sup>

The purpose of this decision is to review the regulations, guidance and Code provisions and to determine what they require of the applicant. The scope of our inquiry is limited to these regulatory materials. Our conclusions concerning these materials do not preclude CASE from demonstrating — as they have attempted to do through evidence already presented to us — that particular supports fail to meet the Commission's general design criteria. Since CASE has come forward with some evidence on these matters, thus meeting the burden of going forward, the burden of proof rests with the applicant.

## I. BACKGROUND AND DEFINITIONS

Interpretation of applicable regulatory materials to the proper treatment of thermal stress in pipe supports is a tangled web. As different Code provisions have been interpreted and oral argument has progressed, the positions of the parties on these Code provisions has not always remained constant. Indeed, the Board itself had at one point thought it understood these materials but then reconsidered, calling for more oral argument. The principal relevant oral arguments were heard on May 16, 1983 and again on June 13, 1983; these arguments are part of our transcript.

Although we are convinced that we have now arrived at the correct interpretation of the applicable materials, we are concerned that the ASME Code may not be as useful a document as it should be. In particular, it is ASME's practice to promulgate Code provisions and amendments without any statement of purpose or of objectives. This is contrary to the practice of legislatures and regulatory agencies, which recognize that a discussion of the objectives for which words are drafted can be most helpful in efficiently interpreting and using those words. We believe that ASME could improve the usefulness of its Code if future amendments were accompanied by statements of purpose.

In this instance, the interpretive problems posed by the Code revolve around developing a consistent interpretation for the terms "thermal stress," and "free-end displacement." Along the way, we also have had to learn the irrelevance of "expansion stresses," which are defined by

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<sup>1</sup> Applicant also argues, from a worst-case analysis, that its supports can accommodate thermal stresses adequately. Since CASE has presented evidence concerning the adequacy of these analyses for assuring the safety of the upper lateral restraint and the moment restraint, and since the parties have not yet filed findings on this evidence, we refrain from addressing the validity of this evidentiary argument.

Code subsection NB-3213.20 to be limited only to “the piping system,” rather than to pipe supports.

The principal confusion afflicting our consideration has been between “free-end displacement” and “thermal stress.” Code subsection NB-3213.19 defines free-end displacement as:

... the relative motions that would occur between an attachment and connected structure ... if the two members were separated. Examples of such motions are those that would occur because of relative thermal expansion of piping, equipment, and equipment supports, or because of rotations imposed upon the equipment by sources other than the piping.

For this definition to come into play, there must be concern for an attachment and connected structure and for some motion that would occur but for the connection between these two. However, the source of the motion is not specified. Thermal expansion of piping is one listed example. Applicant has suggested that differential building settlement or differential seismic displacements also are examples.<sup>2</sup>

To understand thermal stress, defined in subsection NB-3213.13, we consider it helpful to analyze the first two sentences of the definition separately. The first sentence is:

Thermal stress is a self-balancing stress produced by a nonuniform distribution of temperature or by differing thermal coefficients of expansion.

It appeared to us that the most likely way for the stress we were concerned with to fall within this definition would be if it resulted from “differing thermal coefficients of expansion.” Because we were not sure whether that aspect of the definition covers the phenomenon that we are concerned about, we asked the parties to comment on what would happen if a steel pipe were attached along a diameter of the inside of a steel cylinder (a steel diameter), of the same type of steel, and the two were uniformly heated. The parties agreed that the unit would expand uniformly and that there would be no thermal stress. This clarifies for us that if the cylinder were made of concrete, which has a lower coefficient of expansion than the steel diameter, that a stress generated when the unit is heated would be the result of differential coefficients of expansion.

In addition, if uniformly heated air circulated around our hypothetical concrete cylinder, a portion of the stress would be due to differences of

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<sup>2</sup> Tr. 7551.

heat transfer. The steel diameter would heat faster, causing a non-uniform distribution of temperature in the concrete-steel unit. This also would give rise to thermal stress.

The most enigmatic part of the Code sentence that we are analyzing is the first clause, which calls thermal stress "self-balancing." After lengthy deliberation, we conclude that thermal stresses may be defined as "self-balancing" because the only portion of the stress from thermal expansion that is being called "thermal stress" is the stress occurring within the heated component because it is confined and cannot expand. Hence, thermal stress is the stress resulting within a component *itself* in order to *balance* the stress created because the component cannot expand.

This interpretation of the first sentence of the definition is consistent with the second, somewhat clearer, sentence:

Thermal stress is developed *in a solid body* whenever a volume of material is prevented from assuming the size and shape that it normally should under a change in temperature. (Emphasis added.)

This sentence makes it clear that thermal stress is generated because a solid body is prevented from expanding due to a change in temperature. Furthermore, the stress involved exists *in* the solid body itself.

This explication clarifies for us the relationship between free-end displacement and thermal stress. When a solid body (say a pipe support) is affixed at its ends (possibly to two anchors set in concrete), heating that body will make it want to expand. Because the ends are prevented from moving outward by the anchors, there will be a constraint of free-end displacement, placing stress on the anchors. This also causes an equal and opposite reaction within the solid body itself. This "self-balancing" reaction in the solid body itself is called thermal stress.

## II. CODE PROVISIONS FOR DESIGNING LINEAR TYPE SUPPORTS

Code section NF-3230, "Design of Linear Type Supports by Analysis," is the controlling section for the design of linear supports. The first subsection, which deals with "design, normal, and upset conditions" is controlling.

The reason this first subsection controls is not apparent from the Code itself. LOCA conditions are not design conditions, as is apparent from Code section NA-2141, which states:

The temperatures, pressures, and mechanical loads to which components and supports are subjected, in consequence of plant or system operating conditions are referred to in this Section as component or support Design or Service Loadings.

This section does not apply either to emergency conditions or to faulted conditions, which are dealt with in the other subsections.

The reason that subsection (a) is applicable is by operation of Regulatory Guide 1.124, a staff guidance document to which applicant is committed. The purpose of this regulatory guide is to provide service limits and loading combinations for class 1 linear-type component supports because "failure of members designed to support safety-related components could jeopardize the ability of the supported component to perform its safety function." Regulatory positions 8 and 5(a) of that guide permit stress limits in pipe supports to be increased beyond limits that are otherwise applicable, provided that the increase is made pursuant to the provisions of NF-3231.1(a).

That key subsection states:

The stress limits for Design, Normal, and Upset conditions are identical and are given in Appendix XVII. The allowable stress for the combined mechanical loads and effects which result from constraint of free-end displacements (NF-3213.10), but not thermal or peak stresses, shall be limited to three times the stress limits of XVII-2000.

Now is the time that we reap the fruit of our careful consideration of the meaning of "free-end displacements" and "thermal stresses." With respect to pipe supports, loads on them from constraint of free-end displacements would be loads external to themselves, such as loads caused by the thermal expansion of pipes. However, the internal forces called thermal stresses are expressly excluded from consideration by this subsection.<sup>3</sup>

CASE has argued, however, that this subsection was never intended to cover LOCA-type thermal stresses. We accept that argument because of our interpretation of "design . . . conditions" to which this section applies. Consequently, we also accept CASE's argument that the thermal stresses excluded by this subsection were primarily hot spots on pipe supports caused by the heating of pipes to which they were attached.

This analysis leads us to believe that, despite all parties' contrary beliefs, the question we are dealing with is not really a question of Code

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<sup>3</sup> Applicant and staff have urged that we consider a subsequent version of the Code as reinforcing our conclusions about thermal stresses. See Code, Winter 1982 Edition, Section NF-3121.11 (CASE Exhibit 839, following Tr. 6242). We are urged to consider this revision merely explanatory and clarifying. However, we do not need to decide whether to reply on this revision because we are already convinced of the meaning of the ASME Code.

interpretation at all. What we must determine is the intent of the staff of the Commission in applying this subsection to a purpose for which it was not originally intended.

It is our conclusion that the staff's reference to this subsection, for use in LOCA situations, has the effect of broadening the original intent of the Code. Regulatory position 5(a) of the Regulatory Guide (applied to emergency and faulted conditions by Regulatory position 8) references a Code section which included the language "but not thermal . . . stresses." The meaning of that language, in light of the Code's definition of thermal stresses, was to exclude all thermal stresses (internal to the solid body itself). Although this was broader than the original intent of this Code section, as we have construed it, the staff could have anticipated this problem and could easily have provided (had it thought it necessary) that some kinds of thermal stresses must be considered. By remaining silent on this point, the Regulatory Guide appears to adopt the Code's definition of thermal stresses.

We are convinced that this interpretation is correct, in part because we are convinced that it is consistent with plant safety. The thermal stresses from a LOCA are expected to occur at most once within the life of the plant. Obviously, these stresses are not cyclical. So there is no reason to consider whether they exceed twice yield (or three times the stress limits, which are two-thirds of yield).<sup>4</sup> Only repetitive loads that exceed twice yield will cause a support to break down into elastic action; shakedown into elastic action will not occur as the result of a single application of thermal stress.<sup>5</sup> Even for a thermal stress of about 200°F, a beam would expand only 0.001 inch per inch — a one-time stress that is well within the margin of safety applicable to pipe supports in nuclear plants.<sup>6</sup>

### III. THE BOARD'S ROLE

At various times during the oral arguments concerning interpretation of the Code, the parties have expressed discomfort that the Board considers this a matter of legal interpretation of documents rather than of expert opinion. CASE has even argued that this Board cannot properly interpret the Code, which lies exclusively within the prerogative of ASME, which has procedures for obtaining Code interpretations.

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<sup>4</sup> Testimony of Mr. Michael Vivirito, applicant's expert witness, at Tr. 5893-94.

<sup>5</sup> *Id.* at Tr. 5893-95.

<sup>6</sup> *Id.* at Tr. 5896.



Fortunately, our path through the legal materials led us to the conclusion that the key issue was the interpretation of a Regulatory Guide, in light of the Code. There could be no issue more clearly within the prerogatives of this Board. However, even were this a Code interpretation issue, we would still consider it our prerogative, in part because it is impractical to delay licensing proceedings to await ASME action. Even more important is the responsibility of this Board to form its own independent conclusions about licensing issues. We do not believe that regulations that reference the ASME Code were ever intended to give over the Commission's full rulemaking authority to a private organization on an ongoing basis; nor do we think that a private organization was intended to become the authority concerning criteria necessary to the issuance of a license.

## **ORDER**

For all the foregoing reasons and based on consideration of the entire record in this matter, it is this 6th day of July 1983,

### **ORDERED**

That the legal interpretations contained in the accompanying memorandum are the opinion of the Board and are ordinarily subject to a motion for reconsideration only if it is filed within ten days of service of this decision. The deadline for filing of motions for reconsideration may be exceeded only if a party demonstrates good cause.

**FOR THE ATOMIC SAFETY AND  
LICENSING BOARD**

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

**Walter H. Jordan  
ADMINISTRATIVE JUDGE**

**Kenneth A. McCollom  
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

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

**In the Matter of**

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

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

**July 6, 1983**

The Licensing Board holds that a decision of the Secretary of Labor, concerning discharge of a whistleblower by a major contractor of the applicant, is binding on the applicant by operation of the doctrine of collateral estoppel. Accordingly, facts necessary to the Secretary's decision and relevant to the licensing action are binding on the Licensing Board.

**COLLATERAL ESTOPPEL**

There is sufficient identity of interest between applicant and a major contractor that an administrative decision by the Secretary of Labor against the contractor is binding against the applicant.

## MEMORANDUM AND ORDER (Collateral Estoppel; Atchison Case)

On June 10, 1983, the Secretary of Labor (Secretary) issued a Decision and Final Order in *Atchison v. Brown & Root, Inc.* That decision determined that Charles A. Atchison had been discharged from his duties as a Quality Control Inspector on the Comanche Peak Steam Electric Station project. The Secretary found that Atchison was fired for engaging in a protected activity and that Brown & Root's alleged reasons for firing him were pretextual.<sup>1</sup> The protected activities for which Atchison was fired were the filing of non-conformance reports and the reporting of defects outside the area of his responsibility.<sup>2</sup>

We find that each of the facts we have just cited was necessary to the Secretary's opinion and that they should be binding in this proceeding pursuant to the doctrine of collateral estoppel. The purpose of that doctrine is to prevent unnecessary relitigation of matters that have already been tried, consistent with concern for fairness to the parties involved.

The key criterion for application of collateral estoppel in this instance is the requirement that there be privity of parties in the two litigations. The other criteria are more clearly met.

The uncertainty about privity is that the Secretary reached a decision concerning Brown & Root, Inc., which is a major contractor for the construction of piping at Comanche Peak but which is not the Texas Utilities Generating Company, *et al.* (applicant or TUGCO). So, strictly speaking, the defendant before the Labor Department was not applicant in this case. Nor was Brown & Root, Inc., defending as applicant's agent.

Nevertheless, we accept the suggestion of the State of Texas that applicant and Brown & Root, Inc., are so intricately intertwined as to make preclusion proper in this case. The companies are cooperating on an important aspect of a multi-billion dollar venture. The quality assurance activities of Brown & Root, Inc., are subject to audit by applicant and applicant is responsible for those activities.

We also are impressed by Texas's argument that Mr. Brandt, a TUGCO employee, was directly involved in the process of firing Mr. Atchison, showing the extent to which the activities of these two companies are interwoven. Furthermore, there is every reason to believe that Brown & Root was fully and competently represented in the Labor Department proceeding, giving applicant no incentive to participate

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<sup>1</sup> *Atchison*, slip op. at 15; see also 11-12, 16-17.

<sup>2</sup> *Id.* at 11-12, 15.

directly. On the other hand, if Brown & Root were incompetently represented, we believe that applicant's concern about its own reputation (because of its contractor's activities) would have led it to exert its influence to see that the case would be more properly handled.

Although we do not consider any of the precedents provided to us on the privity question to be directly applicable, we have found for ourselves the case of *Telephone Workers Union of New Jersey, Local 827 v. New Jersey Bell Telephone Co.*, 584 F.2d 31 (1978), and we consider this case to be suggestive. In *Telephone Workers*, a worker won an arbitration award against the company, which refused to honor the award. Its reason for refusing to comply was a consent agreement previously entered into by the union in a case that did not involve this worker. Nevertheless, the worker (who did not participate directly in the consent decree) was bound by the action of his union in the previous case.

Just as the worker was affected by the action of his union, so too do we think that the applicant should be affected by the action of a major contractor.<sup>3</sup>

In this case, the interest in applying collateral estoppel is heightened by the quality of the labor department decision. The Secretary's opinion is carefully reasoned, explaining the interrelationships of facts in a complex factual record. It would be wasteful for us to begin over again.

As the Staff of the Commission (staff) has told us, the doctrine of collateral estoppel has been applied to administrative proceedings, such as the labor department proceeding. *Alabama Power Co.* (Joseph M. Farley Nuclear Plant, Units 1 and 2), ALAB-182, 7 AEC 210, 212 (1974). Collateral estoppel applies if: (1) the issue for which preclusion is sought is the same as was involved in the prior action; (2) the issue was actually litigated; (3) the issue was determined by a valid final judgment; and (4) the determination of the issue was essential to the prior judgment. *Florida Power & Light Co.* (St. Lucie Plant, Unit 2), LBP-81-58, 14 NRC 1167 (1981) discusses and provides authority for these criteria, and also discusses requirements concerning the burden of proof in the different proceedings.

Since we are accepting only those findings of the Secretary that were both necessary to his decision and relevant to this case, criteria 1, 2 and 4 are met. The Secretary's decision is conceded by all to be a final judgment.

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<sup>3</sup> See dictum in *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 1 and 2), ALAB-673, 15 NRC 688, 695-96 (1982): "The standard for determining whether persons or organizations are so closely related in interest as to adequately represent one another . . . [is whether] legal accountability between the two groups or virtual representation of one group by the other [is shown]."

We agree with the applicant that the Secretary's decision does not establish the existence of a safety problem at Comanche. However, it does establish that there was an instance in which Brown & Root took action against an employee for reporting a quality assurance deficiency. Although applicant asserts that this is an isolated instance, we do not consider our record to be sufficiently complete for us to derive that conclusion. In addition, we are influenced by the fact that the previous Board chairman called for the public interrogation of witnesses concerning quality assurance issues. As a result, a public hearing also is necessary in order to fulfill public expectations and enhance public confidence in the hearing process.

## ORDER

For all the foregoing reasons and based on consideration of the entire record in this matter, it is this 6th day of July 1983,

### ORDERED

That the findings made by the Secretary of the Department of Labor in *Atchison v. Brown & Root, Inc.*, 82-ERA-9 (June 10, 1983) and discussed in the accompanying memorandum are binding in this proceeding by application of the doctrine of collateral estoppel.

This Board order ordinarily is subject to a motion for reconsideration only if it is filed within ten days of service of this decision. The deadline for filing of motions for reconsideration may be exceeded only if a party demonstrates good cause.

FOR THE ATOMIC SAFETY AND  
LICENSING BOARD

Peter B. Bloch, Chairman  
ADMINISTRATIVE JUDGE

Walter H. Jordan  
ADMINISTRATIVE JUDGE

Kenneth A. McCollom  
ADMINISTRATIVE JUDGE

Bethesda, Maryland

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

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

**In the Matter of**

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

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

**July 6, 1983**

The Licensing Board responds to a Commission request by stating that it will no longer pursue evidence concerning the identity of individuals who cooperated with a staff investigation but that its record is incomplete concerning whether or not applicant has discouraged the filing of non-conformance or deficiency reports. The Board designates a participating party, the State of Texas, to play an important role in pursuing that issue. It also asks the Commission's Staff to play a role in investigating the problem.

**RULES OF PRACTICE: INTERESTED STATE**

Under circumstances where public doubt has been cast on the efficacy of an investigation conducted by the Staff of the Commission, it is appropriate to appoint an interested State as lead intervenor for the purpose

of conducting discovery related to a portion of an admitted contention to which the questioned staff investigation was addressed. The interested state may also pursue questions concerning weave welding and downhill welding, questions within the knowledge of witnesses to which it will be speaking.

## **MEMORANDUM**

**(Response to Commission Order of June 30, 1983)**

On June 30, 1983, the Nuclear Regulatory Commission issued CLI-83-18, 17 NRC 1037, which contained some questions for this Board to answer within ten days. This Memorandum is our response.

### **I. IDENTITY OF INTERVIEWEES**

This Board will not pursue any questions concerning the identity of people interviewed for the preparation of Staff Exhibit 199 or the nature of the participation of individuals in that Exhibit.

### **II. TENTATIVE SCHEDULE ON ATCHISON-RELATED MATTERS**

By separate order of today's date, this Board has determined that a recent decision of the Secretary of Labor concerning the dismissal of Charles A. Atchison is entitled to collateral estoppel effect in this proceeding. This establishes that one individual was discharged by applicant for reporting quality control deficiencies.

We believe that pursuit of the implications of the Secretary of Labor's decision requires us to inquire further into whether or not there is a practice of discouraging quality assurance reports at the Comanche Peak Steam Electric Station. This further inquiry will occur during an evidentiary hearing scheduled for August 1-5, 1983, in Fort Worth, Texas.

To date, the only indication other than the *Atchison* decision that there may be a practice of discouraging such reports is that Texas Utilities Generating Company, *et al.*'s (applicant's) employee, Mr. Tom Brandt, issued a memorandum (Case Exhibit 853) requiring that certain non-conforming conditions be reported on inspection reports rather than on non-conformance reports. *See* Tr. 8137-81. It is applicant's position that this practice had only one deficiency, which has been cured:

that inspection reports were not trended, Tr. 8534-39. There also may have been a physical separation or tagging problem, but that is no longer considered important. Tr. 8555.

We note that the parties have not yet filed their suggested findings on these subjects and that our discussion of the record is therefore tentative — for the purpose of assessing the current state of the record. However, the combined impact of the *Atchison* determination and the Brandt memorandum is that our record is not complete concerning whether there has been a practice of discouraging non-conformance reports. (See also the testimony of Mr. Vega, who is responsible for applicant's audit program, that he has not audited quality control personnel records to determine whether quality control inspectors are disciplined or dismissed for lack of conscientiousness in reporting quality assurance deficiencies. Tr. 6370-73.)

To this point, the Commission's staff (staff) has never focused an investigation on this precise point. The *Atchison* investigation focused on the firing of that one individual. The Construction Assessment Team focused on the paper records of non-conformances and never conducted any evidentiary investigation of this point.

There are several ways to make our record more complete. One would be to ask the staff to present more evidence. In one respect, we consider this to be an appropriate way to proceed and have asked the staff to pursue this matter during yesterday's on-the-record telephone conference among the parties. We have suggested to the staff that it conduct a limited number (about five) of confidential interviews with non-supervisor quality assurance inspectors or craft personnel in order to determine whether there has been a practice of discouraging non-conformance reports. Staff counsel has expressed a willingness to initiate such an inquiry; and staff will inform the Board by July 8 concerning whether this investigation will go forward.

With respect to witnesses previously interviewed by the staff, we think that the inconclusive nature of the previous staff investigation requires us to ask that some other mechanism be used to complete our record. The adequacy and reliability of this particular investigation were questioned by this Board. See *Notice of Resumed Evidentiary Hearing*, March 4, 1983 at 4-6 (unpublished). Subsequently, this Board has not pursued this publicly raised question of staff performance. Although it does not now seem to the Board necessary to inquire further into the performance of the investigative team, we do not think it appropriate to rely entirely on staff to present further evidence to us from witnesses it interviewed in this particular investigation. Staff may, of course, present whatever evidence it desires on this contention.



One way around this dilemma would be for the Board to question the witnesses itself. However, we prefer not to adopt so adversary a role if it is avoidable. Therefore, we have decided to rely on a participant for this purpose. There is a party and an interested state. The party, Citizens Association for Sound Energy, is not represented by a lawyer. On the other hand, the State of Texas is so represented. Consequently, we ask the State of Texas to conduct discovery and be the lead participant for this portion of the contention. It has agreed to fulfill this role. It will interview each of the witnesses listed on pp. 1-2 of our March 4, 1983 order plus Dale Ballard, who was mentioned on p. 2 of the Atchison Statement (unpublished) of April 14, 1982, attached to the Order to Show Cause issued by this Board on August 4, 1982 (LBP-82-59, 16 NRC 533). The purpose of the State's discovery and trial-preparation activities will be to gather evidence relevant to the Quality Assurance Contention admitted to this proceeding. More specifically, it will interview witnesses in order to present evidence concerning the possible existence of a practice of discouraging the report of non-conforming conditions or deficiencies at Comanche Peak.

Compulsory process available in support of discovery will be available to Texas, if needed. Additionally, Texas may pursue leads or questions that arise during its discovery process and is not limited to the individuals we have named in order to obtain information.

At applicant's suggestion, we have provided that Texas may, after pursuing its preliminary interviews (which one representative from each of the parties may attend), decide that there is no evidence for it to present. If so, it may file a statement seven days in advance of the scheduled evidentiary hearing, stating that it has no evidence to present and attaching affidavits of the witnesses in support of its position.

Although the applicant has objected to these procedures, staff, CASE and the State of Texas have not objected.

### III. ADDITIONAL MATTERS

As part of our review of questions raised in this proceeding prior to the appointment of the new Board chairman, we have ascertained, as a preliminary conclusion, that there are two open matters having to do with welding. These matters include weave welding, which is not prohibited unless transverse oscillation exceeds code standards, and downhill welding, which also is acceptable in some applications. With respect to weave welding, there is an allegation that it had occurred. Applicant's explanation appears to be incomplete because it rests on: (1) a statement that some transverse oscillation is permitted, and (2) a statement

that some weave welding has been reported on non-conformance reports. There apparently was no attempt to investigate further to ascertain whether there may be a real problem that has not come to management's attention. (See Tr. 8635-39.) Similarly, applicant's response on downhill welding is that it is permitted in root-and-cover pass welds. Apparently, applicant assumes that those are the only welds that the person making the allegation could have any knowledge of. But the record does not show the scope of the allegor's knowledge, nor does it show any follow-up investigation to ascertain whether there were improper downhill welds that were made. (See Tr. 8640-44.)

We insist that allegations about defects in a nuclear plant be answered in a rigorous fashion. Consequently, we consider the record incomplete on these matters. Since the State of Texas will be interviewing some witnesses with possible knowledge of these matters, we have asked it to explore these two open matters as well.

**FOR THE ATOMIC SAFETY AND  
LICENSING BOARD**

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

**Bethesda, Maryland**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Robert M. Lazo, Chairman  
Dr. Richard F. Cole  
Dr. A. Dixon Callihan**

**In the Matter of**

**Docket Nos. STN 50-529-OL  
STN 50-530-OL  
(ASLBP No. 80-447-01-OL)**

**ARIZONA PUBLIC SERVICE  
COMPANY, *et al.***

**(Palo Verde Nuclear Generating Station,  
Units 2 and 3)**

**July 11, 1983**

The Licensing Board denies motions by West Valley Agricultural Protection Council, Inc. which ask the Board to rule that the NRC Staff's Final Environmental Statement (FES) does not meet the requirements of the National Environmental Policy Act (NEPA) and that the re-opened proceeding on Palo Verde Units 2 and 3 be continued until a supplemental environmental statement is published.

**NEPA: FINAL ENVIRONMENTAL STATEMENT**

Defects in an FES can be cured subsequent to its issuance by the receipt of additional evidence.

**RULES OF PRACTICE: AMENDMENT OF FES**

A licensing board decision based on the evidentiary record before it shall be deemed to modify the FES.

## **NEPA: JURISDICTION**

West Valley's request that a supplement to the FES-OL be prepared is beyond the Board's jurisdiction. *New England Power Co.* (NEP, Units 1 and 2), LBP-78-9, 7 NRC 271, 279 (1978).

## **RULES OF PRACTICE: AMENDMENT OF THE FES**

At the least, it must be determined that there is significant new information before the need for a supplemental environmental statement can arise. *Warm Spring Task Force v. Gribble*, 621 F.2d 1017, 1023-36 (9th Cir. 1981). A resolution of the significance of the allegedly missing information and its need to be circulated in a supplemental environmental statement must await the outcome of a hearing.

## **MEMORANDUM AND ORDER**

### **I. WEST VALLEY'S NEPA ARGUMENT**

On May 6, 1983, West Valley Agricultural Protection Council, Inc. (West Valley) filed a "Supplemental Motion for Declaration That NEPA Analysis Is Inadequate and for Continuance of Proceeding." In its supplemental motion West Valley renews its arguments respecting the issues raised in its motion filed February 2, 1983, as to which the Board heretofore has not made a decision, namely, whether the NRC Staff's Final Environmental Statement (FES) meets the requirements of the National Environmental Policy Act (NEPA); and, if not, whether a supplemental environmental statement must be issued before the reopened hearings on Palo Verde Units 2 and 3 may proceed.

The basis asserted for filing the supplemental motion, is the alleged inability of Joint Applicants to supply sufficiently detailed information in their interrogatory responses concerning the salt deposition issue and the failure of the NRC Staff to come forward with additional data since West Valley's intervention.

The earlier February 2, 1983 motion was responded to by Joint Applicants and Staff by answers filed February 14 and 17, 1983, respectively. Further, West Valley's request was the subject of considerable debate between the parties at the prehearing conference held on February 24,

1983 in Phoenix, Arizona.<sup>1</sup> Both Staff and Joint Applicants urge the Board to deny the motion.

By letter dated May 23, 1983, counsel for Joint Applicants argue that West Valley's supplemental motion is impermissible under the established rules of practice, 10 C.F.R. § 2.730(c), which govern proceedings before the Board but, in the event the Board decides to consider the motion, request the opportunity to respond to such motion. No such response by Joint Applicants is deemed necessary. In its answer filed May 26, 1983, the Staff has submitted a lengthy response supporting its position that West Valley's request for a new environmental impact statement and a continuance of this proceeding should be denied. We agree.

In its first motion West Valley requested that the Board rule formally that the environmental statements submitted by the NRC fail to comply with NEPA and order that additional data be developed to be used in the preparation of a supplemental environmental statement. West Valley further asked that any discovery or hearings in connection with its contentions be continued pending "preparation by the NRC of an adequate environmental analysis." However, following oral argument during the February 24, 1983 prehearing conference, all parties agreed that discovery would proceed immediately.<sup>2</sup>

1. The Commission's licensing boards have had frequent occasion to address supplementation and recirculation of a final environmental statement ("FES") in instances where it is alleged that there are inadequacies in the FES or that changes to the FES are required. The Commission has adopted the procedure that defects in an FES can be cured by the receipt of additional evidence subsequent to issuance of the FES. *See Ecology Action v. AEC*, 492 F.2d 998, 1000-02 (2nd Cir. 1974); *Florida Power & Light Co.* (Turkey Point Nuclear Generating Station, Units 3 and 4), ALAB-660, 14 NRC 987, 1013-14 (1981); *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-262, 1 NRC 163, 195-97 (1975). The Commission's regulations explicitly provide that a licensing board decision based on the evidentiary record before it shall be deemed to modify the FES:

In . . . a proceeding [in which a hearing is held for the issuance of a permit, license or order], an initial decision of the presiding officer may include findings and conclusions which affirm or modify the content of the final environmental impact statement prepared by the staff. To the extent that findings and conclusions different from those in the final environmental statement prepared by the staff are reached, the statement will be deemed modified to that extent and the initial decision will be

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<sup>1</sup> See Tr. 2734-57, 2761-90, 2793-98, and 2800-52.

<sup>2</sup> See Tr. 2891.

distributed as provided in § 51.26(c). If the Commission or the Atomic Safety and Licensing Appeal Board in a final decision reaches conclusions different from the presiding officer with respect to such matters, the final environmental impact statement will be deemed modified to that extent and the decision will be similarly distributed.

10 C.F.R. § 51.52(b)(3). Three courts of appeal have approved of this rule. *New England Coalition v. NRC*, 582 F.2d 87, 93-94 (1st Cir. 1978); *Citizens for Safe Power v. NRC*, 524 F.2d 1291, 1294 & n.5 (D.C. Cir. 1975); *Ecology Action v. AEC*, *supra*.

The Appeal Board has noted that there may be instances in which a deficiency in an FES may be so significant as to call for *recirculation* of the FES. In *Turkey Point*, *supra*, the Appeal Board considered an order of the Licensing Board authorizing the issuance of license amendments to effect steam generator repairs at Turkey Point. The Licensing Board had found that the impact of a hurricane or tornado on low level waste to be stored at the plant during the repairs would not endanger the health and safety of the public. The intervenor in that case argued that NEPA had been violated because the Turkey Point FES did not treat the impact of severe storms on low level waste. The Appeal Board rejected that argument and also found no reason to require recirculation of the FES.

[T]he Grotenhuis and Gould affidavits submitted by the staff and licensee showed the consequences of a hurricane to be small. In sum, the FES did not disregard important alternatives or broad areas of environmental impact, nor fail to apprise the public of the nature of the project or its expected consequences. In these circumstances we hold that the omission of discussion from the FES of the impact of severe storms on low level waste was a minor failing which did not call for recirculation of the FES. It was cured by the evidentiary submissions to the Licensing Board and by the Board's decision.

*Id.* at 1014. West Valley's request that a supplement to the FES-OL be prepared is presently beyond the Board's jurisdiction based on the regulatory scheme established by the Commission and discussed in *New England Power Co.* (NEP, Units 1 and 2), LBP-78-9, 7 NRC 271 (1978):

The Commission has established a carefully articulated regulatory scheme for the processing and adjudication of applications for the licensing of nuclear power plants. The Staff is responsible for an extensive and continuing review of massive amounts of data and plans related to the construction and operation of nuclear plants . . . . The Staff, among other documents, produces the Safety Evaluation Report (SER) and the Draft and Final Environmental Statements (DES and FES). *The studies and analyses which result in these reports are made independently by the Staff, and licensing boards have no rule or authority in their preparation.* The reports themselves are subject to review and amendment by the Board in an adjudicatory setting, in

which all parties with a demonstrated interest may participate in evidentiary hearings. Initial decisions on these matters are subject to appeal or *sua sponte* review by the Appeal Board, and by the Commission itself if it so elects. Accordingly, it is apparent that *the Board does not have any supervisory authority over that part of the application review process that has been entrusted to the Staff.*

*Id.* at 279 (emphasis added, footnotes omitted). See *Offshore Power Systems (Floating Nuclear Power Plants)*, ALAB-489, 8 NRC 194, 206-07 (1978). Based on the *NEP* case, at this early stage of consideration of the salt deposition issue, this Board does not have the authority to order the Staff to prepare a new or supplemental environmental statement. After a hearing, the Board might deny a license or require further development of a record to support an application. However, at this time, there is no basis in the record for determining that the environmental reports prepared by the Staff are inadequate or that the conclusions therein are incorrect.

2. In its supplemental motion West Valley claims that Joint Applicants' interrogatory responses establish that there is a significant lack of information regarding the salt deposition issue. From this it again argues that a new environmental statement needs to be circulated and this proceeding should be stayed until that is done.<sup>3</sup> The short answer to these criticisms in West Valley's supplemental motion is that, as the record now stands, it has not been established that material information is lacking in the previously prepared environmental statement or that such a lack would cause a need for preparation and circulation of a supplemental environmental statement. It must, at least, be determined that there is significant new information before the need for a supplemental environmental statement can arise. *Warm Spring Task Force v. Gribble*, 621 F.2d 1017, 1023-36 (9th Cir. 1981). Secondly, even if there should be new information, a supplemental statement need not necessarily be prepared

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<sup>3</sup> West Valley alleges that this lack of information is purportedly revealed by Joint Applicants' interrogatory responses that:

- (1) Joint Applicants have no present plans to monitor salinity of spray ponds and evaporation ponds nor to monitor drift mass and drift droplet size distribution (Inter. No. 29 A);
- (2) Joint Applicants have not in the past nor at present considered water desalinization as a salt drift mitigation study (Inter. No. 33 & 35);
- (3) Joint Applicants have not in the past nor at present considered blowdown treatment or water recirculation as a salt drift mitigation strategy (Inter. No. 37 & 39);
- (4) Joint Applicants have not as yet developed a maintenance program for the PVNGS cooling tower drift eliminators (Inter. No. 51);
- (5) Joint Applicants do not have in their possession documents concerning why the "FOG" model was chosen to describe salt deposition patterns from PVNGS (Inter. No. 22) and
- (6) Joint Applicants have failed to identify any individuals with the exception of the cooling tower vendor connected with the PVNGS project with knowledge of alternative cooling tower drift elimination systems (Inter. No. 52).
- (7) Joint Applicants have failed to conduct an area crop salt tolerance study before completion of its Environmental Statement (Inter. No. 52).

and circulated. *California v. Watt*, 683 F.2d 1253, 1268 (9th Cir. 1982); see 40 C.F.R. § 1502.9(c). The purportedly missing information (set out in note 3, *supra*) may not need to be included in an environmental statement and at this time cannot be said to be the basis for compelling the preparation and circulation of a supplemental environmental statement. A resolution of the significance of the allegedly missing information and its need to be circulated in a supplemental environmental statement must await the outcome of a hearing.

## II. INTERVENOR PATRICIA LEE HOURIHAN'S MOTION FOR LEAVE TO FILE RESPONSE TO WEST VALLEY'S MOTION

Responses to West Valley's February 2, 1983 motion from all parties excepting the NRC Staff were due on February 14, 1983. On February 23, 1983, Patricia Lee Hourihan submitted a response accompanied by a motion for leave to file the admittedly late response. The only excuse furnished by Ms. Hourihan for her tardiness in responding to West Valley's motion is that her attorney is located in Washington, D.C., and Dr. Robert H. Turner, whose supporting affidavit was believed to be necessary, is located in California.

The Board has determined to dismiss Ms. Hourihan's response on the grounds that it is a late, unauthorized filing and there has been no showing of good cause to justify its acceptance. Accordingly, Ms. Hourihan's motion of February 23, 1983 for leave to file a late response, is denied.

On March 20, 1983, Ms. Hourihan filed a response to Joint Applicants' and Staff's Answers to the pleading filed by her on February 23, 1983. Thereafter, on April 16, 1983, a "Supplemental Response" was filed by Ms. Hourihan. Both of these filings have been disregarded because under the Commission's Rules of Practice, a reply to another party's answer is forbidden except when leave is granted under special circumstances. 10 C.F.R. § 2.730(c).

## III. ORDER

For the foregoing reasons and in consideration of the entire record in this matter, it is this 11th day of July 1983,

ORDERED

West Valley's February 2, 1983 Motion for Ruling on Contentions, for Declaration That NEPA Analysis Is Inadequate and for Continuance of Proceedings is *denied*;



West Valley's May 6, 1983 Supplemental Motion for Declaration That NEPA Analysis Is Inadequate and for Continuance of Proceedings is *denied*;

Patricia Lee Hourihan's Motion of February 23, 1983 for Leave to File Response to West Valley's Motion is *denied*.

**FOR THE ATOMIC SAFETY AND  
LICENSING BOARD**

**Robert M. Lazo, Chairman  
ADMINISTRATIVE JUDGE**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Charles Bechhoefer, Chairman  
Dr. James C. Lamb  
Mr. Ernest E. Hill**

**In the Matter of**

**Docket Nos. STN 50-498-OL  
STN 50-499-OL  
(ASLBP No. 79-421-07-OL)**

**HOUSTON LIGHTING AND  
POWER COMPANY, *et al.*  
(South Texas Project,  
Units 1 and 2)**

**July 14, 1983**

The Licensing Board denies a motion by an intervenor to add a new financial qualifications contention to the proceeding. The Board also declines to recommend to the Commission, pursuant to 10 C.F.R. § 2.758, that the regulation prohibiting consideration of the financial qualifications of regulated utilities be waived for this proceeding.

**OPERATING LICENSES: CRITERIA (FINANCIAL  
QUALIFICATIONS)**

Financial qualifications to "construct" a facility is not — and was not prior to the 1982 amendment to the rule governing consideration of an applicant's qualifications — a subject open to consideration at the operating license stage of review.

## **RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS**

Given a proceeding that was initially noticed in 1978 and for which the Special Prehearing Conference was held early in 1979, any contentions filed in 1983 would *perforce* be untimely and could be admitted only upon a balancing of the factors listed in 10 C.F.R. § 2.714(a)(1).

## **RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS**

Ability to contribute to the record is relevant to the admissibility of late-filed contentions (as distinguished from timely contentions, where the factors in 10 C.F.R. § 2.714(a) are not applicable).

## **RULES OF PRACTICE: CHALLENGE TO COMMISSION REGULATIONS**

The sole ground for obtaining an exception or waiver to a Commission regulation is that special circumstances with respect to the subject matter of the particular proceeding are such that application of the rule or regulation (or provision thereof) would not serve the purposes for which the rule or regulation was adopted. 10 C.F.R. § 2.758(b). Unusual and compelling circumstances must be shown.

## **TECHNICAL ISSUE DISCUSSED**

Financial Qualifications.

### **MEMORANDUM AND ORDER (Denying Motion for New Contention)**

On March 18, 1983, Citizens Concerned About Nuclear Power (CCANP), an intervenor in this operating license proceeding, filed a motion for admission of a new contention, dealing with the Applicants' financial qualifications to "complete and operate" the South Texas Nuclear Project (STNP). (On March 29, 1983, CCANP submitted certain corrections to its motion.) The Applicants and NRC Staff each oppose admission of the contention. As authorized by us in our Memorandum and Order dated May 11, 1983 (unpublished), CCANP filed a reply to the substantive arguments of the Applicants and Staff on its

contention. For reasons hereinafter set forth, we decline to admit the contention or to certify CCANP's request to the Commission (pursuant to 10 C.F.R. § 2.758(d)).

1. CCANP seeks to add its new contention to the issues to be considered in Phase II of the proceeding.<sup>1</sup> In its current form, the contention challenges the Applicants' financial qualifications to "complete and operate" the STNP on two grounds:

1. A December, 1982 Final Order of the Public Utility Commission of Texas (PUC) which allegedly concludes that Houston Lighting & Power Co. (HL&P) has mismanaged the STNP and indicates that HL&P may not be allowed to recover all of its investment in STNP; and
2. A suit filed against HL&P in January, 1983 by the City of Austin, one of the participants in the STNP, seeking a refund of all investment by Austin to date and assumption by HL&P of Austin's STNP obligations.

Earlier, we had denied CCANP's motion to reopen the Phase I record to include a contention raising similar factual questions. Memorandum and Order dated January 10, 1983 (unpublished).<sup>2</sup>

The Applicants and Staff each oppose the present contention as untimely, and as encompassing an issue which is not litigable in an NRC licensing proceeding. They also claim that CCANP has not satisfied the substantive or procedural requirements of 10 C.F.R. § 2.758 for obtaining a waiver of the general rule barring litigation of financial qualifications issues in proceedings involving regulated public utilities.

We note at the outset that our entire discussion will focus on the contention only insofar as it raises questions concerning the Applicants' financial qualifications to "operate" the STNP. As the Applicants observe, financial qualifications to "construct" a facility is not — and was not prior to the 1982 amendment to the rule governing consideration of an applicant's financial qualifications — a subject open to consideration at the operating license stage. 10 C.F.R. § 50.33(f) (1982); see *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 & 2), LBP-81-24, 14 NRC 175, 192-95 (1981). The qualifications of these Applicants to construct the STNP were considered during the construction permit review and found to be sufficient. *Houston Lighting & Power Co.* (South Texas Project, Units 1 and 2), LBP-75-71, 2 NRC 894,

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<sup>1</sup> This proceeding has been divided into three separate phases. See Fourth Prehearing Conference Order, dated December 16, 1981 (unpublished).

<sup>2</sup> That contention sought to raise the mismanagement allegations as a "character and competence," rather than a financial qualifications, question.

914-16 (1975), *aff'd*, ALAB-306, 3 NRC 14 (1976). Nor was the Applicants' financial qualifications to complete construction of the STNP one of the construction-related matters which the Commission authorized us to litigate in CLI-80-32, 12 NRC 281 (1980). The proper avenue to reopen that matter and to factor in significant new developments (were they to exist) would be through a petition filed under 10 C.F.R. § 2.206.<sup>3</sup>

2. Turning first to the timeliness question, the Applicants and Staff correctly claim that the contention was not timely filed. Indeed, given a proceeding that was initially noticed in 1978 and for which the Special Prehearing Conference was held early in 1979, *any* currently filed contentions would *perforce* be untimely. *Consumers Power Co.* (Midland Plant, Units 1 and 2), LBP-82-63, 16 NRC 571, 577 (1982). But we disagree with the Applicants and Staff as to whether, after balancing the factors in 10 C.F.R. § 2.714(a), the untimeliness should bar the admission of this contention. Since we believe that the contention should not be admitted for other reasons, we will treat the timeliness question only briefly.

We regard the PUC final decision (dated December 6, 1982) and the filing of Austin's suit (on January 6, 1983) to be critical elements in CCANP's proposed contention. CCANP's prior knowledge of the PUC hearing examiner's report (as amended on November 16, 1982) would not have been sufficient to support a financial qualifications contention, since it did not constitute final PUC action. Nor would knowledge of tentative plans by Austin to file suit against HL&P — as CCANP points out (reply dated June 2, 1983, at p. 9), "hiring a lawyer does not guarantee a suit will be filed." Furthermore, the general economic conditions to which reference is made in the contention — which clearly were developing over an extended period of time — appear to be background for, rather than a constituent component of, the contention.<sup>4</sup> CCANP's filing of its present contention within two to three months after the events which (in CCANP's view) gave substance to the contention was reasonably prompt. We find that CCANP has demonstrated "good cause" for its delay until March 18, 1983 in filing its contention, within the meaning of 10 C.F.R. § 2.714(a)(1)(i).

As for the other factors, all of them either dictate that the contention not be rejected on timeliness grounds or are neutral in that regard.

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<sup>3</sup> Whether an adjudicatory proceeding should be instituted as the result of such a petition would not be acted upon by this Board. 10 C.F.R. §§ 2.202 and 2.206. We note, however, that the current Commission policy on consideration of an applicant's financial qualifications, which we discuss later in this opinion, would be relevant to (and possibly dispositive of) such a petition.

<sup>4</sup> As we earlier pointed out (p. 54, *supra*), CCANP also tried — unsuccessfully — to have certain aspects of the contention added to the Phase I record.

CCANP's interest could not be adequately protected by other means, including the Texas PUC. While the PUC could consider the Applicants' financial ability to meet safety requirements, the only relief it could grant would be to increase rates or require the reduction of other expenses to a point where the safety requirements could be funded; it could not deny a license (as could NRC) because of lack of financial capability. Although not demonstrating any particular financial expertise, CCANP could assist through cross-examination or possible expert witnesses in developing a sound record on this matter (which would not appear to require the same quantum of expertise as do many technical safety and environmental questions).<sup>5</sup> We regard this factor as neutral. No party disputes that CCANP's interest in the proposed contention will not be represented by existing parties. And although some broadening of the issues and delay in hearings might result from admission of the contention, no delay in this extended proceeding (where construction on either unit is not scheduled to be completed prior to December 1986) would likely result. We balance the latter factor as neutral.

In sum, the final balance of the factors in 10 C.F.R. § 2.714(a)(1) dictates that the contention not be rejected on timeliness grounds.

3. The crucial question regarding the admissibility of CCANP's proposed contention is whether a financial qualifications question of the sort proposed by CCANP can or should be litigated in an operating license proceeding. Effective March 31, 1982, the Nuclear Regulatory Commission amended its rules to eliminate the financial qualifications issue from both construction permit and operating license proceedings. 47 Fed. Reg. 13,750 (1982). All parties recognize this development. Were it not for this rule change, we might likely have accepted at least certain aspects of CCANP's contention for litigation either in Phase II or Phase III of this proceeding. As a result of the rule change, CCANP is seeking a waiver of the rule pursuant to 10 C.F.R. § 2.758, which establishes a procedure for obtaining an exception or waiver on the sole ground that

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<sup>5</sup> Contrary to CCANP's claim, ability to contribute to the record is relevant to the admissibility of late-filed contentions (as distinguished from timely contentions, where the factors in 10 C.F.R. § 2.714(a) are not applicable)

special circumstances with respect to the subject matter of the particular proceeding are such that application of the rule or regulation (or provision thereof) would not serve the purposes for which the rule or regulation was adopted.

10 C.F.R. § 2.758(b).<sup>6</sup>

CCANP asserts that the rule barring consideration of financial qualifications contentions was adopted on the premise that the previous financial qualifications review did not help identify health and safety concerns regarding utility-operated nuclear power plants because prudently managed, regulated utilities are "almost guaranteed sufficient revenues to enable them to meet their needs" (June 2, 1983 reply, p. 2). CCANP contends that the Commission expected utilities facing financial difficulties to cancel or postpone plants, and that a utility that persisted in the construction of a nuclear plant even when the cancellation of the plant is called for by the economic conditions facing the utility would be acting outside the normal bounds the Commission expected to be observed by such utilities (June 2, 1983 reply, p. 3). In CCANP's opinion, HL&P is currently a utility of that type.<sup>7</sup>

As part of its argument for waiver of the financial qualifications rule, CCANP also questions the efficacy of the Region IV inspection efforts. CCANP refers in particular to instances in 1979 where Region IV failed to uncover certain activities but where the special inspection organized at headquarters found violations with respect to those activities.

In opposing the motion, the Applicants and Staff assert that the circumstances pointed to by CCANP were contemplated by the Commission when it adopted the new rule. They claim that CCANP has not made a *prima facie* demonstration of the "unusual and compelling circumstances" needed to warrant a waiver. See *Northern States Power Co.* (Monticello Nuclear Generating Plant, Unit 1), CLI-72-31, 5 AEC 25, 26 (1972).

In general, we agree in substance with the views advanced by the Applicants and Staff. But in our opinion, all parties have overlooked one significant aspect of the background of the new financial qualifications rule which makes the outcome sought by the Applicants and Staff even more compelling. The Commission's opinion in the *Seabrook* proceeding — which was the genesis of the rule change barring consideration of

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<sup>6</sup> As the Applicants and Staff each point out, CCANP has not satisfied the affidavit requirement of this rule. But as we noted in our May 11, 1983 Memorandum and Order (unpublished), if we were to agree with CCANP as to the substantive viability of its contention, we might well permit CCANP to supplement its earlier filings to conform to the affidavit requirement. Given the conclusions we are reaching in this opinion, we need not devote further discussion to the absence of proper affidavits.

<sup>7</sup> *But cf.* note 8, *infra*.

financial qualifications contentions in licensing proceedings — stressed, *inter alia*, the duty of State regulatory bodies to approve such rates as are necessary to enable a regulated utility to fulfill obligations imposed upon it by its nuclear facility licenses. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-78-1, 7 NRC 1, 14 (1978), *quoting approvingly from* ALAB-422, 6 NRC 33, 77 (1977). Indeed, in its opinion, the Appeal Board stressed the legal obligations of State agencies (as defined in Supreme Court decisions) to establish rates designed to cover costs engendered by nuclear facility licenses. ALAB-422, *supra*, 6 NRC at 77-78, *citing Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591, 603 (1944).

Although the Commission indicated that, under then-current regulations the Appeal Board may have over-emphasized the importance of the legal obligations governing State regulatory authorities (CLI-78-1, *supra*, 7 NRC at 18, 20), those obligations nevertheless persist today. In our opinion, they now assume greater significance, since they constitute the basis for the Commission's differentiation in its current regulations between utility and non-utility applicants. For that reason, they are pertinent in determining whether a waiver of the current financial qualifications rule is warranted.

The general obligations to which State regulatory bodies must adhere are particularly relevant to the most important reason assigned by CCANP for waiving the new regulations — the recent Final Order of the Texas PUC. That ruling (dated December 6, 1982) granted in part and denied in part a rate increase request of HL&P. CCANP deems as important to its requested waiver the portions of that ruling which (1) discuss mismanagement by HL&P; (2) for that reason refuse to permit HL&P to include in its rate base some of the expenses of the cancelled Allens Creek Nuclear Project; (3) comment that the STNP is also being mismanaged; and (4) warn HL&P that STNP costs attributable to mismanagement will not be recoverable. Having reviewed the PUC Order, together with the portions of the hearing examiner's report and PUC Commissioners' comments which CCANP provided us, we find no indication that the Texas PUC is not taking into account HL&P's revenue requirements for successfully meeting the obligations of its NRC licenses. Nothing in the PUC decision would appear to derogate from the presumption which the NRC stated would underlie its then-proposed and now-effective rule — *i.e.*, that "regulated electric utilities \* \* \* will be able to meet the costs for safe construction and operation" of a nuclear facility. 46 Fed. Reg. 41,786, 41,788 (1981). All that the PUC appears to be doing is penalizing (or threatening to penalize) HL&P for mismanagement by setting rates designed to yield somewhat less return



than HL&P would have been (or will be) allowed to earn absent such mismanagement.

The situation we have described scarcely constitutes the type of unusual circumstance necessary to bring about a waiver of the current financial qualifications rule. Indeed, the Texas PUC seems to be filling the role envisaged by the NRC when amending its regulations and in effect delegating the financial qualifications review to State regulatory bodies. When NRC changed its rules, it could not have contemplated that any utility covered thereby would never have financial difficulties or that a State would never deny a utility some of the return it was seeking. In our view, decisions like the Texas PUC Order would logically have been anticipated by NRC when it amended its rules.<sup>8</sup>

The other circumstance relied on by CCANP presents even less of a case for waiver than does the Texas PUC decision. Austin's suit has been filed, not won; and even were Austin to succeed, we have not been shown that HL&P would be so adversely affected that it could not fulfill its NRC regulatory obligations. As for the generally deteriorating financial condition of the nuclear industry, to which CCANP refers as background to its motion, the NRC explicitly referenced that condition when it amended its rules.

Finally, we are aware of NRC's intent to utilize its inspection/investigation resources to help assure itself that utilities which have a need for operating funds will not skimp on complying with regulatory requirements. *Seabrook*, CLI-78-1, *supra*, 7 NRC at 19; 47 Fed. Reg. at 13,751. We are also aware that the inspection activities carried on by Region IV have not always been completely effective. Nonetheless, there has been significant reorganization and restructuring of NRC's inspection functions in the recent past. Moreover, the asserted 1979 deficiency in Region IV activities to which CCANP has called our attention (June 2, 1983 reply, pp. 6-7) was well known to the Commission when it amended its financial qualifications rule. In addition, as is reflected by the special inspection conducted in this case, NRC's inspection resources are not limited to inspections conducted solely by field office personnel. In short, CCANP has not brought forth any circumstances concerning NRC's investigatory efforts which would cause us to differentiate this proceeding from the general run of proceedings and to

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<sup>8</sup> We note that HL&P's determination to cancel the Allens Creek project is consistent with the expectations expressed by the Commission when it amended its financial qualifications regulations. We also note that the Texas PUC does not appear to have raised any question about HL&P's prudence in continuing to construct the STNP. See Hearing Examiner's report, p. 28.

recommend a waiver of the bar to considering financial qualifications contentions.

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For the reasons stated, it is, this 14th day of July 1983,  
**ORDERED**

That CCANP's motion for a new contention, including CCANP's request that we recommend a waiver of the regulation barring the consideration of financial qualifications contentions, is *denied*.

**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:

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

In the Matter of

Docket Nos. 50-440-OL  
50-441-OL

CLEVELAND ELECTRIC ILLUMINATING  
COMPANY, *et al.*

(Perry Nuclear Power Plant,  
Units 1 & 2)

July 12, 1983

The Licensing Board holds that it would have jurisdiction to decide issues raised in an operating license proceeding that would control whether or not it was appropriate to issue a license to receive unirradiated fuel at the reactor (a Special Nuclear Material License), but that intervenors must first raise an admissible contention that calls into question applicant's ability to receive and care for spent fuel safely. It finds that no such issue has been raised, and the filing of an application for a special nuclear material license does not give intervenors a fresh opportunity to raise questions that have been available to them since the Notice of Hearing in this case was issued. Consequently, the Board denies the admission of a contention concerning the Special Nuclear Material License.

**SPECIAL NUCLEAR MATERIAL LICENSE: JURISDICTION  
IN OPERATING LICENSE PROCEEDING**

A Board in an operating license case has jurisdiction over properly raised contentions and may enter orders concerning a related special

nuclear material license application providing that the orders are related to the admitted contentions. However, the filing of an application for a special nuclear material license does not create an opportunity to file fresh contentions about matters that have previously been part of the public record.

#### **RULES OF PRACTICE: JURISDICTION OVER SPECIAL NUCLEAR MATERIAL LICENSE IN OPERATING LICENSE PROCEEDING**

*See* SPECIAL NUCLEAR MATERIAL LICENSE.

#### **RULES OF PRACTICE: NEW CONTENTION ON SPECIAL NUCLEAR MATERIAL LICENSE**

A late-filed contention concerning issuance of a special nuclear material license must meet all the criteria for a late-filed contention, including a showing of good cause for late filing. If the questions raised were already available in the record prior to the filing of the application for a special nuclear material license, the filing of the application does not by itself create good cause for late filing.

#### **RULES OF PRACTICE: ENVIRONMENTAL IMPACT STATEMENT FOR SPECIAL NUCLEAR MATERIAL LICENSE**

It is sufficient that an environmental impact statement is prepared concerning the granting of an operating license; it is not necessary to prepare a separate statement concerning the receipt of unirradiated fuel or of other plant components, on the assumption that receipt of the component will not be followed by completion of the plant. A single environmental impact statement covering the entire construction and operation of the plant includes within it the component steps involved in the project.

### **MEMORANDUM AND ORDER**

**(Late Contentions: Special Nuclear Material License Application)**

On May 10, 1983, Ohio Citizens for Responsible Energy ("OCRE" or "intervenor") sought to file late contentions that could block Cleveland

Electric Illuminating Company, *et al.* (applicant) from receiving unirradiated reactor fuel and associated materials. The occasion for the filing of these contentions was that OCRE had just learned that applicant had requested an application for a Special Nuclear Material (SNM) license on August 30, 1982. OCRE became aware of this application early in April 1983 when it received correspondence in which the Staff of the Nuclear Regulatory Commission (staff) requested applicant to supply some additional information about the SNM application.

We find that the factors controlling the admission of late-filed contentions<sup>1</sup> are not met in this case. Hence, these contentions may not be admitted in this proceeding.

Although OCRE claims to have been ignorant of the filing of the SNM application, we agree with staff that this ignorance is irrelevant.<sup>2</sup> From the outset of this proceeding, in which applicant requests an operating license, it has been apparent that it would have to receive unirradiated fuel some time prior to low power testing. The Commission's procedural rules govern the way in which such an application is to be filed and the criteria governing that application.

If OCRE had advanced an admissible contention that called into question the wisdom of granting an SNM license, we believe that we would have jurisdiction over that contention and over the related question of whether to stay the effectiveness of any license that might be issued. Whether or not we could grant or deny the application before staff acted is merely a wording formality that would have had no substance were such a contention before us. See *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-76-1, 3 NRC 73 (1976); *Cincinnati Gas and Electric Co.* (William H. Zimmer Nuclear Station), LBP-79-24, 10 NRC 226 (1979).

However, OCRE has, with one exception, failed to rely on any relevant new material that was not available from the onset of this proceeding. That one exception, related to staff guidance requiring applicant to demonstrate that its unirradiated fuel will not become critical if immersed in a mist environment, is now moot. Applicant has amended its application so that it is no longer attempting to show that its fuel casing will prevent the occurrence of a mist environment. So applicant will meet the letter of the staff's requirement, and OCRE has withdrawn this contention.

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<sup>1</sup> 10 C.F.R. 2.714(a)(1).

<sup>2</sup> Staff Answer (June 13, 1983) at 5-6: "None of the five new contentions even arguably appears to be based on new information appearing in the application for a separate materials license."

OCRE has also argued, citing a September 5, 1982 newspaper article, that Perry has experienced a variety of vandalism incidents that could indicate sabotage. However, OCRE has not provided a sufficient logical link between this "new" information and a reason for us to question the adequacy of the applicant's program for safeguarding its fuel. The occurrence of five instances of vandalism, each of which was important although only one was in a safety-related system, should be cause for applicant to be concerned; but it is not reason for us to believe that there are important gaps in applicant's safeguards system that would jeopardize the safety of unirradiated fuel.

We conclude, therefore, that there was no good cause for late filing for these contentions and that the other factors governing late-filing do not overbalance this deficiency. There was another remedy: participation in the SNM licensing proceeding; although OCRE did not learn of that proceeding, it could have. There has been no showing of how OCRE could participate in the development of a sound record about this particular contention. Although OCRE's members' safety could be affected if the special nuclear materials were first irradiated and then dispersed in an accident, there has been no showing of any plausible mechanism through which this could occur; hence, OCRE's interests do not weigh heavily in its favor on this issue. Additionally, admission of new contentions would broaden this proceeding and cause a risk of delay; however, this factor is close to neutral because we do not believe delay is a serious problem in this case.

On balance, these contentions are not admitted because they have failed to meet the late-filing criteria.

As is our custom, we also have considered the possible safety significance of the contentions. However, we find nothing that rises to the status of an important safety issue. Most of the issues are economic. Not only are they expressly barred from consideration by the regulations but they do not raise serious safety issues with respect to unirradiated fuel.

The principal argument — that the fuel will be stored longer than necessary, seems to be an argument of minimal economic importance. Applicant concedes that three months of storage might cost \$300,000, but we think it concedes too much. It is obvious to us that the fuel must be delivered at some time before fuel loading. Delivery on the day of loading would cause certain economic risks. Various economic factors related to arranging for a favorable purchase and appropriate transportation would introduce uncertainties about how much lead time would be appropriate. We see no basis for believing that a three-month lead time for receipt of materials is inappropriate. (The argument that applicant's

economic condition is so shaky as to endanger its ability to care properly for unirradiated fuel lacks credibility.)

OCRE also argues that applicant is not qualified by reason of training and experience to receive unirradiated fuel. It relies on a transcript of an ACRS meeting and also on contradictory arguments that: (a) applicant has never operated a nuclear plant, and (b) that its participation in the operation of the Davis-Besse and Beaver Valley plants does not inspire confidence in its ability. To (b), applicant responds that it has no ownership in Beaver Valley and does not operate Davis-Besse. To (a), applicant responds that a license to receive nuclear materials is not a license to operate and that there is no logical link between lack of operating experience and inability to receive and protect unirradiated fuel. With this we entirely agree. (Since there is no admitted contention on training and experience to operate, this area of review of the application is the responsibility of the staff and not of the Licensing Board. We have no reason to doubt staff's competence in pursuing this issue.)

Intervenors also have argued that a separate environmental impact statement is required for an SNM license. Not only is this contrary to the regulations, but it is contrary to common sense. An environmental impact statement has been done for the operating license application, including the delivery of fuel. There is no need for each component to be analyzed separately, on the assumption that the plant may never be licensed to operate.

Finally, OCRE argues that applicant must demonstrate that it will comply with local laws concerning the shipping of nuclear fuel. However, the granting to it of an SNM license will not excuse it from complying with all valid laws and regulations governing shipment of fuel. If it cannot comply with those laws, its SNM license will be valueless to it. Consequently, there is no reason to believe that the granting of the SNM license should be deferred until after the applicant shows its compliance with these laws.

OCRE's brief also contains an argument that troubles us for its concept of public confidence in this proceeding. OCRE argues that the granting of an SNM license will have the symbolic meaning to the public that an operating license must be granted and that the public will lose confidence in our proceeding if the SNM license is granted. This is entirely illogical: If OCRE had valid late-filed contentions, we would admit them to the proceeding. If its contentions are not valid, we will not admit them. Our ruling stands for nothing more or less than the application of the law to the facts presented to us. There is no relationship of this ruling to the grant or denial of an operating license. We believe that a

Licensing Board which acts thoughtfully and deliberately this time can be counted on to act thoughtfully and deliberately in the future.

## **ORDER**

For all the foregoing reasons and based on consideration of the entire record in this matter, it is this 12th day of July 1983,

### **ORDERED**

None of the contentions filed by Ohio Citizens for Responsible Energy on May 10, 1983, is admitted as an issue in this proceeding.

### **THE ATOMIC SAFETY AND LICENSING BOARD**

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

**Jerry R. Kline  
ADMINISTRATIVE JUDGE**

**Glenn O. Bright  
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland**



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**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)**

**July 26, 1983**

In a special prehearing conference order, the Licensing Board rules on the admissibility of pending safety contentions, admitting three contentions and excluding nineteen. Before addressing the admissibility of specific contentions, the Board concludes that safety contentions concerning the probabilistic risk assessment (PRA) done for Limerick would be admissible only if they alleged that the PRA identified a particular design problem for Limerick. The Board leaves open the question of how PRA contentions should be litigated when they relate to the National Environmental Policy Act, 42 U.S.C. § 4332, review of plant operations.

**RULES OF PRACTICE: ADMISSIBILITY OF CONTENTION**

Good cause for the untimely filing of a contention based on a newly available document may be lost by waiting to see what action another party will take in reaction to the document.

## **RULES OF PRACTICE: ADMISSIBILITY OF CONTENTION**

When a document becomes available, contentions based upon it must be filed promptly to preserve good cause for an untimely contention although the document may be incomplete.

## **PROBABILISTIC RISK ASSESSMENT (PRA)**

In the context of health and safety (as opposed to environmental) issues, litigation related to the choice of methodology used to develop the PRA would not be profitable. However, if the PRA indicates a particular design problem with the plant, that may be litigated.

## **REGULATIONS: INTERPRETATION (GENERAL DESIGN CRITERION 64)**

“Postulated accidents” as used in General Design Criterion 64 is a term of art meaning design basis accidents.

## **RULES OF PRACTICE: ADMISSIBILITY OF CONTENTION**

A contention which merely recites unrelated adverse findings in reports of quality assurance inspections and audits performed by the Staff and Applicant is not admissible.

## **SECOND SPECIAL PREHEARING CONFERENCE ORDER**

The Board held a special prehearing conference in Philadelphia on May 9-11, 1983, to discuss proposed contentions and further scheduling of these proceedings. On May 16, 1983, we issued a “Memorandum and Order Confirming Schedules Established During Prehearing Conference” (unpublished). Our order today provides further rulings on the basis of that special prehearing conference, including rulings on the admissibility of contentions and the provision of specific dates for schedules which were previously described only in terms of triggering events.

In its filings prior to the special prehearing conference and at the conference itself, LEA (Limerick Ecology Action) indicated that a number of contentions were being dropped. These are Contentions I-1; I-2; I-5; I-6; I-13; I-16(c)-(j); I-17; I-18; I-19; I-20; I-21; I-22; I-24; I-25; I-27;

I-28; I-29; I-32; I-33A, C, F, G, H, I & L; I-34; I-35; I-36; I-37; I-39; I-43; I-44; I-46; I-55; I-56; I-59, and I-61. In addition, LEA dropped Contention I-3 in its May 31, 1983 "Response to Licensing Board's Order of May 16, 1983."

In our May 16, 1983 Memorandum and Order, *supra*, Contentions I-33B, D, E & K and I-45 were denied without prejudice. LEA was permitted to respecify them by June 15, 1983. LEA's counsel, in a letter to the Board dated June 10, 1983, indicated that LEA was no longer interested in pursuing Contentions I-33B & K and I-45 because the contentions were satisfied. As to Contention I-33E, LEA stated that it may submit new contentions when more information is available from the Applicant. According to LEA, the issue in Contention I-33D is being pursued by the NRC Staff, and LEA may at some future time submit a contention on it if LEA is not satisfied with the Staff's resolution of the matter.

When information is not available, there will be good cause for filing a contention based on that information promptly after the information becomes available. See *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460, 469-70 (1982). The Commission has recently ruled that the five statutory factors must be balanced in determining whether to admit such a contention filed after the initial period for submitting contentions. *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041, 1045 (1983). The Commission accepted the Appeal Board's standard for determining when the good cause factor is satisfied with regard to contentions based on newly available documents. *Id.* at 1045, 1047. The Commission recognized that it would be fruitless to raise as a contention the temporary lack of a document which is "unequivocally licensing-related." *Id.* at 1045 n.4, 1049. It would seem to be a rare instance in which, balancing the five factors, a contention truly arising from a completely new and necessary document would not be admitted.

As this Board has previously indicated, LEA may file contentions based on information arising from new licensing-related documents. In doing so, it should, in the future, address the factors set forth in the *Catawba* decisions, and the contentions will be judged on that basis.

In both the Appeal Board and Commission *Catawba* decisions as well as in our previous orders, however, the finding of good cause for the late filing of contentions is related to the total previous unavailability of information. LEA is cautioned that a submitted document, while perhaps incomplete, may be enough to require contentions related to it to be filed promptly. Nor may LEA wait to see what action another party,

including the Staff, will take in reaction to a document before filing contentions without losing the good cause associated with the filing of a new document. *Cf. Duke Power Co. (Cherokee Nuclear Station, Units 1, 2 and 3)*, ALAB-440, 6 NRC 642, 644-45 (1977) (denying late intervention to petitioner who determined her interests were not being adequately protected by other participants). We realize that in the past we have, with the concurrence of the parties, in some cases encouraged LEA to drop without prejudice contentions for which information has been unavailable. If a newly filed contention follows up on such a dropped contention, we will, of course, take these circumstances into account. In particular, schedules already established in our May 16, 1983 order remain in effect.

In conclusion, Contentions I-33D and E are not presently a part of this proceeding. If LEA later wishes to file contentions on these matters, those contentions will be subject to the balancing test for late-filed contentions. Previous unavailability of documents will be treated in the manner set forth in the *Catawba* decisions discussed above.

### PROBABILISTIC RISK ASSESSMENT (PRA) CONTENTIONS

In the June 1, 1982 Special Prehearing Conference Order (LBP-82-43A, 15 NRC 1423), the Board ruled that the following general PRA contention was admissible, subject to specification:

The Applicant's Probabilistic Risk Assessment (PRA), insofar as it is to be used by the Nuclear Regulatory Commission in determining whether the operation of the Limerick facility may constitute a disproportionate portion of the societal risk from nuclear power reactors, and thus constitutes an undue risk to the public due to its siting in a heavily populated area and to its proposed power levels, is inadequate and deficient.

*Id.* at 1489. The Board did not rule on the 32 individual PRA contentions proposed at that time but indicated that many of them supply the requisite specification and would be admissible. *Id.*

A major consideration of the Board in not ruling on the individual PRA contentions at that time was the question of the scope and purpose of the NRC Staff's use of the Limerick PRA. At the first special prehearing conference in June 1982, the Board was given the impression that the Staff might compare the risk from operation of Limerick directly to the risk from operation found in the WASH-1400 analysis of a reference boiling water reactor located at a composite site. *Id.* at 1492. In a "Statement of the NRC Staff's Use of PRA" dated April 13, 1983, supplemented by oral statements at the prehearing conference May 9-11,

1983, and by a statement of "The NRC Staff's Use of Limerick PRA" attached to the "NRC Staff Response to Licensing Board Order of May 16, 1983" (May 24, 1983), the Staff has described its current plans for use of the Limerick PRA. The Staff's plans appear to be affected (as they should be) by Commission Policy Statements issued since the first special prehearing conference. In March 1983, the Commission issued a Policy Statement on Safety Goals for the Operation of Nuclear Power Plants. 48 Fed. Reg. 10,772 (1983). In April 1983, the Commission issued a Proposed Commission Policy Statement on Severe Accidents and Related Views on Nuclear Reactor Regulation. 48 Fed. Reg. 16,013 (1983).

In ruling on the extent to which PRA contentions would be admissible in this proceeding, the Board has considered these explanations by the Staff and these Policy Statements. In addition, the Board has considered arguments made by LEA and the Applicant on the record and in "Limerick Ecology Action Response to Licensing Board's Order of May 16, 1983" (May 31, 1983) and "Applicant's Response to 'the NRC Staff's Use of Limerick PRA and Limerick Ecology Action Response to Licensing Board's Order of May 16, 1983'" (June 10, 1983).

The Staff is no longer planning on directly comparing the risk of reactor operation found by the Limerick PRA to that in WASH-1400. Tr. 4205-07. Rather, as regards *Safety Considerations*, the Staff has stated it plans to use the PRA as part of its detailed safety review of the Limerick Application, giving particular attention to any identified dominant risk sequences "... to check whether such sequences are attributable to structures, systems, components or procedures which fail to satisfy NRC regulatory requirements." Staff's April 13, 1983 Report on PRA, at 1. Any identified non-compliances must be corrected. In the event that a dominant risk sequence is identified which is not attributable to a non-conformance with Commission regulations, but, rather is attributable to a unique design aspect of Limerick, the Staff may recommend additional measures to compensate for the unique problem. *Id.* Any major potential problem areas uncovered as a result of the PRA analyses and review would be (and should be) studied in greater detail to determine whether, in fact, a significant problem exists and whether corrective action is required. Such a major potential problem would also be reported to this Board and to the parties to this proceeding. Tr. 4214. Depending upon the nature of any site-specific unique problem, both the Staff and LEA suggest that justification for requiring remedial or compensatory actions may be found in various regulatory provisions. *See, e.g.*, 10 C.F.R. §§ 50.57(a)(3), 50.109(a), 100.10 and 10 C.F.R. Part 50, Appendix A, Introduction.

The Staff will compare the Limerick PRA to other PRAs as a check to determine the reasonableness of the data and assumptions resulting from the PRA. Staff's May 24, 1983 Report on PRA. Such a comparison may be made to determine why a particular dominant risk sequence is an outlier for Limerick. Tr. 4206-08.

With respect to *Environmental Considerations* the Staff will use the information obtained from its review of the PRA to assess the risks of accidents beyond the design bases, in accordance with the Commission's Statement of Interim Policy Concerning Nuclear Power Plant Accident Consideration Under the National Environmental Policy Act of 1969, 45 Fed. Reg. 40,101 (1980). Staff's April 13, 1983 Report on PRA, at 1. This is commonly called the Staff's Class 9 environmental review or the Environmental Report Chapter 7 analysis. Because there is a large population near Limerick, the thrust of the environmental review will be concerned with population dose considerations under various accident conditions and will be cast in terms of identifying disproportionate risk components. See, e.g., Tr. 4209.

In order to make its environmental review, the Staff will review and evaluate the Applicant's Severe Accidents Risk Assessment (SARA), which will include modeling of external initiating events as well as updating some of the internal events modeling and revising the consequence modeling. Tr. 4245. This, apparently partly derived from the existing PRA, will be utilized to determine the overall population risk attributable to Limerick (see Tr. 4201-03). As the Board understands it, then, it will be in the environmental review that the overall risk figures emerging from the PRA and from SARA will be utilized by the Staff. If the overall risk associated with Limerick is significantly greater than that attributable to other nuclear reactors, the Staff would consider recommending compensatory features. Staff's May 24, 1983 Report on PRA.

In its April 13, 1983 report, the Staff also mentioned certain other additional uses of the Limerick PRA outside the licensing proceeding, including the general buildup of PRA knowledge and as a source of information and guidance in severe accident rulemaking activities. The PRA may also be used as the basis for voluntary improvements in the facility and, in fact, the Applicant has made several changes as a result of PRA findings.

The contentions which are presently proposed address the use of the PRA in regard to safety considerations. The Board has indicated contentions on SARA and the Environmental Report Chapter 7 analysis can be

filed later. See "Memorandum and Order Confirming Schedules Established During Prehearing Conference" (May 16, 1983), at 6-7.\* Therefore, we consider these contentions only as they relate to the current PRA and the Staff's use of it in the safety analysis.

From this perspective, we find that the consideration of safety uses of the PRA in this proceeding should be limited to allegations that there is a particular design problem with Limerick which is pointed out in the PRA. We do not believe that litigating the choice of methodology used in developing the PRA would be profitable. Our concern in this hearing is *not* whether the PRA was done in the best possible way, but rather whether the plant is safe.

We recognize that a change in the methodology could modify the numerical results or possibly bring to light potentially new safety problems. However, we do not believe it would be a profitable use of adjudicatory time to litigate the methodology used on the chance that different methodology would identify a new problem or substantially modify existing safety concerns. If it is known that a problem exists which would be illustrated by a change in PRA methodology, that problem can be litigated directly; there is no need to modify the PRA to consider it.

We recognize that changing the PRA methodology could have an effect on the overall risk figures produced. However, at this time, the technology is too new for there to be a correct or an incorrect way in which to do a PRA. Indeed, these uncertainties are a large part of the reason that the Commission has directed that its safety goals not be used in licensing. See Policy Statement on Safety Goals for the Operation of Nuclear Power Plants, 48 Fed. Reg. 10,772 (1983). This Policy Statement may be viewed, as the Applicant argues, as directing that bottom-line risk figures from PRAs should not be used for making safety findings in licensing proceedings. In fact, the Statement directs that "The staff should continue to use conformance to regulatory requirements as the exclusive licensing basis for plants." 48 Fed. Reg. 10,775, col. 3.

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\*Pursuant to the agreement reached by LEA, Applicant and the NRC Staff, as reported in LEA's "Motion for an Extension of Time" of July 21, 1983, we approve the proposed amended schedule for the filing of contentions on EROL Chapter 7 (SARA). LEA's contentions shall be received by September 1, 1983. The Applicant's and the Staff's responses shall be received by September 20 and 30, 1983, respectively. As stated at the prehearing conference and elsewhere in this order, the Board is unsure of the scope, nature and practicalities of useful litigation of "bottom-line" risk contentions based on the Chapter 7 EROL analysis in the context of the total NEPA environmental analysis. We direct LEA, Applicant and the Staff to discuss the scope and wording of proposed contentions before they are filed with the goal of achieving mutual identification of the issues and of the proper course of the litigation of this subject. The September 1, 1983 filing of contentions shall include a report on behalf of all parties on the course, status and results of such discussions.

It should be noted that in its environmental review, the Staff apparently will be using the numbers it gets from its analyses of population risk. In that context, it may be possible to litigate the accuracy or meaning of this bottom-line risk number in the context of the NEPA environmental analysis. Even so, the Board is concerned that it is not certain at this time how such litigation would proceed. That problem, however, is more properly addressed when the SARA contentions are filed.

Applicant argues strenuously that any problems uncovered as a result of PRA analysis must be judged solely on the basis of conformance or non-conformance with Commission regulations. The Staff does not necessarily disagree with that position. Staff and Applicant apparently do depart in their views as to whether certain regulatory provisions might be invoked to require remedial action on any significant identified problems. The Board does not have to face that issue at this time but advises the parties that on matters of health and safety, this Board is not inclined to take an unnecessarily restrictive view of the applicability of regulatory provisions.

Considering the extent and use of the Staff's review of the Limerick PRA and applicable Commission Policy (including proposed policy), the Board will view each proposed contention not only in the light of the Staff's planned uses of the Limerick PRA, but also in light of the litigability of the specific issues. In addition to being within the scope of admissible PRA contentions as discussed above, these contentions must satisfy the Commission's criteria for admissibility.

Of the original 32 individual PRA contentions, the Board must rule on only 13, the others having been dropped or withdrawn. The voluntary withdrawal of certain contentions was based on LEA's perceptions as to the Staff's planned use of the PRA consequence analysis. If future events show these perceptions to be in error, LEA may petition for reconsideration of their withdrawal. That is a future matter. It should be mentioned, however, that LEA was not discouraged by the Board from dropping contentions relating to bottom-line risk numbers on the understanding that SARA or the Staff Environmental Report Chapter 7 analysis might supply new information which could provide a basis for refiling them. Tr. 4420-21. LEA has also submitted five new contentions based on the Brookhaven National Laboratory (BNL) review of the Limerick PRA, which are discussed below.

Of the contentions remaining for consideration, only two meet the requirements for admissibility. They are LEA Contentions I-8 and I-15. A brief discussion of the individual contentions follows.



#### **Contention I-4**

In this contention LEA asserts that the risk of pressure vessel failure is not considered in the Limerick PRA as it was in WASH-1400 and that, by that omission, Limerick achieves undeserved design credit. LEA admits that pressure vessel failure was not found to be a dominant accident sequence in WASH-1400 but argues that one cannot assume that it is not a dominant sequence at Limerick. LEA provides no basis for attaching high risk potential to pressure vessel failure at Limerick other than a statement that it may be a dominant contributor to risk due to the severe consequences should such a failure occur.

Applicant and Staff argue that this contention lacks basis. The Board finds that this contention essentially concerns the methodology by which the scope of the PRA was determined. As such, it is not within the scope of litigable PRA contentions. If the concern were vulnerability to pressure vessel failure *per se*, due to special circumstances regarding the Limerick pressure vessel, that could have been addressed directly in a contention with a properly specific basis. We note, in addition, that pressure vessel failure is being considered in SARA. Thus, the problem of allegedly undeserved design credit should not occur when a bottom-line risk comparison is made. Contention I-4 is denied.

#### **Contention I-7**

This contention is a general allegation that because no sub-part common mode failures were considered in the Limerick PRA, the probability of a core melt accident could be underestimated. Both Applicant and Staff argue that this contention should be denied because it fails to address or identify any specific system or sub-component which should be considered. The Staff further argues that I-7 does not state a contention, but merely makes a statement regarding the scope of the fault tree model.

This contention is another example of LEA disagreeing with the scope and methodology used in preparing the PRA. LEA has not focused on any systems or sub-components in which it believes such failures could lead to a core melt. The Board has been unable to conceive a reasonable scenario in which such failures would occur without being reflected adequately in the PRA as component failures. Therefore, the Board does not believe this to be an instance where the PRA highlights (or could highlight) particular safety problems with any reasonably based potential for occurrence. The contention is denied.

### **Contention I-8**

LEA Contention I-8 asserts that estimates in the Limerick PRA of outage time in loss of offsite power (LOOP) events are low because the time estimates are based on an assumed gamma distribution instead of on log normally distributed variants. As we understand it, LEA is concerned that use of the gamma distribution leads to a monotonically decreasing hazard function, whereas use of the log normal distribution would lead to steadily increasing or peaking hazard function values. The contention does focus on a specific potential problem. The Board is concerned that if outage times are underestimated, inadequate compensating measures may have been provided. Therefore, this contention is admitted for the purpose of litigating whether the plant is adequately designed to withstand LOOP. While the PRA may provide evidence on this latter issue, the litigation will not determine whether the PRA should be revised.

### **Contention I-10**

LEA alleges that the Limerick PRA is deficient in that it does not consider location-dependent common mode failures. No such failure is identified. Thus, the contention lacks specificity about any such failure. To the extent it addresses the scope and methodology of the PRA, it goes beyond the scope of what may be litigated in this proceeding.

### **Contention I-11**

LEA asserts that the assumption for the equipment failure rate due to aging used throughout the Limerick PRA does not apply to many classes of equipment and that a proper assessment of the effects of equipment aging or risk may reveal a larger effect on Limerick than at other plants. This comparison to other plants is not within the scope of the safety analysis based on the PRA and hence not the subject of an admissible contention now. Moreover, as a criticism of the methodology of the PRA, the contention not only exceeds what we have determined to be an acceptable scope for PRA contentions, it does not specify how equipment aging should be handled. This contention is denied.

We note that aging of electrical equipment is considered under the Commission's new environmental qualification rule, 10 C.F.R. § 50.49, and that LEA on July 11, 1983 submitted a contention directly dealing with compliance of Limerick with that rule. That contention alleges certain deficiencies in plant equipment related to environmental qualification, and will be ruled on after responses to it are filed.

### **Contention I-12**

LEA asserts that the Limerick PRA does not take into account intentional or accidental errors and that such errors, if included, could be revealed to be major contributors to risk. LEA states that licensee "penalty" reports might be used to assess the effect of construction errors but does not elaborate on how that should be done.

It does not appear that LEA is concerned with a particular vulnerability of Limerick to such errors. Rather LEA appears to be concerned that the overall societal risk from Limerick will be understated. As we explained earlier in this order, the PRA *per se* is not being used to provide a bottom-line risk number. Hence, this contention is not within the scope of what may be litigated with regard to the PRA. This contention is denied.

### **Contention I-14**

In Contention I-14, LEA alleges that, because testing of safety systems designed to function during a loss of coolant accident (LOCA) or anticipated transient without scram (ATWS) for full-sized reactors in accident conditions has not been done, more conservative assumptions of failure rates should be used in the Limerick PRA. LEA wishes the Applicant to use smoothing or higher component failure rates.

The Applicant argues that this is a challenge to the Commission's recently issued regulations on environmental qualification of electrical equipment. *See* 48 Fed. Reg. 2729 (1983) [codified at 10 C.F.R. § 50.49]. We do not understand LEA to be seeking further testing of equipment beyond that required by the rule. *See* Tr. 4380. However, the rule does make the assumption that equipment which is properly qualified will perform during a design basis accident.

In addition to the problem that this contention appears to challenge the rule, however, there is the problem that the contention is directly a challenge to the methodology utilized in the PRA. It does not point to any possible specific defect in Limerick's design. As we have explained above, we will not admit a contention which alleges that the methodology used in developing the PRA is inadequate.

Contention I-14 is denied.

### **Contention I-15**

In this contention LEA alleges that there may be interfacing LOCA initiators which might markedly contribute to overall risk. LEA points out that WASH-1400 identified the potential for a PWR LOCA/check

valve failure combination to contribute markedly to overall risk. LEA notes that no such similar case has been identified for Limerick and alleges that this suggests the possibility of inadequate design review. The subsequent identification of a potential interfacing LOCA initiator (involving leakage past closed main steam isolation valves) for Limerick by Brookhaven National Laboratory in its review of the Limerick PRA provides sufficient basis for LEA's allegation.

The question to be resolved now is what to litigate. The Board has explained why it does not believe that litigation of the methodology involved in the PRA would be profitable. However, in this instance, LEA has identified a specific potential design problem. The Board accepts this contention limited to the purpose of determining whether leakage past closed main steam isolation valves is a problem for Limerick and, if so, what measures should be taken.

### **Contention I-16a**

In Contention I-16a, LEA alleges that it was improper for the Applicant to use a 25-mile evacuation radius for the Limerick PRA when planning for evacuation around the Limerick site that extends only to a 10-mile radius. LEA alleges that this affects the consequence category of early fatalities.

The Board understands this contention not to address the desirable size for the evacuation radius, but the way that this is incorporated into the PRA. In essence, LEA's concern is that the consequences of an accident will be understated. *See* Tr. 4411. Since it is the Board's impression, set forth above, that the PRA will not be used directly to evaluate consequences, this contention is not admissible. The Board notes, however, that SARA, on which the Staff will base its consequences evaluation, takes care of this problem in LEA's mind. *Id.*

### **Contention I-16b**

Contention I-16b alleges that the Limerick PRA is deficient in that it does not consider site-specific data. This is a question of the methodology used in the PRA and the consequences shown by the PRA. SARA has largely taken care of this concern for LEA. Tr. 4411. Since SARA will be used to analyze consequences, it is properly addressed there. LEA indicated that it might be interested in raising a contention concerning the treatment of this issue in SARA. *Id.* LEA may, if it desires, submit a contention on this, which meets the requirements for

admissibility, including specificity and basis, at the scheduled time for contentions on SARA. This present contention is not admitted.

### **Contention I-23**

Contention I-23 alleges that external initiators of accidents were improperly excluded from the Limerick PRA. The concern in this contention is the risk from the plant rather than the plant design. Tr. 4419-20. An evaluation of whether the risk from Limerick is acceptable will be made based on the Environmental Report Chapter 7 and SARA as opposed to being made on the basis of the PRA. Since this contention apparently alleges that the PRA is not suitable for a purpose for which it will not be used, the contention is not admitted.

### **Contention I-26**

LEA alleges in this contention that the Limerick PRA improperly assumed sheltering would occur between 10 and 25 miles from the plant in the event of an emergency. LEA, apparently realizing that if the PRA were not to be used for evaluation of the consequences of an accident at Limerick the contention would be without basis, expressed a willingness to drop this contention if that were the case. Tr. 4423. Since it is our understanding that the PRA will not be used for that purpose (SARA will), this contention is denied as lacking basis. If LEA disagrees with SARA's treatment of this matter, LEA can file a contention to that effect with its other SARA contentions.

### **Contention I-30**

LEA alleges that the calculation of risk of latent cancers attributable to Limerick is understated in the PRA because malignant thyroid nodules with fatal outcomes are not included. As with several earlier contentions, the matter is addressed in SARA. This contention addresses the consequences of an accident at Limerick rather than alleging any design defect. SARA, rather than the PRA, is being used by the Applicant to evaluate consequences. This contention, which pertains to the PRA, is therefore without basis and is denied.

### **Contention I-31**

In this contention LEA alleges that justification is not provided in the PRA for the assumption that large-scale medical treatment will be avail-

able to people exposed to radiation as a result of an accident at Limerick. A major reason for this allegation was the agreement between the Pennsylvania Emergency Management Agency (PEMA) and the Applicant that the City of Philadelphia would not be considered as a support county for emergency planning purposes. LEA does not address the facilities that will be used but implies their inadequacy because of the absence of Philadelphia's capability. In that regard, this contention is lacking in both specificity and basis.

If adequate medical treatment is not available, that could be addressed directly with a contention concerning emergency planning. In this regard, however, we note that the Commission recently addressed the question of arrangement for medical services. *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-83-10, 17 NRC 528 (1983). In that decision the Commission decided that it was unnecessary to plan treatment for large numbers of contaminated or contaminated-injured individuals. The Commission reasoned that only a few individuals might be injured and contaminated so as to require treatment and the planning for onsite personnel and emergency workers could accommodate them, 17 NRC at 535, while arrangements for those exposed to radiation (but not also injured) could be made on an *ad hoc* basis. *Id.*

## NEW PROBABILISTIC RISK ASSESSMENT CONTENTIONS

In its April 12, 1983 specification of conditionally admitted contentions, LEA filed five contentions which it identified as new probabilistic risk assessment contentions. Both the Applicant and the Staff note that LEA did not address the Commission's criteria for the admission of late-filed contentions in submitting these contentions. A considerable discussion was held at the special prehearing conference on the issue of timeliness of these contentions. See Tr. 4435-42.

LEA argued that good cause existed for filing these contentions late because at the time contentions were originally filed LEA did not have access to the fault trees, event trees, Brookhaven National Laboratory evaluation of the PRA, or other discovery materials. Tr. 4435. The Staff took the position that if the new contentions were sufficiently tied to information newly available since contentions were originally filed, they would not be untimely. Tr. 4442. The Applicant does not believe that the Intervenor should be permitted to rely completely for a new contention on the Staff's review of material which the Intervenor previously had in its possession. Tr. 4439.

At the prehearing conference, the Licensing Board indicated that before the Licensing Board would rule against these contentions because they were untimely, LEA would be permitted to submit an affidavit supporting its position that the information was not available until the Brookhaven analysis was published (or otherwise not available until after the January 1982 first special prehearing conference). Tr. 4441-42. Particularly in light of the Commission's decision in *Catawba*, which we have discussed previously in this opinion, there may be room for argument as to whether the Brookhaven analysis is a document sufficiently central to the licensing process that its issuance provides good cause for the filing of late contentions. LEA did, after all, have the PRA which formed the basis for the Brookhaven analysis. In view of our decisions on the particular contentions, however, it is not necessary for us to decide whether issuance of the Brookhaven document could provide good cause for the late filing of these contentions.

### **Contention 1:**

In this contention, LEA asserts that accident sequences were not realistically modeled in the Limerick PRA. LEA alleges that there are errors in systems unavailability values and that some Limerick support systems were not considered. LEA has not specified particular errors, or even indicated the systems for which it believes these errors were made. To the extent it alleges a deficient methodology in performing this particular PRA, it is not admissible for the reasons stated in our general discussion of PRA. Contention 1 is not admitted.

### **Contention 2**

In Contention 2, LEA alleges that the binning of accident sequences in the Limerick PRA was improper and that smoothing should have been used as it was in WASH-1400. According to LEA, the risk of both acute and latent fatalities is higher if smoothing is utilized. LEA has not provided a basis for why these higher risk figures would be more accurate. Nor has LEA pointed to anything which would indicate that the methodology used in the PRA was improper.

LEA characterizes the issue as "a difference in opinions by experts." Tr. 4448. We are not, however, given any details about the basis for the experts' conclusions. Therefore, we find the contention vague.

In addition, we note that this is a contention which challenges the methodology of the PRA. We do not believe it is our role to validate all the procedures utilized in the PRA. We view the PRA as a tool which is

useful in identifying particular potential safety problems. This contention does not point us to any particular safety problems with the plant. We do not, therefore, see that litigating it would be a beneficial use of adjudicatory time.

Contention 2 is not admitted.

### **Contention 3**

Contention 3 alleges that the frequency for the loss of offsite power (LOOP) initiator is understated in the Limerick PRA because partial LOOP occurrences were excluded from the data base and nuclear and non-nuclear LOOP experiences were combined in calculating LOOP frequency. Contention I-8 also related to LOOP. As we have described in discussing Contention I-8, we will not admit a contention which alleges that the methodology used for incorporating LOOP in the PRA is inadequate. On the other hand, we are concerned that Limerick's design be adequate to handle LOOP occurrences which may be anticipated. We are denying this contention as it is stated. However, this does not preclude the possible relevance of similar evidentiary support as part of the litigation of Contention I-8 on the question of whether the design of the plant is adequate for coping with LOOP events which may be anticipated.

### **Contention 4**

Contention 4 alleges that because an older model is used in the Limerick PRA for the decay heat curve, the evacuation warning time is overstated and (radioactive) source terms may be understated. At one time LEA alleged that it led to an understatement of core melt probability due to overstating opportunity to quench core melt by safety systems; however, LEA has dropped that part of the contention. Tr. 4454-55.

LEA's concern is stated to be the effect that use of this model will have on the consequence analysis in the PRA. *Id.* As discussed above, the PRA is not being utilized to develop an ultimate consequence (and hence risk) figure. Therefore, this contention is without basis. In addition, the contention concerns the methodology used in the PRA which, we have explained, is not in and of itself a proper subject for litigation in this proceeding.

Contention 4 is not admitted.



## Contention 5

LEA contends that if deficiencies in the Limerick PRA are corrected, the PRA will show that Limerick represents an undue and disproportionate risk to the public due to its location. This is clearly a contention concerning the overall risk attributable to Limerick. As we understand it, the PRA is not being used to establish an overall risk figure for Limerick. Therefore, it is not important for the uses to which the PRA is being put whether the risk figure resulting from the PRA is accurate. (Establishing overall risk is much closer to what will be done in SARA.)

Furthermore, the contention as it is phrased is quite vague. It refers to "PRA deficiencies" without specifying them. Presumably, they have been specified in other, more precise contentions.

Because it is vague and does not relate to the Staff's stated uses for the PRA, this contention is denied admission.

## NON-PRA HEALTH AND SAFETY CONTENTIONS

### I-33M — Modification of ADS Logic (LEA)

This contention stems from NUREG-0737 "Clarification of TMI Action Plan Requirements," item II.K.3.18, which states that the automatic depressurization system (ADS) logic should be modified to eliminate the need for manual actuation to assure adequate core cooling.

The BWR owners' group feasibility and risk assessment study, responding to item II.K.3.18 and satisfying the first part of the contention, has now been completed and approved by the Staff. See NRC Staff letter to Applicant of May 23, 1983, and attached Staff generic evaluation (issued on or about April 1, 1983), both of which are attached to "NRC Staff Response to Licensing Board's Order of May 16, 1983," dated May 24, 1983. By responsive letter to the Staff, dated June 20, 1983, the Applicant has committed to the Staff-approved option 4 of the owners' group evaluation. Option 4 involves adding a timer which would bypass the high drywell pressure permissive after a sustained period of low reactor water level, and adding an ADS manual inhibit switch.

Accordingly, the only portion of LEA's contention still pertinent is that:

[A]pplicant states that modifications resulting from the [ADS logic] review will be deferred until the first refueling outage. The risk of an accident is particularly high in the initial period of operation of a nuclear power plant, and the applicant should be required to justify a delay which could unnecessarily threaten the health and safety of the public.

As discussed at the second special prehearing conference (Tr. 4471-81), LEA believes the NUREG-0737 implementation date for this item requires that the now agreed upon modifications be made prior to fuel load of Unit 1 (estimated by Applicant as August 1984, at the earliest), since that will be later than six months after the now issued Staff approval of the option 4 modification. The Applicant asserted at the conference that the implementation date for this requirement for operating license applicants is established in NUREG-0737 as the first refueling outage. The NRC Staff report to us of May 24, 1983, unfortunately fails to analyze the implementation date, as we had requested, by discussing either the language and rationale of NUREG-0737 or whether there are any later clarifications of NUREG-0737 schedules. Rather, the Staff merely asserts in its report to us, and in its May 23, 1983 letter to the Applicant that, under the NUREG-0737 schedule, the modifications need not be made until the first refueling outage.

The NRC Staff's letter to the Applicant does note that the modifications do not appear to require a large-scale effort and that therefore the Applicant should consider the feasibility of making the changes prior to fuel load. The Applicant's response of June 20, 1983, states that it is unable to commit to making the change before loading fuel due to possibly requiring time for final analysis and subsequent equipment purchases.

If we were required simply to interpret the four corners of the NUREG-0737 implementation schedule, given the absence of any explanation by the Staff, we would agree with LEA that the implementation schedule as stated in the text of item II.K.3.18 cannot, now that the Staff has approved the design options, be longer for new operating licenses than the sensible scheme set forth for operating reactors — the first refueling outage after six months from that Staff approval. Six months from the April 1, 1983 Staff approval (or *arguendo* the Staff's May 23, 1983 letter to the Applicant) (*i.e.*, October 1 or November 23, 1983) still leaves eight to ten months for the modification to be made before Applicant's most optimistic fuel load date estimate.

This is also consistent with the modification schedule in Table 2 of NUREG-0737, although its understandably shorthand notation is not clear without reference to the text of item II.K.3.18. In other words, both the schedule in summary Table 2 for new OL applicants to make the item II.K.3.18 modification — "1st refuel 6 mo. after Staff approval" — and the schedule implementation for operating reactors in the NUREG-0737 text of this item, instruct that utilities are expected to make this change after a six month grace period from Staff approval. However, if the reactor is operating at the end of that six month period,

it need not be shut down just to make this change. Rather, the change can be delayed until the first planned outage after that six month period, *i.e.*, the first refueling outage. As noted, Limerick would not be operating for at least eight to ten months after this six month period. Therefore, Applicant must establish before us that this NUREG-0737 item II.K.3.18 position is not necessary if it wishes to depart from it until some time after fuel load. The posture of Limerick is, of course, different from other BWRs which were ready to load fuel before even the Staff approval (or before six months from that date has elapsed). For such reactors, unlike Limerick, the first planned outage after the six month post-approval of design grace period would be the first refueling outage.

If our reading of the modification schedule is at odds with the Staff's, again we note the Staff has failed to explain its apparent rote application to Limerick of the schedule applicable to the post-NUREG-0737 BWRs which have been or will be granted operating licenses prior to or within six months of the Staff's approval of a modification plan responsive to item II.K.3.18. Based on our discussion above, we see no logic to the Staff's application of the schedule to Limerick. Regardless, LEA would be permitted to litigate whether such an extended NUREG-0737 implementation schedule would be sufficient as applied to the schedule circumstances of Limerick. *See Statement of Policy: Further Commission Guidance for Power Reactor Operating Licenses*, CLI-80-42, 12 NRC 654 (1980). Our above discussion shows the bases exist for such a contention. Therefore, the technical merits of the contention are litigable in any event. We admit the contention as quoted above.

### **I-38 — Post-Accident Radiation Monitoring (LEA)**

It is not completely clear upon reading Contention I-38 exactly what LEA's concern is. At the prehearing conference, however, it appeared that LEA's concern is with post-accident monitoring both inside and outside of the containment (Tr. 4487), but not offsite. Tr. 4488. LEA's concern is that the Design Basis Accident-Loss of Coolant Accident (DBA-LOCA) was being utilized to establish monitoring capabilities. LEA asserts that General Design Criterion (GDC) 64 would require monitoring capabilities beyond those needed to monitor radiation levels during a DBA-LOCA. Tr. 4490, 4493. LEA wishes to address the ability of the monitoring equipment to withstand an environment more severe than DBA-LOCA and to measure radiation levels in such conditions. Tr. 4494.

Although LEA has cited in its basis for this contention item II.B.3 from NUREG-0737, LEA is not contending that the Applicant will not satisfy that requirement. Tr. 4494. Rather LEA cites item II.B.3 because it requires sampling. *Id.* Item II.B.3 refers primarily to sampling of the reactor coolant and containment atmosphere under accident conditions. Thus, it may not cover the entire spectrum of monitoring, *i.e.*, outside containment, with which LEA is concerned. For the sampling which it does require, item II.B.3 requires that, for a boiling water reactor such as Limerick, the fission product release described in Regulatory Guide 1.3 for DBA-LOCA be assumed. LEA, citing GDC 64, would require the Applicant to go beyond item II.B.3 to require sampling capabilities for "postulated accidents" beyond design basis.

The Commission has said that an intervenor may litigate whether measures beyond those required by NUREG-0737 should be imposed if an otherwise admissible contention addresses the problem to which a NUREG-0737 item is directed. *Pacific Gas and Electric Co.* (Diablo Canyon, Units 1 and 2), CLI-81-5, 13 NRC 361, 363 (1981). At least insofar as LEA is concerned with reactor coolant and containment atmosphere sampling, LEA is, in fact, addressing a problem to which item II.B.3 is directed and arguing that further measures should be required. *See* Tr. 4486.

The problem with LEA's basis, however, is that it requires that "postulated accidents" as it is used in GDC 64, be interpreted to include accidents beyond design basis. The Board finds that "postulated accidents" is a term of art which refers to design basis accidents. There does not appear to be any written definition of "postulated accidents." *See* Tr. 4490-92. We are, however, reinforced in our interpretation that GDC 64 is intended to require monitoring only for design basis accident conditions by the recently enacted rule requiring Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants. 48 Fed. Reg. 2729 (January 21, 1983). This rule requires that electrical equipment important to safety, including "certain post-accident monitoring equipment" be qualified to perform under design basis accident conditions. 10 C.F.R. § 50.49(b)(3) and (d)(1). It would not be reasonable for the Commission to have limited the qualification of monitoring equipment to design basis accidents if the general guidance of the Commission's GDC 64 were interpreted by the Commission to require that this very monitoring equipment be able to perform in more severe conditions.

Insofar as this contention seeks to require monitoring or sampling not covered by item II.B.3, LEA has not identified a NUREG-0737 or a NUREG-0694 item directed to LEA's concern. Under *Diablo Canyon*,

*supra*, if the concern is not addressed in a NUREG-0737 or a NUREG-0694 item (and it is not litigable under some other regulatory requirement) it is a challenge to the regulations and may be raised only by a petition under 10 C.F.R. § 2.758. Thus, in addition to the fact that we do not interpret GDC 64 to require monitoring capability beyond design basis accident conditions, LEA has not shown why the contention would not, to this extent, be a challenge to NRC regulations.

For the above reasons, Contention I-38 is not admitted.

### **I-60 — Engineering Safeguards to Compensate for Class 9 Accident Release of Airborne Radiation (LEA)**

LEA contends that due to high population density and the dependency of Philadelphia on surface water sources for drinking water, additional compensating design features are necessary to prevent and mitigate the post-accident release of airborne radioactivity. As examples of the additional design features which should be required, LEA advocates the use of in-core thermocouples for detecting inadequate core cooling (which LEA labels preventive) and a filtered vented containment (which LEA labels a mitigative feature). As appears from the thrust of the contention, and as confirmed at the prehearing conference (Tr. 4517-18), the contention is premised on the occurrence of an accident greater than design basis; *i.e.*, a Class 9 accident.

The Commission recently issued its "Proposed Commission Policy Statement on Severe Accidents and Related Views on Nuclear Reactor Regulation," 48 Fed. Reg. 16,014 (1983). In it, the Commission discussed its bases for belief that, pending the resolution of large generic programs presently underway, existing design basis requirements provide reasonable assurance that the risk of degraded core accidents is acceptable. 48 Fed. Reg. 16,018, cols. 1-2. The statement continues:

Accordingly, individual licensing proceedings are not appropriate forums for a broad examination of the Commission's regulatory requirements relating to control and mitigation of accidents more severe than the design basis. Similarly, notwithstanding the Class 9 accidents review requirements for environmental hearings of the Commission's Statement of Interim Policy on "Nuclear Power Plant Accident Considerations Under the National Environmental [P]olicy Act of 1969" (45 FR 40101, June 13, 1980), the capability of current designs or procedures (or alternatives thereto) to control or mitigate severe accidents should not be addressed in case-related safety hearings.

*Id.* at 16,018, col. 2.

We recognize that this policy statement at present is proposed, not adopted. However, it is prudent for us to accept it now as disclosing the

Commission's present intent to impose the very clear quoted mandate not to litigate a contention such as I-60. If the policy statement, as adopted, changes this mandate materially, we will of course consider any such change.

If the proposed policy statement is not adopted at all, or remains pending at the conclusion of the Limerick proceeding, Contention I-60 would still not be admissible, since it would also not have been admissible prior to this proposed policy statement. The Commission's proposal is expressly intended to supersede, *inter alia*, the Commission's advance notice of proposed rulemaking, "Consideration of Degraded or Melted Cores in Safety Regulation," 45 Fed. Reg. 65,474 (1980). See 48 Fed. Reg. 16,014, col. 3. The Commission has previously pointed to that earlier proposed rulemaking proceeding as the proper place for consideration of the question of possible additional safety factors to deal with degraded core conditions, rather than an individual proceeding. See *Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1)*, CLI-80-16, 11 NRC 674, 675 (1980) (involving hydrogen generation following a degraded core accident). In fact, one of LEA's examples of a filtered vented containment was one of the express issues being considered in the degraded core rulemaking, as question 6. 45 Fed. Reg. 65,476 (1980).

Prior to the April 1983 proposed policy statement, it might have been open to LEA to allege, with basis and particularity, a credible degraded core accident scenario for which additional design measures should be considered to control airborne radiation releases. Cf. *Three Mile Island, supra*, at 675. However, LEA's contention does not do so. It is simply a broad concern that an unspecified accident beyond those presently designed for is credible, and that unbounded (except for two examples) additional design measures should be required. Accordingly, the contention does not provide adequate bases or specificity, and is rejectable also for this reason.

#### **VI-1 — Pattern of Improper Quality Assurance/Quality Control (AWPP)**

The contention alleges a pattern of faulty workmanship, inspection and supervision by the Applicant. The written contention, and the Air and Water Pollution Patrol's (AWPP) remarks at the prehearing conference, highlight an allegation that Applicant's corrective action was insufficient in response to an NRC Staff inspection report (76-06, November 10, 1976). This inspection report cited improper welds and welding procedures, and the fact that the welds had been approved by

Applicant's inspector. AWPP's basis for this particular allegation is Applicant's December 15, 1976 response to the NRC Staff inspection report. This response stated that, in addition to repair of the particular welds and preventive actions, a reinspection of all other work inspected by that same Applicant's inspector "has been accomplished, where accessible." AWPP argues that all such welds, even if not accessible, should have been reinspected.

In addition, the contention lists ten other NRC Staff inspection reports and summarizes problems reported on in those reports which allegedly indicate a pattern of inadequate QA/QC.

· The Board could perceive no particular pattern from the allegations or summaries of reports in the contention. In recognition of the fact that AWPP is not represented by counsel, and of the importance of the subject of QA/QC, we spent considerable time at the prehearing conference in an attempt to elicit from AWPP just what the alleged pattern is, and what specific bases exist to support the allegation of a pattern. Tr. 4134-52; 4172-96. Based on this discussion, we conclude there is no particular pattern being alleged by AWPP. Rather, AWPP is merely relying on the fact that there are many deviations and non-compliances in NRC Staff and Applicant inspection reports over the many years of construction, and that this shows inability of the Applicant to carry out a proper QA program. (AWPP is not alleging that any particular defect still exists. Indeed, the contention asserts that later correction of the items found is irrelevant to the fact that a pattern exists.)

· We agree in general with the Applicant and Staff that the mere recitation of unrelated adverse findings in reports of inspections and audits performed by the Staff and Applicant does not supply information on what specifically would be litigated. It suggests a broad, unfocused, item by item cross-examination of the very Staff and Applicant inspectors who reported the problems and approved their resolution. This is to be contrasted with proceedings where particular allegations of specific patterns of QA/QC problems, often based on inspection reports, have been litigated. It is also in sharp contrast with supported allegations of particular existing construction defects.

The Board initially was concerned that the highlighted example summarized above might be a well-based instance of a failure by the Applicant to take sufficient corrective action. The Applicant, in response to the contention, asserted that all welds inspected by the inspector in question were in fact reinspected, not just accessible ones, and that documents supplied to AWPP show this. Pursuant to our order of May 13, 1983, Applicant supplied these documents under cover of counsel's letter of May 20, 1983. Included as attachments 8 and 9 are Applicant's

(actually its agent, Bechtel's) inspection reports of April and July 1977. According to counsel's letter, these reports show further follow-up through reinspection of all of the inspector's welds which were inaccessible for temporary reasons at the time of Applicant's initial December 1976 response, as well as the inspection to the extent possible of such welds embedded in concrete. Counsel's letter further asserts that the Applicant performed structural analyses which assumed that embedded welds or portions thereof which were not accessible for reinspection were nonexistent. AWPP is correct that Applicant's original response to the inspection report implied that only accessible welds were reinspected. Given Applicant's asserted follow-up, however, it may be that Applicant's letter of December 15, 1976, only intended to report on reinspections performed by that time. If so, it would certainly have been useful for Applicant to have indicated in that response that further inspections and analyses would be performed.

The Bechtel inspection reports do not by themselves make clear that the welds listed are those which had been inspected by the same inspector cited in NRC Staff inspection report 76-06, or that the other statements in counsel's letter are accurate descriptions of the reports (attachments 4-9). In addition, we have no sworn affidavit attesting to the fact that the structural analyses, showing the assumed absence of the embedded welds as acceptable, were performed. (The details of these structural analyses are beyond the scope of the contention that QA/QC follow-up action to this Staff inspection report was improperly limited to reinspection of accessible welds.) However, it presently appears from counsel's representations of facts that there is no basis to admit even this part of AWPP's contention. We will not do so, subject to Applicant providing, as soon as practicable, appropriate affidavits of knowledgeable persons verifying the accuracy of the statements in its counsel's letter of May 20, 1983.

Nothing in AWPP's letter to the Board of May 25, 1983, responding to Applicant's counsel's letter of May 20, 1983, remedies the fatal absence of bases for believing that Applicant limited its follow-up action to accessible welds.

AWPP seeks to conduct further discovery to better specify the contention. We have already permitted AWPP about a year to examine QA/QC documents and it has been unable to frame an admissible contention. Further discovery is unwarranted given AWPP's failure to specify with any reasonable particularity what it would seek to litigate within the broad area of QA/QC. The fact that AWPP has not received



details of everything it might need to actually litigate a case at an evidentiary hearing does not excuse its failure now to state an admissible contention with reasonable specificity and basis.

For the reasons stated, this contention which had been conditionally admitted in an earlier form, subject to AWPP providing better specificity and basis, is rejected, subject to our acceptance of the affidavits to be filed by Applicant.

## **DISCOVERY**

Discovery may begin immediately on contentions admitted by the Board in this order. All discovery requests must be served by October 14, 1983. Discovery is subject to the directions and time limits set forth in our Order of May 16, 1983.

## **ORDER**

1) Contentions I-8, I-15 and I-33M are admitted for litigation. The litigation is to be within the scope described in this memorandum and order.

2) Contentions I-4, I-7, I-10, I-11, I-12, I-14, I-16a, I-16b, I-23, I-26, I-30, I-31, I-38, I-60, VI-1 (provided appropriate confirmatory affidavits are filed by Applicant), and the five new probabilistic risk assessment contentions are denied.

3) Discovery on the admitted contentions may start immediately and will follow our instructions set forth in this memorandum and order and our "Memorandum and Order Confirming Schedules Established During Prehearing Conference" (May 16, 1983).

4) Pursuant to 10 C.F.R. § 2.751a(d), parties normally may file objections (requests for reconsideration) to this Order with the Licensing Board within five days after service (ten days in the case of the Staff) of

the Order. Parties may not file replies to the objections unless the Board so directs.

**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  
July 26, 1983**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Ivan W. Smith, Chairman  
Dr. Dixon Callihan  
Dr. Richard F. Cole**

**In the Matter of**

**Docket Nos. STN 50-454-OL  
STN 50-455-OL  
(ASLBP No. 79-411-04-PE)**

**COMMONWEALTH EDISON COMPANY  
(Byron Nuclear Power Station,  
Units 1 and 2)**

**July 26, 1983**

The Licensing Board denies the NRC Staff's application for a stay pending appeal from a part of a Board order directing the parties to present a full evidentiary showing and explanation of certain investigations and subsequent reinspections related to the quality assurance program of one of Applicant's contractors.

**RULES OF PRACTICE: STAY PENDING APPEAL**

The criteria for determining whether to grant a stay pending appeal have been codified in § 2.788(e) of the Commission's Rules of Practice (10 C.F.R. § 2.788(e)).

**RULES OF PRACTICE: STAY PENDING APPEAL**

It is appropriate for a party seeking a stay pending appeal of a licensing board order to petition the licensing board first. *Florida Power and Light Co.* (St. Lucie Nuclear Power Plant, Unit 2), ALAB-404, 5 NRC 1185,

1186 n.2 (1977). However, it is also appropriate for a licensing board to place relatively little weight on the first criteria for determining a stay pending appeal, *i.e.*, whether the moving party has a strong showing that it is likely to prevail on the merits of the appeal.

#### **RULES OF PRACTICE: PRODUCTION OF NRC RECORDS AND DOCUMENTS**

In considering whether the NRC Staff will be irreparably injured by an order to produce relevant documents even though germane to a pending inspection or investigation, the licensing board cannot determine the applicability of the "investigatory record" exemption to the NRC codification of the Freedom of Information Act, 10 C.F.R. § 2.790(a)(7), without at least a discussion of the various protections afforded by § 2.744 of the Commission's Rules of Practice (10 C.F.R. § 2.744).

#### **RULES OF PRACTICE: PRODUCTION OF NRC RECORDS AND DOCUMENTS**

The Staff may not unilaterally and summarily declare that the "investigatory records" exemption (10 C.F.R. 2.790(a)(7)) applies to information in its possession. Pursuant to 10 C.F.R. 2.744(c) this determination must be made by the presiding officer after examination of the information.

#### **RULES OF PRACTICE: PRODUCTION OF NRC RECORDS AND DOCUMENTS**

Although § 2.744 by its terms refers only to the production of NRC documents, it also sets the framework for providing protection for NRC Staff testimony where disclosure would have the potential to threaten the public health and safety.

#### **RULES OF PRACTICE: DISCLOSURE OF NRC RECORDS AND DOCUMENTS**

With respect to safeguards information, the Commission has declined to permit any presumption that a party who has demonstrated standing in a proceeding cannot be trusted with sensitive information.

## **RULES OF PRACTICE: PRODUCTION OF NRC RECORDS AND DOCUMENTS**

If there are persons who might be privy to sensitive information who are not trustworthy, that fact can be made known exclusively for the licensing board's consideration in fashioning suitable protection under the various means available to the board. The fact that persons employed by Applicant or its contractors cannot be trusted to receive information on a quality assurance issue is itself relevant to the issue and must be provided to the board.

## **RULES OF PRACTICE: STAY PENDING APPEAL**

Where the NRC Staff has failed to show that the provisions of 10 C.F.R. § 2.744(c) do not provide sufficient protection for the information ordered to be disclosed by the board, it has failed to demonstrate the potential for irreparable injury that would justify the granting of its application for a stay of the board's order pending appeal.

## **LICENSING BOARDS: RESPONSIBILITIES**

If, with respect to an uncompleted inspection and investigation, an explanation of the nature of the allegation and a description of the evidence so far gathered can put a matter to rest or indicate a need for further inquiry, the licensing board has the responsibility to inquire timely into the significance and relevance of the pending inquiries to the issues in the proceeding.

## **MEMORANDUM AND ORDER DENYING STAY APPLICATION**

The NRC Staff applies for a stay pending appeal<sup>1</sup> from a part of this Board's July 1, 1983 Memorandum and Order directing the parties to "present a full evidentiary showing and explanation of the pertinent [Region III and Office of Investigation] investigations of Hatfield Electric's quality assurance program and subsequent reinspections." That

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<sup>1</sup> NRC Staff Application for Stay of the Licensing Board's July 1, 1983 Memorandum and Order, July 11, 1983. Subsequently, on July 21 during a conference call, the Staff supplemented the application to extend the requested stay through any Commission review.

same order required the Staff to provide relevant documents in advance of the reopened hearing set for August 9, 1983.

The Staff agrees to present evidence and provide documents on completed inspections and investigations but has appealed from and seeks a stay of that aspect of the order which would require evidence on pending inspections and investigations.

The background of the Board's directive is set out in two memoranda and orders of June 21, 1983 respectively accepting portions of John Hughes' testimony and reopening the evidentiary hearing.<sup>2</sup> Also, the parties have very thoroughly briefed the factual circumstances to the Appeal Board. The matters we inquire into are, by the Staff's admission, "... potentially serious problems affecting the public health and safety." *E.g.*, Stay Application at 5. Moreover, the Staff does not assert that the results of its inspections are not suitable for litigation if otherwise relevant to the issues. Motion for Directed Certification at 8.

Before we address the merits of the stay application, we wish to clarify our July 1 order which may be confusing out of context. Our order of June 21 reopening the evidentiary record and the July 1 order are directed to the Office of Inspection and Enforcement and other staff components who are represented by the Office of Executive Legal Director and who report to the Executive Director for Operations. The Board has made a separate request to the Office of Investigations (OI), which is not a staff office, for voluntary cooperation in the reopened proceeding.<sup>3</sup> Our references (some by incorporation) to OI in the reopening orders were intended to include all information in the possession of the staff offices even though that information is the subject of pending OI investigations.

## I. DISCUSSION

The familiar criteria set out in *Virginia Petroleum Jobbers Association v. Federal Power Commission*, 259 F.2d 921, 925 (D.C. Cir. 1958), have long governed the determinations of whether to grant stays pending appeal in NRC proceedings. In 1977 the criteria were codified in 10 C.F.R. 2.788(e):

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<sup>2</sup> Memorandum and Order Ruling on Intervenors' Motion to Admit Testimony of John Hughes, and Memorandum and Order Reopening Evidentiary Record (unpublished).

<sup>3</sup> Letter June 21, 1983 from Board to Pawlik.

(e) In determining whether to grant or deny an application for a stay, the Commission, Atomic Safety and Licensing Appeal Board, or presiding officer will consider:

- (1) Whether the moving party has made a strong showing that it is likely to prevail on the merits;
- (2) Whether the party will be irreparably injured unless a stay is granted;
- (3) Whether the granting of a stay would harm other parties; and
- (4) Where the public interest lies.

### (1) Likelihood of Prevailing on the Merits

It is an inherently difficult task for a party seeking a stay pending appeal of a licensing board order to attempt to persuade that board that its own order will be thrown out on its merits. The Staff has correctly brought the stay application to the Licensing Board, however. *E.g., Florida Power and Light Co. (St. Lucie Nuclear Power Plant, Unit 2), ALAB-404, 5 NRC 1185, 1186 n.2 (1977)*. We do not believe that the Staff will prevail on the merits — but we also believe that this criterion is the least important of all four. If the Staff prevails on the other three criteria, we would be inclined to accept relatively slim chances of prevailing on appeal in satisfaction of the “merits” criterion. This weighting of the four factors is particularly appropriate when the stay application is directed to the presiding officer whose order is the subject of the appeal.

However the Staff is entitled to full consideration of its merits argument. It states that our order threatens a long-standing practice of providing testimony and documents only after the respective investigation is complete. We are aware of no such tradition or practice and the Staff has not provided any support for its claim. Nor are we aware of any legal authority for the practice no matter how long standing it may be.

Lest there be doubt, our directive to the Staff did not attempt to direct the Staff in the timing of its investigations or the timing of its final reports. Nor did we direct the Staff in any other way except to require it to present otherwise appropriate information in the hearing.<sup>4</sup> Staff's assertion that sooner or later all of the relevant information will be presented in the adjudication was made for the first time in its appeal

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<sup>4</sup> See *Offshore Power Systems (Floating Nuclear Power Plants), ALAB-489, 8 NRC 194, 199-208 (1978)* (boards and Staff must coordinate as if partners in the public interest).

and stated to us for the first time in its stay application.<sup>5</sup> This is an entirely distinct consideration which we address in the second part of this order. As we understand it, the Staff's position is only indirectly related to timing. Its position seems to be that the pendency or incompleteness of an inspection or investigation, with nothing more, is sufficient to protect the respective information from being produced in litigation. This is true even where the information, a corporate record say, would otherwise be subject to a production order. It is not clear, but it may be that there is a second aspect to the Staff position, *i.e.*, the pendency of the inquiry protects the information only when the Staff declares that its production will compromise the incomplete investigation. In that case, the Staff may unilaterally and summarily make such a declaration. If we have characterized the Staff position accurately, we see little chance of it prevailing on appeal under present Commission precedent and policy and on any grounds presented to this Board or the Appeal Board. It has advanced nothing in support of that position. The Applicant has briefed that point thoroughly. Response to Motion for Directed Certification at 15-24.

The Staff also asserts that congressional attention, by the Committee on Interior and Insular Affairs, Subcommittee on Oversight and Investigation, will somehow affect favorably its chances of prevailing on the merits. We need not judge the probability of that effect. Even assuming that the Staff is correct, and assuming that the issue now before us, and the generic issue it represents, will predictably result in a change in Commission policy and regulation, we are not empowered to disregard present case law and regulations in the conduct of this proceeding.

The only material possibility that the Staff will prevail on the merits depends on its claim that it will suffer irreparable injury if it does not.

## **(2) Irreparable Injury**

The Staff asserts that it will be irreparably injured if required to comply with the Board's order because premature release of uninvestigated allegations might compromise the respective inspections and investigations and that the "... potentially significant public health and safety problems may remain undiscovered and uncorrected."

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<sup>5</sup> We recognize that the testimony of the Region III officials underlying the present inquiry stated that "the results of its inspections or investigations will be documented at some future time." Region III testimony, ff. Tr. 3586, at 6. There has been no prior suggestion, however, that the Staff intended to bring those results into the adjudication. The Staff acquiesced in the closing of the record and opposed reopening it to receive the Hughes testimony.



Remarkably, the Staff in its earlier discussions with us, in its two pleadings on appeal and its stay application *not once cited* 10 C.F.R. 2.744. We are told simply that *in camera* treatment and protective orders would only somewhat reduce the risk of premature disclosure. The subjects of the investigations and inspections “by inadvertence or otherwise” might become aware of the allegations. Stay Application at 5.

In arguing to this Board against the issuance of the order directing the Staff to produce relevant documents even though germane to a pending inspection or investigation, the Staff pointed to the “investigatory records” exemption to the NRC codification of the Freedom of Information Act, 10 C.F.R. 2.790(a)(7). We ruled in our July 1 order that, without at least a discussion of the various protections afforded by Section 2.744, we could not give the Staff’s argument the consideration it required. We are in no better position today. Even the Applicant and Intervenors had to postulate how the Staff might avail itself of the protections afforded by NRC regulations in attempting to present a complete picture to the Appeal Board.

Although Section 2.744 by its terms refers only to the production of NRC documents, it also sets the framework for providing protection for NRC Staff testimony where disclosure would have the potential to threaten the public health and safety. The Commission’s approach to protecting nuclear plant security information and safeguards information in general is analogous and instructive. The Atomic Energy Act was amended with new Section 147 in 1980 to provide for the minimum restrictions needed on the release of safeguards information to protect the public health and safety. In conforming Parts 2 and 73 to Section 147 of the Act, the Commission discussed at length the balance between measures used by Boards to protect sensitive information and the rights of parties in adjudicatory hearings. Statement of Considerations, Protection of Safeguards Information, 46 Fed. Reg. 51,718 (73-SC-26) (1981). The Commission noted:

The minimum protection required for Safeguards Information is stated in proposed § 73.21. The requirements there apply to intervenors and their counsel as well as to the applicant or licensee. Section 2.744(e) allows a Board to go further, if, in its judgment after hearing all relevant arguments, the circumstances warrant it. This Commission needless to say, has confidence in the ability of its Boards to exercise sound judgment in the exercise of their discretion under § 2.744(e), and therefore at this time declines to write any special rules for the guidance of the Boards as to the extra measures they may require for the protection of Safeguards Information in adjudicatory hearings.

*Id.* at 73-SC-28.

The Commission also stated that:

At this time the Commission believes that its opinion [*Diablo Canyon*, CLI-80-24, *infra*] and those of the Boards provide adequate guidance. See, *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-80-24, 11 NRC 775 (1980), ALAB-410, 5 NRC 1398 (1977); ALAB-580, 11 NRC 227 (1980); ALAB-592, 11 NRC 744 (1980); and ALAB-600, 12 NRC 3 (1980).

*Id.*

Of particular importance to this proceeding is that the Commission, with respect to safeguards information, declined to permit any presumption that a party (discussing intervenors), who has demonstrated standing in a proceeding cannot be trusted with sensitive information. *Id.*; see also *Diablo Canyon*, CLI-80-24, *supra*. We cannot assume that the employees of Applicant, selected to be privy to information under a protective order, as a class of persons, cannot be relied upon to protect sensitive information under Board order and a suitable nondisclosure agreement. Moreover if, as suggested by the Staff, there are persons employed by Applicant or its contractors who might be privy to sensitive information and who are not trustworthy, that fact could be made known exclusively for the Board's consideration in fashioning suitable protection under the various means available to us. Further, if the Staff has knowledge that persons employed by Applicant or its contractors cannot be trusted to receive information on the QA/QC issue, that information in itself is relevant to the issue and must be provided to the Board.

Given the protective methods available to the Staff, we find that the Staff will not be injured by providing otherwise appropriate information in the reopened proceeding. In addition, the Staff may avail itself of the provisions of Section 2.744(c) by submitting information *in camera* exclusively to the Board to determine whether the information is relevant and necessary to the proceeding, and whether the "investigatory records" exemption should apply. In other words, if the Staff complies with the protective scheme anticipated by the regulations, not only will it not be injured, but it might succeed in not producing the information. In that respect the Staff's appeal and stay application is premature because the Staff has not yet put forth any claim of exemption under Section 2.790(a)(7) to a test.

### (3) Harm to Other Parties

The Applicant would be injured by any stay because of delay and says so. The Staff's pleadings have been inconsistent with respect to any delay in the proceeding. We are told that the timing of the initial decision

would not be affected because we have already caused a delay by reopening the evidentiary record. Stay Application at 7-8. We simply do not understand that point.

The Staff also reports to this Board that the recent postponement of the fuel load date from August to December 1983 may accommodate any delay. *Id.* at 8. But the Appeal Board has been informed that the Staff cannot predict when the inspections and investigations will be completed but that many if not all of the underlying allegations would require resolution before fuel load. Motion for Directed Certification at 15 n.21. Because the Staff has so far failed to present any plan for the presentation of evidence on yet-to-be-completed investigations, it seems clear that the Staff's unwillingness to share with the Board the nature of the health and safety concerns underlying the allegations has the tendency to prolong the proceeding. We cannot find, nor need we find, that the actual initial decision will be delayed to or beyond the projected fuel-load date. The parties, especially the Applicant, are entitled to a reasonably prompt decision regardless of fuel loading.

Intervenors also state that they will be harmed if the stay is granted because the Quality Assurance litigation will be further segmented and the proceeding will become even more unwieldy. This potential effect is nothing more than an inconvenience and does not weigh heavily against granting the stay. But delay in presenting Staff evidence might take the results of the investigations out of the adjudication. The Staff suggests that this is one of the options available to the Board. Motion for Directed Certification at 15.<sup>6</sup> That course would deny full participation by Intervenors or place very heavy burdens upon them.

#### **(4) The Public Interest**

The public interest lies in providing for an undelayed hearing pursuant to Section 189a of the Atomic Energy Act, an undelayed initial decision based upon a complete and reliable evidentiary record, and in protecting sensitive information so that inspections and investigations important to public health and safety will not be compromised. With suitable protective measures in place for the reopened hearing, the public interest lies in denying the application for a stay pending appeal.

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<sup>6</sup> The Staff's position on closing the record is ambiguous. In the Motion for Directed Certification cited in the body, the Staff refers to the option of retaining jurisdiction following the close of the record to receive information of the eventual inspection result. But in the Stay Application the Staff asserts that the application "seeks a stay of the ruling directing the provision of testimony and documents only for the period of time necessary to complete the investigation into these allegations." The Board will inquire further into the Staff's intent as we discuss below.

## II. THE REOPENED PROCEEDING

As noted above, the Staff has not previously explained to the Board its plans for presenting the results of its yet-to-be-completed investigations and inspections. In its Motion for Directed Certification the Staff adds still another new dimension to the issue. The Staff stated that our direction to present evidence on uncompleted investigations may be premature and may produce information of little value. *Id.* at 13-14, 16. Our order of July 1, directing an evidentiary showing, and the telephone conference preceding it did not address that problem — perhaps the Staff believed that it was obvious.

Moreover the Staff has informed the Appeal Board that our order tends to “strain already limited agency resources because, instead of providing evidence at the end of inspections which are documented in reports, a premature hearing would cause delays in inspector efforts to resolve allegations.” *Id.* at 14. Similarly the alleged waste of inspector resources was never raised as a consideration. If the Staff’s position about the potentially poor quality of evidence and inspector inefficiency in a premature hearing is an important concern, it is a matter worthy of very careful consideration. But it was not a consideration within the ambit of our July 1 order and properly should not be the subject of the stay application — or the appeal for that matter. We have not been provided an opportunity to explore the bases for Staff’s concern and we recognize that it is our responsibility to do so. *Floating Nuclear Power Plants, supra*, 8 NRC at 203.

Our problem with the Staff’s position, as we see it explained to the Appeal Board, is that all investigations and inspections seem to fit precisely into one of two categories — completed or uncompleted. If nothing of value can be learned from any uncompleted inspection and investigation, so be it. We will listen to that explanation. But, if an explanation of the nature of the allegation and a description of the evidence so far gathered can put a matter to rest, or indicate a need for further inquiry, the Board has the responsibility to inquire timely into the significance and relevance of the pending inquiries to the issues in our proceeding.

Accordingly the Board denies the Staff’s application for a stay pending appeal. The Board will take up the issue of whether ongoing investigations and inspections are ripe for hearing at the opening session of re-

opened hearing on August 9, 1983.<sup>7</sup> We shall also consider any protective measures which may be necessary. The Staff is directed to be prepared for the discussion. This phase of the reopened hearing may be *in camera*.

FOR THE ATOMIC SAFETY AND  
LICENSING BOARD

Ivan W. Smith, Chairman  
ADMINISTRATIVE LAW JUDGE

Bethesda, Maryland  
July 26, 1983

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<sup>7</sup> In a telephone conference call on July 21, 1983 the parties agreed that the time allocated for the reopened hearing, August 9-12, would be sufficient to hear evidence from the Applicant and from the Staff on completed inspections and investigations. The Board has not been able to schedule a hearing to receive evidence on inspections and investigations not yet completed.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Ivan W. Smith, Chairman  
Dr. Dixon Callihan  
Dr. Richard F. Cole**

**In the Matter of**

**Docket Nos. STN 50-454-OL  
STN 50-455-OL  
(ASLBP No. 79-411-04-PE)**

**COMMONWEALTH EDISON COMPANY  
(Byron Nuclear Power Station,  
Units 1 and 2)**

**July 28, 1983**

The Licensing Board denies Intervenors' motion to reopen the record for the purpose of receiving certain inspection reports.

**RULES OF PRACTICE: REOPENING THE RECORD**

A motion to reopen the record must be timely, must demonstrate that significant new evidence of a safety question exists and that the new evidence might materially affect the outcome of the proceeding.

**RULES OF PRACTICE: REOPENING THE RECORD**

Where Intervenors do not seek a general reopening of the evidentiary record, but only to supplement the record with certain inspection reports, it is readily possible to settle the matter by considering the factual responses of the Applicant and Staff to determine if the significant safety problem actually existed and, if so, whether it has been resolved.

## **RULES OF PRACTICE: REOPENING THE RECORD**

Because each motion to reopen the record must be evaluated on its merits, and because the Applicant's burden of proof and the Staff's oversight responsibilities give strong leverage to Intervenor, the board will examine carefully the Intervenor's pleadings for detail of factual analysis as one of the factors in determining how seriously the matter is viewed by Intervenor.

## **TECHNICAL ISSUE DISCUSSED**

Integrated Hot Functional Testing.

## **MEMORANDUM AND ORDER DENYING INTERVENORS' MOTION TO SUPPLEMENT THE QA/QC RECORD**

The Intervenor, Rockford League of Women Voters and DAARE/SAFE, by their June 29, 1983 motion, seek to have the evidentiary record supplemented with respect to the Quality Assurance/Quality Control Contention 1A. The motion is founded on three Region III inspection reports regarding preoperational testing at Byron.<sup>1</sup> The motion urges the Board to reopen the record to receive the inspection reports but requests no other evidentiary proceeding.

During the period March 1 to May 4, 1983, Region III inspectors conducted two routine inspections of the Byron "Integrated Hot Functional" testing (Exhibits B and C) which resulted in an enforcement conference among cognizant Region III officers and Commonwealth Edison personnel (Exhibit A). The first inspection by the NRC resident inspectors resulted in a Level IV Notice of Violation because the inspectors perceived departures from 10 C.F.R. 50, Appendix B, Criterion XI which requires, among other things, a testing program in accordance with written criteria. Noteworthy in the resulting Notice of Violation was the view by Region III that all channels of the loose parts monitoring system were in a high alarm state and that the operators reacted inadequately; that, although the reactor coolant

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<sup>1</sup> Inspection Report No. 50-454/83-23 (DE) (Exhibit A); Inspection Report Nos. 50-454/83-18 (DPRP), 455/83-15 (DPRP) (Exhibit B); and Inspection Report Nos. 50-454/83-17 (DE), 50-455/83-14 (DE) (Exhibit C). The exhibits were attached to the motion. Exhibit A and Exhibit B were transposed.

system pressure and temperature were not maintained within expected ranges, testing continued; and that operators had not been adequately briefed before the test concerning the reactor coolant temperature and pressure control bands. Exhibit B.

The second inspection, by a test program specialist, also produced Region III criticism of the Integrated Hot Functional testing and another Level IV Notice of Violation because, in the words of the notice:

[Contrary to Appendix B and the Byron Startup Manual], the applicant approved and issued for performance Test Procedure 2.63.10, "Integrated Hot Functional," without performing an adequate review of the procedure as evidenced by incomplete or missing acceptance criteria, data not designated as acceptance criteria, misleading typographical errors, incomplete testing provisions, and incomplete objectives.

#### Exhibit C.

The Intervenors, however, do not analyze or even discuss the particular items of alleged violations, but focus instead on the strong reaction by Region III, especially Engineering Director R.L. Spessard, to the findings of the inspectors. In the special enforcement conference, Mr. Spessard informed high-level Commonwealth Edison officials that the NRC views inadequate preparation of preoperational test procedures and inadequate preoperational testing at Byron as serious problems and that the observed problems are not indicative of a quality test program. He warned that the problem cannot continue. Exhibit A at 2 of details. As pertinent, Region III summarized the enforcement conference as follows:

The NRC cautioned against an overemphasis on schedule and production which may have contributed to inadequate procedures and an operations staff which was ill-prepared for the increased involvement of IHF. The licensee acknowledged the difficulties encountered in the IHF, but took exception to the opinion that overemphasis on a schedule may have influenced the events. The NRC pointed out that the problems noted were primarily associated with personnel attitude and preparation as opposed to equipment. The NRC stressed that, although the licensee corrective actions appear to be reacting to specific NRC observations, a more aggressive attitude is needed to discern potential problems and prevent their occurrence. The licensee responded by stating that potential problems are pursued in this way with many successful results but that these successful efforts go unnoticed by the NRC.

The enforcement conference concluded with the NRC stressing the importance of quality test program performance and the licensee stating the intent to correct the problems and perform a complete and quality test program.

#### Exhibit A at 4.



The Applicant answered Intervenor's motion in part by providing letters containing the corrective actions already undertaken and proposed. Although there is no expert evidence, and there is insufficient contextual evidence, upon which this Board can judge whether the responses are technically sufficient, the responses to and explanations of the perceived problems appear to be sensible and founded on rational engineering judgments. More important, it is clear that a dialogue between Region III and Commonwealth Edison exists and that corrective action was initiated promptly.

The NRC Staff answered the motion in part by a factual response in the form of the affidavit of Mr. Forney who is now Region III's Chief of Special Cases and was the senior resident inspector at Byron. He conducted one of the inspections at issue and participated in the enforcement conference. Mr. Forney provided the only testimony concerning preoperational testing during the hearing.

He makes several statements relevant to the motion. The strong language in the inspection reports was intended to convey the *potential* seriousness of the deficiencies. Level IV violations are "of more than minor concern but are not a significant safety issue." If uncorrected they could lead to a more serious concern. The concern of Region III was the need for Applicant to initiate immediate and effective resolution of the deficiencies so that they do not become a significant safety issue according to Mr. Forney.

Mr. Forney stated further that the inspection reports are not, as stated by Intervenor, an admission by NRC Staff that the Applicant is conducting a substandard preoperational testing program at Byron. Preoperational testing is extremely complex and Integrated Hot Functional testing is even more complex and normally takes 30-40 days to complete. Due to this complexity and scope and the large number of inspector hours (Exhibits B and C) "... the identification of many items of noncompliance is not unexpected."

Mr. Forney also recognizes that the Applicant has implemented corrective action and has restarted Hot Functional Testing which the Staff has closely monitored and will continue to monitor. He does not expect that the identified deficiencies will go uncorrected, and, in any event the Staff would not permit them to go uncorrected. He also asserts that the Staff's position on the QA/QC contention remains unchanged as a result of these inspection findings.

We have recently reviewed prevailing Commission law on the standards for reopening evidentiary hearings.<sup>2</sup> In *Wolf Creek*, where the motion to reopen was filed after the initial decision, the standard applied by the Appeal Board was that the motion must establish that a different result would have been reached had the respective information been considered initially. 7 NRC at 338. In *Black Fox*, the record had been closed but the motion was filed before the initial decision. There the Appeal Board employed as a standard whether the outcome of the proceeding might be affected. 10 NRC at 804.

Recently the Appeal Board in *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-728, 17 NRC 777, 800 n.66 (1983) commented on the various ways in which standards for reopening have been stated, but announced that the traditional standard requires that the motion be timely, that it demonstrate that significant new evidence of a safety question exists and that the new evidence "... might materially affect the outcome" of the proceeding. This standard seems to fit comfortably the circumstances of the present case.

Intervenors' motion is timely. Although inspection reports, Exhibits B and C, were issued in late May, it is the later report of the enforcement conference, Exhibit A, which has raised the Intervenors' concerns. That report was available only about one week before the motion was filed. We refer to this circumstance in slightly different context below.

Both the Applicant and the Staff state that the inspection reports do not raise significant safety issues; that Severity Level IV violations do not meet the standard for reopening. As we noted above, the Staff's affidavit asserts that Severity Level IV violations "... are violations which are of more than minor concern but are not a significant safety issue . . . ." Forney Affidavit at 2. However, the Commission's General Policy and Procedures for NRC Enforcement Actions (10 C.F.R. Part 2, Appendix C) with respect to both reactor operations (Supplement I) and reactor construction (Supplement II) define, as pertinent, Level IV violations as failures to meet regulatory requirements "that have more than minor safety or environmental significance." But whether it is

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<sup>2</sup> Memorandum and Order Setting Special Deposition Session, May 12, 1983, at 3-5, citing *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-81-5, 13 NRC 361, 362 (1981); *Public Service Co. of Oklahoma* (Black Fox Station, Units 1 and 2), ALAB-573, 10 NRC 775, 804 (1979); *Kansas Gas and Electric Co.* (Wolf Creek Generating Station, Unit 1), ALAB-462, 7 NRC 320, 338 (1978); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-422, 6 NRC 33, 64 n.34 (1977); *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 523 (1973).

appropriate to apply the policy's definition of "safety significance" to the standard for reopening an evidentiary record will be left for another day because, in the case before us, the issue will not turn on the label placed on the problem by Region III. The particular question presented by the pleadings before us, especially the Staff's answer, is whether the prospective nature of the safety concern removes the issue from consideration. The Board recognizes that the problems found during the non-nuclear hot functional testing at Byron did not and could not directly endanger the health and safety of the public. The description of the alleged items of violation does not, standing alone, establish that the matter was serious.

On the other hand Region III's response to the violations was very strong. In addition, Mr. Forney's affidavit makes it clear that the problems observed at Byron could become serious if uncorrected. We see no reason in law or in logic which would remove a safety concern from consideration because the portended risk to the public has not yet arrived.

As was the case when the Board provided for further inquiry into John Hughes' allegations,<sup>3</sup> we find useful guidance in *Vermont Yankee, supra*. There the Appeal Board ruled that

Thus, even though a matter is timely raised and involves significant safety considerations, no reopening of the evidentiary hearing will be required if the affidavits submitted in response to the motion demonstrate that there is no genuine unresolved issue of fact, *i.e.*, if the undisputed facts establish that the apparently significant safety issue does not exist, has been resolved, or for some other reason will have no effect upon the outcome of the licensing proceeding.

6 AEC at 523.

The *Vermont Yankee* reasoning is even more appropriate in this case because, unlike the movant there, Intervenor here do not seek a general reopening of the evidentiary record on the issue. They seek only to supplement the record with the three inspection reports. Therefore it is readily possible to settle the matter by considering the factual responses of the Applicant and Staff to determine if a significant safety problem actually existed, and if so, whether it has been resolved. Thus we have a paradox. The matter became significant in part because of the Staff's strong response which is relied upon by Intervenor as evidence of a significant safety problem. Because of that strong response, the matter in part loses its significance. The corrective actions produced by

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<sup>3</sup> May 12, 1983 Memorandum and Order, note 2, *supra*.

the Staff's enforcement conference, the additional explanatory information provided by the Applicant, and the Staff's monitoring commitment provide reasonable assurance that the matter has been or will be timely resolved.

Moreover, since Intervenors seek nothing more than to supplement the record with the three inspection reports, and since reopening the record would also require receiving into evidence the factual responses of the Staff and Applicant, and considering the fact that there is little other litigation on this subissue,<sup>4</sup> reopening the record would not likely materially affect the outcome of the proceeding on this contention. Accordingly, based upon our conclusion that if a significant safety concern existed, it has been resolved, and that receiving the information into the record would not likely materially affect the outcome of the proceeding, Intervenors' motion cannot prevail.

However, the Board prefers not to leave the matter solely on the narrow grounds that a dispute between the parties has been decided. We noted Mr. Forney's rather brief comment that because of the complexity of the Hot Functional Testing program and the increased number of inspection hours required for preoperational testing, identifying many items of noncompliance is not unexpected. Affidavit at 3. This conclusion seems logical to us. Presumably preoperational testing is intended to test not only the machines and their operators, but the quality assurance program as well. Intervenors' major approach to the quality assurance contention was that the Applicant and its contractors were institutionally incapable of complying with Appendix B to 10 C.F.R. Part 50. Although actual quality assurance failures may be indicative of any institutional incapacity, the events reported in the inspection reports did not seem to rise to that level.

Finally, we address Applicant's request that the Board provide some guidance to the parties so that repeated filings such as the instant motion may be inhibited. As Applicant recognizes, each motion must be evaluated on its merits. There is little relief that the Board can afford.

However we were struck with the apparent ease with which Intervenors were able to send the Applicant and the Staff scurrying for factual responses to the motion and to create the need to carefully prepare answering legal arguments. The Board also devoted a substantial effort in considering the matter, and in preparing this order. We do not suggest that counsel for Intervenors had those purposes in mind. She is

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<sup>4</sup> Mr. Forney referred briefly to preoperational testing in his written direct testimony. Testimony of Region III on League Contention IA, ff. Tr. 3586, at 9-10. In fact he summarized much of the preoperation inspection activity at issue in the Intervenors' motion during cross-examination but no party or the Board pursued the matter. Tr. 3809-12.

also very busy in this proceeding and states that the inspection reports were carefully selected because of the significance of the matters raised. In any event, we do not believe she would abuse the process. Strong leverage is available to intervenors because of applicants' burden of proof and the Staff's oversight responsibilities. This is a normal phenomenon of NRC licensing adjudications. Even so, if occasions for similar motions arise in the future, the Board will examine carefully the Intervenor's pleadings for detail of factual analysis, somewhat lacking in the present motion, as one of the factors in determining how seriously the matter is viewed by Intervenor's.

Intervenor's motion is denied.

FOR THE ATOMIC SAFETY AND  
LICENSING BOARD

Ivan W. Smith, Chairman  
ADMINISTRATIVE LAW JUDGE

Bethesda, Maryland  
July 28, 1983

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**James A. Laurenson, Chairman  
Dr. Jerry R. Kline  
Dr. M. Stanley Livingston**

**In the Matter of**

**Docket No. 50-322-OL-3  
(Emergency Planning Proceeding)**

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

**July 28, 1983**

The Licensing Board denies a petition to intervene in the separate emergency planning hearing in this proceeding by a petitioner supporting Applicant's offsite emergency plan and favoring issuance of an operating license to Applicant. The Board finds that the petition was nontimely, and that a balancing of factors pursuant to 10 C.F.R. § 2.714(a)(1) requires that it be denied.

**OPERATING LICENSE PROCEEDINGS: ESTABLISHMENT  
OF SECOND LICENSING BOARD**

When a new licensing board is established to conduct a separate hearing in an ongoing operating license proceeding, the establishment of such a new Board does not constitute a new Notice of Hearing; the timeliness of petitions to intervene will be evaluated in light of the initial notice of hearing.

## **RULES OF PRACTICE: NONTIMELY PETITION TO INTERVENE**

Where a licensing board finds that a nontimely petition to intervene is inexcusably late, that it would significantly delay the proceeding if admitted, that the petitioner has made no showing of its ability to make a substantial contribution to the record, and that the petitioner's interest is adequately represented by another party to the proceeding, the petition will be denied notwithstanding the fact that there are no other means available to protect petitioner's interest. 10 C.F.R § 2.714(a)(1).

### **MEMORANDUM AND ORDER DENYING PETITION TO INTERVENE OF CITIZENS FOR AN ORDERLY ENERGY POLICY, INC.**

#### **I. PROCEDURAL HISTORY**

On March 18, 1976, the Nuclear Regulatory Commission published a notice in the *Federal Register* regarding receipt of an application for an operating license and an opportunity for hearing. 41 Fed. Reg. 11,367 (1976). Various petitions to intervene were submitted and allowed and an operating license proceeding commenced. Over the course of that proceeding, there have been numerous changes in personnel among the members of the licensing board. On August 24, 1982, a separate licensing board was appointed to preside over security planning issues of the Shoreham operating license proceeding. On May 11, 1983, the instant board was appointed to preside over emergency planning issues in the Shoreham operating license proceeding.

On June 14, 1983, the Citizens for an Orderly Energy Policy, Inc. (hereinafter "Citizens") filed a petition to intervene in the emergency planning aspect of Shoreham's operating license proceeding. Citizens, on behalf of its members, supports the offsite emergency plan submitted by Applicant, Long Island Lighting Company (hereinafter "LILCO"). Citizens also favors issuance of an operating license to LILCO. Citizens asserts that most of its members live within a 20 mile radius of Shoreham. It asserts that it is entitled to intervene "as of right" or, in the alternative, it requests admission to the proceeding under the Board's discretionary authority. Finally, Citizens asserts that its petition is timely but, in the alternative, it alleges that the petition should be allowed because it meets the requirements for late filings. Citizens

submitted affidavits from several of its members along with five contentions.

LILCO supports Citizens' petition. Suffolk County, an Intervenor herein, does not oppose the petition. NRC Staff and the Town of Southampton (hereinafter "Southampton") oppose the petition. None of the other parties submitted a written response to the petition. NRC Staff opposes the petition to intervene for the following reasons: Citizens has not demonstrated standing to intervene as of right; Citizens cannot make a strong showing for discretionary intervention; Citizens' petition is late-filed and no good cause is established for such late filing; the late-filed petition does not meet the test of 10 C.F.R. § 2.714(a) for late-filed petitions; and Citizens' contentions are not required and should be disregarded. Southampton asserts the same arguments as NRC Staff.

At the prehearing conference of July 13, 1983 to consider this petition to intervene, counsel for Citizens presented an oral argument. Counsel stated that Citizens intended to present witnesses to testify in support of its five proposed contentions. It also expected to participate in cross-examination (Transcript p. 34, hereinafter T. 34). Citizens based its right to intervene on the Atomic Energy Act (T. 35) and its good cause for late filing, if any, upon the assertion that in 1976, when the original Notice of Opportunity for Hearing was published in the *Federal Register*,

Suffolk County was cooperating in the emergency planning process. Citizens had no need at that point to try to enter this proceeding. It is only very recently that these events have come about and it is only very recently that Citizens believed its participation is necessary.

(T. 36-37).

## II. ISSUES

Is the petition timely and, if nontimely, should it be entertained?

## III. APPLICABLE LAW

As pertinent here, § 189(a) of the Atomic Energy Act of 1954, as amended, 42 U.S.C. § 2239(a), provides that in a proceeding under the Act for the granting of any license, "The Commission shall grant a hearing upon the request of any person whose interest may be affected by the proceeding."



The NRC regulations at 10 C.F.R. § 2.714(a)(1) provide in pertinent part that

[a]ny person whose interest may be affected by a proceeding and who desires to participate as a party shall file a written petition for leave to intervene. . . . The petition and/or request shall be filed not later than the time specified in the notice of hearing . . . . Nontimely filings will not be entertained absent a determination . . . that the petition and/or request should be granted based upon a balancing of the following factors in addition to those set out in paragraph (d) of this section:

- (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.

The most recent Commission decision regarding the criteria for accepting late-filed contentions based on information contained in documents filed after commencement of a licensing hearing was *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041 (1983). In *Catawba, supra*, the Commission modified a decision of the Appeal Board as follows:

For the reasons discussed below, the Commission believes that the Appeal Board erred in holding that Section 189a. of the Atomic Energy Act requires a Licensing Board to treat the good cause factor as controlling in ruling on the admissibility of a contention that is filed late because it is based solely on information in institutionally unavailable licensing-related documents. Rather, the Commission finds that all of the factors in 10 C.F.R. 2.714(a)(1) should be applied by the Licensing Board, including the Appeal Board's three-part test for good cause. The Commission believes that the five factors, together, are permitted by Section 189a. of the Act and are reasonable procedural requirements for determining whether to admit contentions that are filed late because they rely solely on information contained in licensing-related documents that were not required to be prepared or submitted early enough to provide a basis for the timely formulation of contentions. These procedural requirements are consistent with a petitioner's obligation to examine the publicly available documentary material pertaining to the facility in question with sufficient care to enable it to uncover any information that could serve as the foundation for a specific contention. Accordingly, the institutional unavailability of a licensing-related document does not establish good cause for filing a contention late if information was publicly available early enough to provide the basis for the timely filing of that contention.

*Id.* at 1045.

## IV. ANALYSIS

### A. Nontimely Filing of Petition to Intervene

We first turn to the issue of the nontimely filing of the petition and the factors to be balanced in deciding whether to entertain this petition. We do so because we find these issues dispositive of the petition.

Although LILCO supports Citizens' petition to intervene and Suffolk County does not oppose it, both of them agree with NRC Staff and Southampton that the petition is nontimely. Citizens' does not dispute the fact that the only notice of opportunity for hearing that is pertinent here was published in the *Federal Register* on March 18, 1976. Rather, Citizens argues "that because this special proceeding was established so recently, it could not have acted in a more expeditious fashion." (Citizens Reply at 5.) Citizens further argues that "[t]he need to litigate this particular issue did not arise until late April 1983." *Ibid.* Citizens implies that the establishment of this Board constitutes a "special proceeding" which will somehow justify the intervention of new parties. In fact, the establishment of this Board was no more than the exercise of a procedural device sanctioned in 10 C.F.R. Part 2, Appendix A, I(c)(1). That section permits the separation of one or more issues from a construction permit or operating license proceeding and assignment of such issue(s) to a different board. Citizens is in error when it asserts that the establishment of this Board constituted a "special proceeding" where new parties could file timely requests to intervene.

We find that the Notice of Opportunity for Hearing was published in the *Federal Register* on March 18, 1976. 41 Fed. Reg. 11,367. NRC regulation, 10 C.F.R. § 2.714(a), provides that a petition to intervene must be filed within the time specified in the notice of hearing. Citizens' petition to intervene was filed more than seven years after the expiration of the time specified in the notice. Pursuant to 10 C.F.R. § 2.714(a) we find Citizens' petition to intervene to be nontimely.

### B. Analysis of Late-Filing Factors

The provisions of 10 C.F.R. § 2.714(a)(1) and the recent Commission decision in *Catawba, supra*, require that all five factors enumerated in the above regulation should be applied to late-filed contentions even where the licensing-related document, upon which the contentions are predicated, was not available within the time prescribed for filing timely contentions. The Commission in *Catawba, supra*, went on to state that a petitioner has an "obligation to examine the publicly available documentary material pertaining to the facility in question with

sufficient care to enable it to uncover any information that could serve as the foundation for a specific contention." *Catawba, supra*, at 1045.) Thus, the unavailability of a licensing-related document does not establish good cause for filing a late contention if information was publicly available previously to provide for a timely filing of that contention.

Although NRC case law speaks in terms of nontimely filing of contentions, the specific language of 10 C.F.R. § 2.714(a)(1) provides that "[n]ontimely filings will not be entertained absent a determination by the . . . presiding officer . . . that the petition . . . should be granted based upon a balancing of the following factors . . . ." (emphasis supplied). Hence, the decisions of the Commission and Appeal Board concerning the test for admission of nontimely contentions have equal application to nontimely petitions to intervene.

The above analysis is pertinent to the instant petition because Citizens asserts that it was unaware of any need to litigate the instant matter until late April 1983, apparently because of the Board Order of April 20, 1983, LBP-83-22, 17 NRC 608, denying Suffolk County's motion to terminate the proceeding. We will proceed to an analysis of the five factors to be considered in determining whether to grant the late-filed petition.

### **1. Good cause for failure to file on time**

In *Catawba, supra*, at 1047, the Commission specifically endorsed "the Appeal Board three-part test" for determining the good cause factor of a late-filed contention which

1. is wholly dependent upon the content of a particular document;
2. could not therefore be advanced with any degree of specificity (if at all) in advance of the public availability of that document; and
3. is tendered with the requisite degree of promptness once the document comes into existence and is accessible for public examination.

*Id.* at 1043-44.

At the outset, we must determine whether the instant petition is predicated on any such previously unavailable, licensing-related document. NRC Staff states that other intervenors have asserted a desire to litigate emergency planning since January 1980 and that in March 1982, Suffolk County repudiated the County-LILCO offsite emergency plan. On February 23, 1983, Suffolk County announced that it would not adopt or implement any offsite emergency plan for

Shoreham. On May 26, 1983, LILCO filed its emergency plans. Citizens asserts that the LILCO plans filed on May 26, 1983 constituted the previously unavailable, licensing-related documents that establish good cause for the late filing of this petition and contentions.

As stated in its Petition to Intervene, p. 4, most members of Citizens "live within 20 miles of the Shoreham Nuclear Power Station." The longstanding emergency planning dispute between LILCO and Suffolk County has been the subject of extensive media coverage within Suffolk County. We find that even with regard to the County's intention not to participate in emergency planning, all of the documentary material has been available to interested persons since at least February 1983. Thus, Citizens failed to pass the three-part *Catawba* test for determining "good cause" for late-filed contentions. We find that Citizens' petition and contentions are not wholly dependent upon the LILCO offsite emergency plan. Moreover, the information cited by Citizens to justify its late filing was publicly available for almost four months prior to the filing of the instant petition. The licensing board decision of April 20, 1983 is irrelevant to the "good cause" issue here. In conclusion, we find that Citizens failed to establish "good cause" for its late filing.

## **2. Availability of other means to protect petitioner's interest**

Citizens asserts that "no other means exist, at the present time, for Citizens to protect its interests." (Petition at 11.) NRC Staff asserts that Citizens "can argue its position on Shoreham offsite emergency planning directly to Suffolk County government." (NRC Staff Response at 10.) In any event, Staff asserts that this factor "counts for very little when weighed against the fact that the petition is seven years late." *Ibid.* In *South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), ALAB-642, 13 NRC 881 (1981), the Appeal Board reversed a licensing board's allowance of an untimely intervention petition. The Appeal Board found that although there were no other available means to protect the petitioner's interests, that factor and the factor of the extent to which other parties would protect that interest were entitled to less weight than the other three factors enumerated in § 2.714(a). While it is true that any citizen may petition the government, we find that pursuant to 10 C.F.R. § 2.714(a)(1), the factor of "the availability of other means whereby the petitioner's interest will be protected," should be resolved in Citizens' favor. However, in accord with *Summer, supra*, we conclude that this factor is entitled to less weight than other factors enumerated in 10 C.F.R. § 2.714(a)(1).

### **3. Development of a sound record**

Citizens asserts that most of its members “are recognized authorities in the field of nuclear power” and that some of its members “work professionally in radiological emergency planning.” In *Mississippi Power & Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725 (1982), the Appeal Board set forth a petitioner’s burden, in demonstrating special expertise on the subject it seeks to raise as follows:

When a petitioner addresses this criterion it should set out with as much particularity as possible the precise issues it plans to cover, *identify its prospective witnesses, and summarize their proposed testimony.* [Citation omitted.] Vague assertions regarding petitioner’s ability or resources, as we have here, are insufficient.

*Id.* at 1730 (emphasis supplied).

Citizens makes no attempt to identify its prospective experts or summarize the proposed testimony or other evidence it expects to offer on the record. Citizens’ statements concerning its ability to “make a valuable contribution to the proceeding” are vague and insufficient. Suffice it to say that Citizens failed to establish that its intervention in this proceeding could be expected to assist in developing a sound record.

### **4. Representation of interest by existing parties**

Citizens asserts that, “[w]hile LILCO and Citizens both favor operation of the facility, the utility does not have the same interest or perspective as does Citizens.” (Petition at 10.) Citizens does not specify in what way its interest will not be represented by LILCO. Citizens seeks to intervene in this proceeding “in support of the emergency plan submitted by Applicant.” *Id.* at 1. It is not readily apparent to us, and Citizens has not established, why LILCO would not represent the interest of Citizens. Accordingly, the factor of representation of interest by existing parties is resolved against Citizens.

### **5. Delay and broadening of issues**

At the prehearing conference, counsel for Citizens commented on the role it envisioned for itself as follows:

*We intend to present witnesses on the contentions that we did file. We would also participate in the cross-examination of not all witnesses but those witnesses that we believed, or on those issues that we believed we could present aid in developing the record.*

The members of Citizens do have a strong background not only in nuclear energy but also in emergency planning. A major portion of Suffolk County's contentions deal with accident assessment. They allege that accident assessment is not adequate or that it can't be done.

*Members of Citizens could be able to address that in a lot of detail, and I think that is an important point that we would be able to address.*

(T. 34-35 emphasis supplied.)

While it is true that this aspect of emergency planning is just beginning, the Board has informed the parties that it will order an expedited schedule for discovery, prehearing motions, and hearing. (T. 86, 97, 103 and 105.) LILCO has already filed a motion for a low-power operating license with an indication that construction of Shoreham will be complete in August 1983.

The general principle concerning delay was stated by the Appeal Board as follows: "Manifestly, the later the petition, the greater the potential that the petitioner's participation will drag out the proceeding." *Detroit Edison Co. (Greenwood Energy Center, Units 2 and 3)*, ALAB-476, 7 NRC 759, 762 (1978).

Considering the lateness of the instant petition and the role Citizens envisions for itself in this proceeding, we find that Citizens' participation herein would delay the proceeding and broaden the issues. In light of the statements of Citizens' counsel at the prehearing, we conclude that an allowance of the instant petition would significantly delay this proceeding. Accordingly, this factor is also resolved against Citizens.

### C. The Balancing Test

Based upon our analysis and evaluation of the five factors enumerated in 10 C.F.R. § 2.714(a)(1), we find that four of those factors weigh against allowing intervention: Citizens is inexcusably late, offers no showing of its ability to make a substantial contribution to the record, is adequately represented in interest by LILCO, and will significantly delay the proceeding if admitted herein. Weighing in favor of allowing intervention is the unavailability of other means to protect Citizens' interests. As noted above, this latter factor is entitled to less weight in the balancing process. The issue is not difficult to resolve. Pursuant to 10 C.F.R. § 2.714(a)(1), we find that Citizens failed to establish that its petition should be granted and we deny Citizens' petition to intervene. Accordingly, we do not reach the issues of Citizens' standing,

discretionary intervention, or the propriety of Citizens' contentions in support of LILCO's offsite emergency plan.

**ORDER**

WHEREFORE, IT IS ORDERED that the "Petition of the Citizens for an Orderly Energy Policy, Inc. to Intervene in the Emergency Planning Hearing" is DENIED.

**FOR THE ATOMIC SAFETY AND  
LICENSING BOARD**

**James A. Laurenson, Chairman  
ADMINISTRATIVE JUDGE**

**Dr. Jerry R. Kline  
ADMINISTRATIVE JUDGE**

**July 28, 1983  
Bethesda, Maryland**

**Dr. M. Stanley Livingston concurs in this Memorandum and Order but was unavailable to sign it.**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

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

**In the Matter of**

**Docket Nos. 50-445-OL  
50-446-OL  
(ASLBP No. 79-430-060)**

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

**July 29, 1983**

**RULES OF PRACTICE: DEFAULT FOR NOT FILING  
REQUIRED FINDINGS**

A party that does not file required findings is in default on the related issues. The Board may examine those issues to determine whether they should be raised by it *sua sponte*; otherwise, the issues are excluded from the case.

**RULES OF PRACTICE: PROPOSED INITIAL DECISION**

Rather than issuing an initial decision in its finished form, a Board may choose to obtain comments from parties on a "proposed" decision before it makes its final choice. This is particularly appropriate when two of the Board's members were recently appointed and the record was complex.



## **TECHNICAL ISSUES DISCUSSED**

- Quality assurance
- Quality assurance, number of inspectors
- Quality assurance, operational
- Non-conformance reports, number of
- Emergency planning
- Rock overbreak
- Dental concrete
- Limestone (susceptibility to fracture during blasting)
- Settlement crack, concrete
- Concrete settlement crack
- Morale, low
- Water stops, improper tacking
- Polar crane, gaps in rails
- Discouragement of non-conformance reports
- Harassment, quality assurance inspectors
- Surface preparation, near white blast
- Maximum roughness, steel substrate
- Paint, force-curing with smoking heaters
- Welding
- Welding, heat numbers only on structural members
- Welding, weave-beading
- Welding, downhill
- Welding; heating of weld rods
- Welding, plug welding, inspection
- Welding, control of welding rods
- Torque Seal
- Quality assurance, interpretation of Torque Seal by inspectors
- Traceability of materials
- Torque values, procedures
- Quenching welds
- Flange bolt-up joints, inspection delayed
- Piping, wall thickness
- Piping, cold springing
- Hydrogen control
- Recombiners, electrical
- ATWS, Salem Unit 1 analogy
- Boron injection tank, deletion of
- Departure from nucleate boiling ratio (DNBR)
- Boron crystals.

## PROPOSED INITIAL DECISION

(Concerning aspects of construction quality control, emergency planning and Board questions)

This is the first initial decision in this operating license proceeding. The issues we decide today relate to particular allegations of failure of Texas Utilities Generating Company, *et al.*'s (applicant's) quality assurance program<sup>1</sup> during construction of Comanche Peak and to allegations concerning the adequacy of emergency planning. Hearings on these particular allegations were completed on September 17, 1982 and proposed findings of fact were received from the parties on February 25, 1983.<sup>2</sup>

In this decision we have declared CASE to be in default on each allegation on which it has not filed findings of fact. However, we also have examined each important allegation that is in default in order to determine whether to raise any of these defaulted issues by ourselves (*sua sponte*). See 10 C.F.R. § 2.760a. In a few instances, we require some additional evidence before determining whether or not to declare a *sua sponte* issue.

Two of the three members of this Board were added to it after the hearings on the matters we address. Consequently, we have adopted the unusual procedure of issuing a proposed decision. The consequence of calling this a proposed decision is that the Board recognizes that its record is complex and that it is wiser, under the circumstances, to invite comments on our tentative conclusions before we become committed to them. We expect the parties to object to any aspect of this decision which they believe to be in error. Objections must clearly and logically explain what the suspected error is and the legal and factual arguments on which the objection is based.<sup>3</sup> Failure to comply with any aspect of this required format may result in a default on the objections.

The Board had posed certain questions and taken some limited evidence, to determine whether there is a serious question that the

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<sup>1</sup> Although "quality assurance" and "quality control" sometimes are used in a specialized way, we generally will use these words interchangeably in our opinion.

<sup>2</sup> The State of Texas did not file proposed findings. Citizens Association for Sound Energy (CASE or intervenor) filed proposed findings on some of the allegations discussed in this decision. CASE indicated that it wished an extension of time to file proposed findings on additional issues. However, the parties had been granted a six-week extension for filing of proposed findings. Reconsideration of December 7, 1982 Order at 1-2 (December 21, 1982). Under the circumstances, good cause has not been shown for granting CASE more time in which to file its proposed findings.

<sup>3</sup> We received Applicants' Summary of the Record Regarding Weave and Downhill Welding (July 15, 1983) during the preparation of this decision. Since other parties have not had an opportunity to comment on this filing, we have not considered it. However, the filing is a model of the kind of specificity we expect in objections to this decision. It includes footnotes to the record. It also uses an affidavit, which parties may file in support of their objections if they consider it helpful.

Board should raise by itself. See 10 C.F.R. § 2.760a. The Board concludes that it is not now raising any of the questions *sua sponte*.

## I. CONTENTION 5 AND THE APPLICABLE LAW

Contention 5 states:

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

Order Subsequent to the Prehearing Conference of April 30, 1980, slip op. at 11 (June 16, 1980) (unpublished). As the Board has previously indicated,<sup>4</sup> this is a broad contention calling into question the applicant's entire quality assurance program.

The Atomic Energy Act of 1956, as amended, § 103, 42 U.S.C. § 2133 (1976), authorizes the Nuclear Regulatory Commission to issue licenses for nuclear power plants to applicants "who agree to observe such safety standards to protect health and to minimize danger to life or property as the Commission may by rule establish. . . ." The Commission has, by rule, required that "[s]tructures, 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." Criterion 1, Appendix A — General Design Criteria for Nuclear Power Plants, 10 C.F.R. Part 50. A quality assurance program is required to ensure that the safety functions will be properly performed. *Id.* Criteria for the quality assurance program are set forth in Appendix B to 10 C.F.R. Part 50 and must be discussed in the Preliminary Safety Analysis Report (PSAR) for construction permit applications and in the Final Safety Analysis Report (FSAR) for operating license applications. 10 C.F.R. § 50.34.

The chief concern of the quality assurance program is to identify and correct problems that arise during plant construction or operation.

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<sup>4</sup> Tr. 714.

Indeed, a quality assurance program that failed to find problems would undoubtedly be ineffective.

A problem identified by the quality assurance program may cause concern for the public safety if it cannot be satisfactorily resolved. A program may also cause concern if it identifies an extraordinarily large number of deficiencies, casting doubt on the plant's design and construction processes. Additionally, if a quality assurance program identifies extraordinarily few deficiencies or if we were to find that substantial numbers of deficiencies have been overlooked, that may raise questions about the adequacy of the quality assurance program. At this stage, we are not evaluating the overall efficacy of the quality assurance program, but, rather, whether any of the alleged deficiencies are sufficiently serious and uncorrectable that the plant, due to those deficiencies, cannot operate with the requisite degree of safety.

In other words, we have considered each allegation independently, without regard to whether it may represent a pattern related to the adequacy of the quality assurance program. In addition, there are particular allegations which have been or will be the subject of hearings held after September 17, 1983. These questions are not resolved by this decision.

#### **A. Rock Overbreak**

One of the specific allegations encompassed within Contention 5 was that during construction blasting, rock which was supposed to remain intact was displaced and cracked. The foundation for Comanche Peak is set on a rock structure known as the Glen Rose limestone. This is a marine formation of the Cretaceous age.<sup>5</sup> The Glen Rose limestone is "soft" or "weak" rock<sup>6</sup> and is not homogeneous.<sup>7</sup> Both of these factors make it difficult to predict and control the effects of blasting in this particular rock.

The applicant's geotechnical consultants, Mason-Johnston and Associates, Inc., recommended that all safety-related structures be placed against intact rock.<sup>8</sup> It was planned that once the site had been leveled off at plant grade (*i.e.*, the mountain top had been removed down to a specified level<sup>9</sup>) excavation for the reactor buildings would assure that their bases would be forty feet below plant grade.<sup>10</sup> Explosives

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<sup>5</sup> Tr. 803.

<sup>6</sup> Tr. 835, 946.

<sup>7</sup> Tr. 957-58, 1210.

<sup>8</sup> Tr. 809.

<sup>9</sup> Tr. 806-07.

<sup>10</sup> Tr. 808.

were used for the purpose of creating a crack in the rock around the perimeter of the hole for each containment building. Further blasting was contemplated to break up the rock within that perimeter crack.<sup>11</sup>

Unexpectedly, the blasting to create the hole for the Unit 1 containment caused approximately the top ten feet of the rock wall around the planned hole to be displaced and to suffer both horizontal and vertical cracking.<sup>12</sup> Although changes were made to the blasting procedures when the hole for the Unit 2 containment was blasted, a similar overbreak pattern emerged.<sup>13</sup> Overbreak also occurred in excavating for other safety-related buildings.<sup>14</sup> Indeed, the overbreak was so extensive that there was no point in associating particular fractured rock with the excavation of a particular building.<sup>15</sup> Applicant reported the overbreak to the NRC pursuant to 10 C.F.R. § 50.55(e).<sup>16</sup>

The extent of the overbreak was determined by digging trenches at increasing distances from the excavation wall and examining them for cracks. When a trench was dug for which any cracks on the side closest to the excavation were found not to have been propagated to the far side of the trench, that was determined to be the edge of the overbreak.<sup>17</sup> Overbreak was detected up to approximately thirty feet from the excavation.<sup>18</sup> While some overbreak is common during construction, the amount of overbreak at Comanche Peak was unexpectedly large.<sup>19</sup>

To "repair" the overbreak, all rock within the area of the overbreak was removed utilizing techniques which did not require blasting.<sup>20</sup> Once this rock had been removed, some cracks were found in the newly created walls.<sup>21</sup> These cracks did not appear to be associated with displaced rock and were grouted.<sup>22</sup> The original shape of the excavation was restored by filling with concrete the area from which fractured rock had been removed.<sup>23</sup>

This "dental" concrete was less strong than that used in constructing the reactor buildings; nevertheless, it was stronger than the fractured

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<sup>11</sup> Tr. 809-14.

<sup>12</sup> Tr. 815-16.

<sup>13</sup> Tr. 829.

<sup>14</sup> Tr. 831, 1208-09, 1269-72.

<sup>15</sup> Tr. 1270.

<sup>16</sup> Tr. 845-46, 1270. Section 55(e) requires that serious breakdowns be reported to the NRC.

<sup>17</sup> Tr. 819-21.

<sup>18</sup> Tr. 820.

<sup>19</sup> Tr. 835, 1115, 1209-12.

<sup>20</sup> Tr. 817, 821-22.

<sup>21</sup> Tr. 823-24.

<sup>22</sup> Tr. 832-33, 1272.

<sup>23</sup> Tr. 817.

rock had been.<sup>24</sup> There was uncontroverted testimony from the applicant's panel that, once these repairs had been effected, the foundation was actually improved from what it would have been if the overbreak had not occurred.<sup>25</sup> The applicant's witnesses also testified, without contradiction, that the seismic capacity of the site was not impaired by the repair.<sup>26</sup>

The NRC cited the applicant for failing to have and to utilize quality control procedures for excavation for these safety-related structures.<sup>27</sup> Applicant subsequently developed such procedures.<sup>28</sup> It is apparent, however, that, even without quality assurance procedures for this excavation, the applicant detected and took action to remedy the overbreak. Moreover, the soundness of all areas excavated before the quality control procedures were instituted was verified by an engineering geologist who was present during all phases of the excavation. The engineering geologist verified the soundness of all the materials on which concrete was to be placed. In making this judgment, he relied on professional knowledge and confirming photographs.<sup>29</sup> The repair work, in addition, was subject to quality assurance procedures.<sup>30</sup>

While it was a quality control deficiency to have done the excavation without quality control procedures, we find that this has not led to a lasting deficiency. This potential problem has been negated by the detection and satisfactory repair of the excavation defects which should have been detected by the quality control program. The possible implications of management's failure to implement quality assurance procedures for the excavation activities is not being considered in this decision.

## B. Cracks in Concrete

Allegations were raised that cracks were present in the basemat for the containment. CASE presented no witnesses who addressed the allegations. However, CASE did introduce as exhibits a non-conformance report (NCR) and a revision to it which refer to cracks "on 812' Base Mat Containment #1."<sup>31</sup>

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<sup>24</sup> Tr. 827, 955-56.

<sup>25</sup> Tr. 835, 838.

<sup>26</sup> Tr. 957-58.

<sup>27</sup> Tr. 1051, 1273, 1279; CASE Ex. 15.

<sup>28</sup> Tr. 1055.

<sup>29</sup> Tr. 1047-48.

<sup>30</sup> Tr. 843.

<sup>31</sup> CASE Exs. 8 and 9.

Using the pour numbers given in that same NCR and revision,<sup>32</sup> witnesses for the applicant and the staff determined that the cracks in question were not in the basemat<sup>33</sup> but were in the reactor shield wall. This is part of the internal concrete which is, in fact, separated from the twelve foot thick concrete basemat by a steel liner.<sup>34</sup> The concrete pours in which the cracking occurred surround the reactor vessel.<sup>35</sup> The wall of which these pours are a part is steel reinforced.<sup>36</sup> Its main function is the provision of radiation shielding.<sup>37</sup>

The witnesses uniformly concluded that these were shrinkage cracks, caused by the shrinkage of concrete as it cools.<sup>38</sup> These are essentially hairline cracks into which something as small as a pencil lead would not fit.<sup>39</sup> Cracks of this type are not unusual or troublesome when found in large concrete pours.<sup>40</sup>

The staff witnesses believed that the cracks were about two inches deep.<sup>41</sup> The applicant's witnesses believed that the cracks went through the entire depth of the pour.<sup>42</sup> In determining the structural adequacy of the shield wall, the assumption was made that the cracks went entirely through the pour.<sup>43</sup> In addition, expert testimony was given by the architect-engineering firm responsible for the design that a construction joint could have been placed at approximately the location of the shrinkage crack, since the concrete pour was so large. The formation of the shrinkage crack is said to serve much the same purpose as a construction joint at this location might have served.<sup>44</sup>

Unrebutted testimony was presented that these cracks in the concrete did not impair the wall's capacity to perform its intended functions.<sup>45</sup> Radiation shielding would not be affected.<sup>46</sup> Nor would the wall's ability to

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<sup>32</sup> Tr. 1363.

<sup>33</sup> Tr. 1011-13, 1363.

<sup>34</sup> Tr. 850-54, 1181.

<sup>35</sup> Tr. 856, 859-66; App. Exs. 21 and 22.

<sup>36</sup> Tr. 855.

<sup>37</sup> Tr. 865.

<sup>38</sup> Tr. 867, 870-71, 1384.

<sup>39</sup> Tr. 867, 1198.

<sup>40</sup> Tr. 869.

<sup>41</sup> Tr. 1374-75.

<sup>42</sup> Tr. 960.

<sup>43</sup> Tr. 1398.

<sup>44</sup> Tr. 882-83.

<sup>45</sup> Tr. 885, 1295.

<sup>46</sup> Tr. 885-86, 1301.

transfer vertical loads.<sup>47</sup> The reinforcing steel (rebar) in the wall is relied on to take tension loads.<sup>48</sup>

A potential problem that was examined is whether the crack would admit water that would rust the rebar. However, there is unlikely to be any problem with water reaching the reinforcing steel through the cracks, causing rust and weakening the steel's load bearing capacity.<sup>49</sup> After a short time, the exposed surfaces of the cracks were grouted to present a smooth face for painting.<sup>50</sup> The grout excludes water.

These cracks were identified through the quality assurance system, which illustrates that, at least in this regard, the system was functioning at Comanche Peak. They have been analyzed and minor repairs made. Based on the record before us, we conclude that the repair was adequate and there is no safety problem associated with the cracks.

### C. Other Specific Allegations Raised in the Context of Contention 5

CASE presented several witnesses who made allegations about construction deficiencies and deficiencies in the quality control system at Comanche Peak. However, CASE did not include these matters in its proposed findings even though the proposed findings were mandatory. See Order (Proposed Findings of Fact; CASE Exhibits) at 3-4 (December 7, 1982) (unpublished). Because this Board is consequently left to speculate about what CASE currently contends about these issues, its failure to file proposed findings constitutes abandonment of this portion of its case. See *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-717, 17 NRC 346, 371-72 (1983); *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-709, 17 NRC 17 (1983); 10 C.F.R. § 2.754(b).

We therefore find that CASE has abandoned the allegations on which it has not filed findings. We have, however, considered whether these allegations raise such serious questions of public health and safety that we should raise them as *sua sponte* issues. We discuss briefly why, based on the record, we either have decided not to raise these matters *sua*

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<sup>47</sup> Tr. 869, 1300.

<sup>48</sup> Tr. 866, 885.

<sup>49</sup> Tr. 897-98, 1022, 1028.

<sup>50</sup> Tr. 1205, 1313.



*sponte* or have indicated that further information is required before we can reach that determination.<sup>51</sup>

### **1. Allegations by John Junior Gates**

CASE witness John Junior Gates was a carpenter who worked on the Comanche Peak site from November 1976 to March 1979.<sup>52</sup> Much of his concern related to the fact that work was done and, due to design changes, had to be ripped out and redone. He related this to increased cost and low worker morale. As Mr. Gates himself testified, rework and low worker morale do not affect the quality of the plant if ultimately the work will only be approved when it is done correctly.<sup>53</sup> Mr. Gates testified that he did not know whether in the end the work was done correctly.<sup>54</sup> The fact that rework was required, however, suggests that approval was not forthcoming unless the work met the specifications. The Board finds that this allegation does not by itself raise a serious health or safety issue.

Mr. Gates also alleged that at one point work on the steel liner for the Unit 1 containment was halted because the steel liner was four inches out of plumb.<sup>55</sup> The applicant agreed that the liner had been out of alignment, but applicant's witnesses testified that this had been corrected to within specified tolerances.<sup>56</sup> Construction was stopped and stiffeners were added to the inside of the liner, bringing it back in line before continuing construction.<sup>57</sup> This matter does not raise an issue which the Board finds it should pursue *sua sponte*.

According to Mr. Gates certain water stops were improperly installed.<sup>58</sup> He mentioned that nails were put in the water stops, tacking them to the forms. A water stop is a neoprene strip half of which is embedded in concrete on each side of a joint in a wall. Since the nails are located at a distance away from the actual joint, applicant assured the Board that there is no problem of leakage from this normal procedure.<sup>59</sup>

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<sup>51</sup> Some of the allegations could relate to the question of the extent of management's commitment to quality control. That issue, of course, we have specifically left open in this decision. In addition, matters which relate to allegations made by CASE witnesses Mark Walsh and Jack Doyle or to issues raised by the staff's Construction Appraisal Team report also remain open.

<sup>52</sup> Testimony of John Junior Gates, CASE Ex. 651, at 5.

<sup>53</sup> Tr. 2795, 2820-21.

<sup>54</sup> Gates Testimony, CASE Ex. 651, at 21.

<sup>55</sup> Gates Testimony, CASE Ex. 651, at 37.

<sup>56</sup> Tr. 2988, 2992.

<sup>57</sup> Tr. 2992-93, 2995-3000.

<sup>58</sup> Gates Testimony, CASE Ex. 651, at 37.

The forms are removed, together with the nails after the concrete is poured. The applicant also testified that, as of the time of the hearing, no water seepage was occurring through the outside walls of any safety-related building.<sup>60</sup> For these reasons, we see no need to pursue these questions further.

Mr. Gates also alleged that the concrete work at Comanche Peak was "sloppy." He mentioned observing honeycombing, watery concrete, and materials left in the concrete.<sup>61</sup> His knowledge, however, did not seem to extend to whether possible problems have been corrected.<sup>62</sup> To illustrate the problems with the concrete work, Mr. Gates pointed to a photograph of the containment buildings.<sup>63</sup> He stated, however, that the defects which he believed were shown by the photographs would not have any structural significance.<sup>64</sup> This lack of structural significance was confirmed by Ralph McGrane, a professional engineer who appeared as a witness for the applicant.<sup>65</sup> The Board finds that Mr. Gates' allegations about concrete work do not contain any specific information which causes the Board to be concerned with the structural integrity of safety-related concrete at Comanche Peak. Hence, the Board will not raise this issue *sua sponte*.

## 2. Allegations by Stanley G. Miles

CASE witness Stanley G. Miles was employed at Comanche Peak from March 1977 to May 1982.<sup>66</sup> Like Mr. Gates, he was concerned about low worker morale.<sup>67</sup> Low morale alone, assuming that it could be adequately defined and measured, does not raise health and safety concerns. Only if low morale causes defective work to be accepted as the final product would this cause us to question the safety of the plant. We have no reason to believe that defective work was accepted. If a specific instance is brought to our attention, we can, of course, address that specific instance. As a general matter, however, we have no reason to raise a question about the possibility that low morale has, by itself, led to an unsafe plant.

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<sup>59</sup> Tr. 2989-90.

<sup>60</sup> Tr. 2993.

<sup>61</sup> Gates Testimony, CASE Ex. 651, at 24-26, 36.

<sup>62</sup> See, e.g., Tr. 2842; Gates Testimony, CASE Ex. 651, at 26.

<sup>63</sup> Gates Testimony, CASE Ex. 651, at 24; Board Ex. 4.

<sup>64</sup> Tr. 2883.

<sup>65</sup> Tr. 2990-92.

<sup>66</sup> Testimony of Stanley G. Miles, CASE Ex. 655, at 1.

<sup>67</sup> *Id.* at 49.

Mr. Miles also alleged that in one instance he was instructed to do work for which he had not been provided a blueprint.<sup>68</sup> He alleged that he had welded boom struts on rigs manufactured by Manitowoc, in violation of the conditions of Manitowoc's warranty.<sup>69</sup> He alleged that a panel was made to appear to have been anchored with Hilti bolts when it had not been.<sup>70</sup>

None of these allegations would have safety significance for the plant. Neither Mr. Miles' work without a blueprint nor the false Hilti bolts, apparently anchoring the panel, occurred in a safety-related area.<sup>71</sup> The Manitowoc rigs apparently are no longer even used on the Comanche Peak site.<sup>72</sup>

Mr. Miles also alleged that there were problems with the polar crane. He alleged that there were 3/8 inch gaps between each longitudinal section of the rails on which the polar crane ran. As the crane was operated, the rails could move, accumulating some of the gaps so that as much as five inches could be found in a single gap. When the polar crane wheel dropped into this gap, it would stop.<sup>73</sup> However, Mr. Miles also testified that the problem had been corrected by the clips that he personally had installed. These clips were made of a weld-on piece, a bolt-on piece and the bolt itself.<sup>74</sup> So there is no defect remaining that the Board might declare to be a *sua sponte* issue.

Also, in connection with the polar crane, Mr. Miles alleged that, contrary to the design documents, "fingers" were cut off of several shims to make them fit in their designated places.<sup>75</sup> It appears that this did occur. However, the Board does not believe that it is a matter which the Board should pursue *sua sponte* because it appears that the staff and the applicant are addressing it. The staff issued a Notice of Violation in connection with the failure to inspect these shims.<sup>76</sup> The applicant has stated that all the shims in the polar crane girder support bracket assemblies will be removed and inspected. Shims which have clipped "fingers" will be evaluated by an engineer to determine whether they are acceptable.<sup>77</sup>

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<sup>68</sup> Miles Testimony, CASE Ex. 655, at 31.

<sup>69</sup> Supplementary Testimony of Stanley G. Miles, CASE Ex. 657, at 4.

<sup>70</sup> Miles Testimony, CASE Ex. 655, at 26-27.

<sup>71</sup> *Id.* at 31, 27.

<sup>72</sup> Miles Supplementary Testimony, CASE Ex. 657, at 5-6.

<sup>73</sup> Tr. 2932.

<sup>74</sup> Tr. 2978-79.

<sup>75</sup> Miles Testimony, CASE Ex. 655, at 17.

<sup>76</sup> Staff Ex. 148B.

<sup>77</sup> Testimony of John T. Merritt, Jr. Regarding Placement of Shims in Polar Crane Glider Support Bracket Assemblies, App. Ex. 127, at 6.

### 3. Allegations by Cordella Marie Hamilton and Robert L. Hamilton

Mr. Robert L. and Mrs. Cordella Marie Hamilton appeared as a panel; both raised concerns about the quality assurance program for protective coatings. Mrs. Hamilton worked as a documentation clerk for the protective coating quality assurance program.<sup>78</sup> Mr. Hamilton was a quality assurance supervisor for the protective coatings.<sup>79</sup> Certain allegations in this area were made by Mr. Hamilton, certain allegations were made by Mrs. Hamilton, and certain allegations were made by both.

Mrs. Hamilton alleged that there were deficiencies in documentation for protective coating quality assurance. Specifically Mrs. Hamilton alleged that some paperwork required a large number of revisions or was never corrected and that approximately fifteen quality assurance inspection reports were lost.<sup>80</sup> Mrs. Hamilton testified, however, that the problems were identified through an audit and all necessary corrections were made.<sup>81</sup> Reinspection was required because documentation was missing. Although Mrs. Hamilton did not believe the required reinspection took place, because the material was out in the field and had been cut up,<sup>82</sup> she indicated that the lost documentation had not indicated any deficiencies.<sup>83</sup> Therefore, it appears that the documentation problems identified by Mrs. Hamilton either have been corrected or had no safety significance. In addition, it appears that the procedures governing paperwork for protective coating quality assurance were changed in July 1981.<sup>84</sup> Thus it would seem that the source of the alleged problems also has been addressed. The Board finds nothing to raise as a *sua sponte* issue arising from this allegation.

Mrs. Hamilton was also concerned about the specified method for determining "tack-free time" for paint, but she admitted that she did not know that the method being used was incorrect.<sup>85</sup> She further alleged that there were problems with the calibration of instruments used in paint inspections.<sup>86</sup> These two allegations, made by a lay witness in very general terms, are insufficient to indicate a deficiency or to serve as a basis for a *sua sponte* question by the Board. They appear to be in the

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<sup>78</sup> Testimony of Cordella Marie Hamilton, witness for CASE, CASE Ex. 652, at 1-2.

<sup>79</sup> Testimony of Robert L. Hamilton, witness for CASE, CASE Ex. 653, at 1.

<sup>80</sup> C. Hamilton Testimony, CASE Ex. 652, at 5, 9-10.

<sup>81</sup> *Id.* at 8, 9, 14. It is not clear from Mrs. Hamilton's testimony whether there was an audit by the applicant or an inspection by the NRC. However, an NRC inspection report did note deficiencies in the program in 1981. See App. Ex. 44B.

<sup>82</sup> C. Hamilton Testimony, CASE Ex. 652, at 15, 18.

<sup>83</sup> *Id.* at 18.

<sup>84</sup> *Id.* at 13.

<sup>85</sup> *Id.* at 18-19.

<sup>86</sup> *Id.* at 21-22.

nature of general questions rather than the identification of specific problems which might require a serious inquiry.

Mrs. Hamilton alleged that for a year quality control inspectors were directed not to write NCRs on work done by the paint department.<sup>87</sup> Mr. Hamilton testified that he was directed to stop writing if not any, at least so many, NCRs.<sup>88</sup> Neither the staff nor the applicant addressed these allegations directly. These allegations are, however, closely related to the issue of management's commitment to the quality control program. As such, they remain open.

In addition, Mr. Hamilton's allegation that craft personnel harassed quality control inspectors<sup>89</sup> is related to management's attitude towards the quality assurance program. If management permitted or failed to discourage harassment of inspectors, that would, of course, reflect adversely on that attitude. The question of whether this has occurred remains open.

Mr. Hamilton alleged that he and two other inspectors were fired for trying to do their inspection job.<sup>90</sup> The given reason for his firing was that he refused to make an inspection under what he believed were unsafe working conditions. However, he alleged that other individuals who refused to make the same inspection under the same conditions were not fired.<sup>91</sup> This allegation is relevant to the applicant's attitude towards the quality control program and will be dealt with in a subsequent decision.

Mr. Hamilton also alleged that his quality assurance supervision was not qualified.<sup>92</sup> While this could also reflect on management's commitment to quality assurance, we note that Mr. Hamilton's concerns in this regard apparently related to his opinion that he was more knowledgeable than his supervisors in the area of procedures for quality assurance inspection of paint.<sup>93</sup> He disagreed with changes in procedures and objected to supervisors overruling quality control inspectors on specific inspection findings.<sup>94</sup> We do not believe that an employee's disagreement with a decision made by his supervisor raises sufficient questions about the supervisor's qualifications that the Board should raise supervisor qualifications as a *sua sponte* issue. However, there appears to be a gap in the record because neither the applicant nor the staff has testified about whether

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<sup>87</sup> *Id.* at 19.

<sup>88</sup> R. Hamilton Testimony, CASE Ex. 653, at 22, 43, 53-54.

<sup>89</sup> *Id.* at 36-38.

<sup>90</sup> *Id.* at 26.

<sup>91</sup> *Id.*

<sup>92</sup> *Id.* at 14, 16.

<sup>93</sup> *Id.* at 16, 39, 43.

<sup>94</sup> *Id.* at 15, 16, 18-19, 38.

the procedures which Mr. Hamilton criticized were, in fact, acceptable. (Specifically Mr. Hamilton has questioned the lack of standards for determining near white blast for surface preparation, the lack of a maximum roughness for steel substrate surface, and procedural changes which allegedly reduced all painting inspection to adhesion testing.) If evidence introduced on this open item led us to conclude that there were significant faults in these inspection procedures, that could lead us to question the qualifications of the supervisors who approved them as well as the adequacy of the inspections performed following them. We note, however, that this does not indicate any present conclusion by the Board that problems exist in this regard.

It also appears that Mr. Hamilton disagreed with dispositions of NCRs. He disagreed with the repair method for minor defects in painting.<sup>95</sup> He questioned the disposition of an NCR which addressed contamination of a painted surface which was force-cured using Kelly heaters which smoked.<sup>96</sup> Once again, these specific allegations were not addressed in the hearing by either the applicant or the staff. Since the implications of a failure to provide adequate disposition of NCRs could be serious, we consider this an open item. In particular, we need to be able to evaluate the disposition of the NCR related to smoking Kelly heaters and the procedures for repair of minor defects, as specified by Mr. Hamilton.

There is one other allegation made by Mr. Hamilton which the Board is currently unable to evaluate. Mr. Hamilton alleged that a paint applied by Westinghouse and not tested by the applicant's quality control program could not pass an adhesion test.<sup>97</sup> We need to determine whether this use of paint is safety-related and, if so, whether the paint will perform satisfactorily.

Mr. Hamilton alleged that an audit of Carboline, a paint vendor, was a "white-wash."<sup>98</sup> This audit followed two audits which had found unsatisfactory conditions at the Carboline plant. Mr. Hamilton was not present for the audit which he felt was a white-wash and based his charges on a "gut feeling."<sup>99</sup> He admitted that the sequence of events concerning Car-

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<sup>95</sup> *Id.* at 15.

<sup>96</sup> *Id.* at 21-22. He also questioned the disposition of an NCR on which he had documented what he believed was grease in paint. *Id.* at 21. However, it was shown that the paint was ultimately returned to the vendor. Tr. 3502; App. Ex. 139. While Mr. Hamilton believed some of the paint had been used, he had applied hold tags to the containers, the amount of paint missing was small (less than two containers), and some of the paint would have been used in an attempt to strain it and remove the foreign matter. Tr. 3503-05. The Board is satisfied that this NCR was properly dispositioned and does not raise any question of the safe operation of the plant.

<sup>97</sup> R. Hamilton Testimony, CASE Ex. 653, at 55.

<sup>98</sup> *Id.* at 24-25.

<sup>99</sup> *Id.* at 47-48; Tr. 3522.

boline would appear to illustrate the satisfactory performance of the quality assurance program in resolving unsatisfactory conditions.<sup>100</sup> There is no evidence that the audits of Carboline demonstrate anything other than appropriate functioning of the quality control program. Mr. Hamilton's gut feeling is not sufficient to induce us to inquire further.

Another of Mr. Hamilton's allegations addressed undocumented removal of cable trays for which quality assurance documentation had been completed.<sup>101</sup> Documentation problems have been noted by the NRC Construction Appraisal Team (CAT) and were addressed in a hearing subsequent to the parties' filing of proposed findings of fact. This allegation will be considered at the time the CAT findings are addressed.

Other allegations made by Mr. Hamilton do not require that the Board raise *sua sponte* issues because they have not been sufficiently related to deficiencies in the quality assurance program; consequently, the Board does not believe that, if true, they would raise serious health or safety issues. These include allegations that the only quality control vault ceiling is not fireproof,<sup>102</sup> that it takes some time to retrieve records from the quality assurance vault,<sup>103</sup> that quality control inspectors did not observe paint being applied to buildings outside the containment,<sup>104</sup> and that he was never instructed to take greater care because the project was a nuclear plant.<sup>105</sup>

#### **4. Allegations by Darlene K. Stiner and Henry A. Stiner**

Darlene K. Stiner and Henry A. Stiner appeared as a panel providing direct testimony for CASE. Mr. Stiner had worked at Comanche Peak as a welder from November 1979 to December 1980 and from June to July 1981.<sup>106</sup> Mrs. Stiner began working at Comanche Peak in August 1977 and was employed there at the time she testified.<sup>107</sup> She had been employed as a welder and was a quality assurance inspector at the time she testified.<sup>108</sup>

In his direct testimony Mr. Stiner indicated that he had a criminal record.<sup>109</sup> The applicant's counsel brought out on cross-examination that he had multiple convictions and had not revealed all of them on his

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<sup>100</sup> R. Hamilton Testimony, CASE Ex. 653, at 54.

<sup>101</sup> *Id.* at 55.

<sup>102</sup> *Id.*

<sup>103</sup> *Id.*

<sup>104</sup> *Id.* at 59.

<sup>105</sup> *Id.* at 65.

<sup>106</sup> CASE Ex. 666A.

<sup>107</sup> Testimony of Darlene K. Stiner, Witness for Intervenor CASE, CASE Ex. 667, at 3 (Tr. 4127).

<sup>108</sup> *Id.* at 3, 5 (Tr. 4127, 4129).

<sup>109</sup> Testimony of Henry A. Stiner, Witness for Intervenor CASE, CASE Ex. 666, at 47-48 (Tr. 4249-50).

second application for employment at Comanche Peak.<sup>110</sup> He had not indicated any criminal record on his first application for employment.<sup>111</sup>

The Board has considered this information in determining the weight it gives Mr. Stiner's testimony. The Board notes that, almost without exception, Mr. Stiner's allegations are duplicated by other witnesses. Also, the Board is not aware of any motive that Mr. Stiner would have to make allegations in this proceeding which he did not believe were true. If anything, the fact that Mr. Stiner's wife was employed at Comanche Peak at the time he testified would seem to provide him with a motive not to make allegations against the applicant.

The one allegation which was made by Mr. Stiner and by no one else was that he was terminated because he showed a quality assurance inspector a gouge in a pipe.<sup>112</sup> This allegation was not elaborated on to any significant extent by any of the parties. However, it is related to the question of management's commitment to quality control and, as such, it will be considered in a later decision.

Another concern raised by Mr. Stiner was that a hole was created in concrete in the Safeguards Building when he removed a partially installed Hilti bolt.<sup>113</sup> Mrs. Stiner also observed the hole.<sup>114</sup> Mr. Stiner alleged that repair of the hole was not subject to proper quality assurance control.<sup>115</sup> The staff has investigated this allegation and reported its findings in Investigation Report 81-12.<sup>116</sup> The investigation concluded that this allegation did not raise any safety questions.<sup>117</sup> Because we have no reason to doubt the staff's evaluation of the significance of a hole in the wall of the Safeguards Building, we will not declare this a *sua sponte* issue.<sup>118</sup>

Mr. Stiner also alleged that he was not told that greater care should be taken because the facility was a nuclear plant.<sup>119</sup> This allegation relates to the overall adequacy of the quality assurance program, but it is not by itself a cause for concern about the safety of the plant.

An allegation that was made by both Mr. and Mrs. Stiner was that pieces of scrap iron were added to hangers or supports in the field.<sup>120</sup> At

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<sup>110</sup> Tr. 4488-89; App. Ex. 146.

<sup>111</sup> Tr. 4484, App. Ex. 145.

<sup>112</sup> H. Stiner Testimony, CASE Ex. 666, at 34, 40 (Tr. 4236, 4242).

<sup>113</sup> *Id.* at 25 (Tr. 4227).

<sup>114</sup> D. Stiner Testimony, CASE Ex. 667, at 40 (Tr. 4161).

<sup>115</sup> H. Stiner Testimony, CASE Ex. 666, at 25 (Tr. 4227).

<sup>116</sup> Staff Ex. 178.

<sup>117</sup> *Id.* at 9.

<sup>118</sup> We are concerned that the staff did not provide a reasoned explanation for its conclusion, but we do not see any reason to inquire further about this particular defect.

<sup>119</sup> H. Stiner Testimony, CASE Ex. 666, at 32 (Tr. at 4234).

<sup>120</sup> *Id.* at 41-42 (Tr. 4242-43); D. Stiner Testimony, CASE Ex. 667, at 47-48 (Tr. 4171-72).



least one of these allegations would appear to relate to Class 5 (“V”) hangers,<sup>121</sup> some of which may not be subject to the quality assurance system.<sup>122</sup>

As to a Class III hanger mentioned by Mr. Stiner, he said that the heat number was added to a shim that had been made out of a scrap metal.<sup>123</sup> According to rebuttal testimony by the applicant, use of new material is not required and traceability through heat numbers is only required for structural members used in component supports.<sup>124</sup> The shim is not a structural member. As far as Mrs. Stiner’s allegation that she was directed to weld a piece of angle iron onto a small Class III support, she admitted that she does not know what happened to the support once it was taken from her. She did not know whether it was installed or scrapped.<sup>125</sup>

None of these specific instances appears to be a problem. Therefore, the Board does not believe the Stiners’ allegations in this regard raise serious health and safety questions about the plant which require the Board to raise this as a *sua sponte* issue.

The Stiners made numerous allegations about welding practices at Comanche Peak. They alleged that weave beading occurred although it was prohibited on site.<sup>126</sup> Weave beading involves welding using transverse oscillations of the electrode.<sup>127</sup> They further alleged that if weave beading welding violations occurred, the weld was improperly repaired. Specifically, they alleged that repair of weave-beaded welds requires the grinding out and rewelding of the entire weld,<sup>128</sup> but that the practice of welders was to grind the surface of the weld which showed transverse oscillations and make only a surface welding pass.<sup>129</sup>

The applicant presented rebuttal testimony that established that only welding which involved significant transverse oscillation was prohibited as weave beading. Brown & Root, the firm performing construction at Comanche Peak, defines this to mean oscillations greater than four times the diameter of the weld rod used.<sup>130</sup> Because some transverse oscillation is permitted at Comanche Peak as being acceptable under Sec-

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<sup>121</sup> H. Stiner Testimony, CASE Ex. 666, at 42 (Tr. 4244).

<sup>122</sup> Tr. 4082, 4565.

<sup>123</sup> H. Stiner Testimony, CASE Ex. 666, at 41-42 (Tr. 4242-43).

<sup>124</sup> Applicant cited ASME Section III or ANSI B-31.1 as the applicable code sections. See Tr. 4628-29.

<sup>125</sup> D. Stiner Testimony, CASE Ex. 667, at 47-48 (Tr. 4171-72).

<sup>126</sup> *Id.* at 23-24, 28 (Tr. 4147-48, 4152).

<sup>127</sup> Tr. 4086.

<sup>128</sup> D. Stiner Testimony, CASE Ex. 667, at 26 (Tr. 4150).

<sup>129</sup> *Id.* at 25 (Tr. 4149); H. Stiner Testimony, CASE Ex. 666, at 9-10 (Tr. 4211-12); Tr. 4357.

<sup>130</sup> Rebuttal Testimony of C. Thomas Brandt, Ronald G. Tolson, Gordon R. Purdy, Raymond J. Vurpillat and Randall D. Smith Regarding Quality Assurance/Quality Control, App. Ex. 141, at 30 (Tr. 4685); Tr. 4412, 4420, 4635-36.

tion IX of the code of the American Society of Mechanical Engineers (ASME), some of the welds which concerned the Stiners may have been acceptable.

The NRC did an investigation of the allegations of weave beading. A visual inspection of an area in which this weave beading had allegedly occurred did not disclose weave welds.<sup>131</sup> However, it would not have done so if the welds had been reworked as described by the Stiners.<sup>132</sup> Conversations by the investigator with five welders revealed that three had seen weave welds but that those welds had been corrected.<sup>133</sup>

The applicant presented testimony that the repair method described by the Stiners did not violate any procedures.<sup>134</sup> The witness testified that by the time the weld has been ground down, it no longer exceeds the allowable diameter.<sup>135</sup> However, we are unable to accept this explanation because we fail to understand the engineering principles involved here. In particular, we do not understand the configuration of the joints in which weave beading occurred, where the grinding takes place or how the grinding cures the underlying weakness in the joint due to excess transverse oscillation during welding. Hence, we consider this to be an open item.

The Stiners alleged that "plug welds" were used to fill improperly placed bolt holes and that this was not a permissible procedure.<sup>136</sup> The applicant's witnesses testified that this procedure was permitted for filling misdrilled holes at Comanche Peak and that this work requires a final visual inspection by quality assurance.<sup>137</sup> An NRC investigation of this allegation found that plug welding occurred and that quality control inspectors were aware that they were required to inspect it.<sup>138</sup> Mr. Stiner, however, specifically stated that these welds are being made without quality assurance inspecting them.<sup>139</sup> Neither the applicant nor the staff appears to have addressed the question of whether such welds are being made and not being inspected. Nor have we been able to find the ASME code provisions that may allow this practice. Hence, the allegation is an open item.

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<sup>131</sup> Staff Ex. 178 at 5.

<sup>132</sup> Tr. 4599.

<sup>133</sup> Staff Ex. 178 at 5.

<sup>134</sup> Tr. 4650-51.

<sup>135</sup> *Id.*

<sup>136</sup> D. Stiner Testimony, CASE Ex. 667, at 30 (Tr. 4134); H. Stiner Testimony, CASE Ex. 666, at 43-44 (Tr. 4219-20).

<sup>137</sup> Applicant's Rebuttal Panel Testimony, App. Ex. 141, at 36 (Tr. 4691).

<sup>138</sup> Staff Ex. 178 at 6.

<sup>139</sup> H. Stiner Testimony, CASE Ex. 666, at 19 (Tr. 4221).

Mr. Stiner alleged that downhill welding sometimes occurred, in violation of site procedures.<sup>140</sup> The applicant's rebuttal panel testified that although Brown & Root procedures may have prohibited downhill welding at Comanche Peak, it is allowed by ASME Section 9 for root and cover pass and is allowed by the American Welding Society (AWS) to repair undercut.<sup>141</sup> The record does not specify whether the Stiner allegations were limited to root and cover pass welds. Consequently, the record explanation of the allegation is incomplete and this is an open item.

Both of the Stiners alleged that there were problems with the control of welding rods. Mrs. Stiner stated that, while these rods were supposedly controlled and accounted for through the use of stubs that assigned rods to a particular welder for a particular job, she had discovered rods which had been abandoned or thrown out without the control system having identified the problem.<sup>142</sup> She also stated that there were instances when welders claimed to have used more welding rods than would be needed for a particular job.<sup>143</sup> Thus, welders could have claimed to have used rods, kept them, and later used them on a weld for which they had not been issued and might be inappropriate. Mr. Stiner testified that he had performed welding using rods which had been issued to other welders.<sup>144</sup>

The applicant, in rebuttal to the Stiners' allegation, presented testimony that weld rods were controlled to assure that safety-related weld rods of a proper type were used for a specific application.<sup>145</sup> The panel stated that some NCRs had been written when these procedures were not followed.<sup>146</sup> (Mrs. Stiner herself identified one such NCR that she had written.)<sup>147</sup>

This testimony is not sufficient to resolve the issue. The fact that NCRs have been written on uncontrolled weld rods does not refute a charge that the control system for these rods, while present, is less than perfect. Neither the staff nor the applicant has presented evidence that the system is so effective that we may conclude that almost all (or all) of the breaches are corrected by the quality control system. This is an open item. There appears to be no way to clarify the scope of this problem without a field investigation.

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<sup>140</sup> *Id.* at 44-45 (Tr. 4246-47).

<sup>141</sup> Tr. 4601-02.

<sup>142</sup> D. Stiner Testimony, CASE Ex. 667, at 41 (Tr. 4165).

<sup>143</sup> *Id.*

<sup>144</sup> H. Stiner Testimony, CASE Ex. 666, at 19 (Tr. 4221).

<sup>145</sup> Applicant's Rebuttal Panel Testimony, App. Ex. 141, at 34 (Tr. 4689).

<sup>146</sup> *Id.* at 35 (Tr. 4690).

<sup>147</sup> CASE Ex. 667S.

It was also alleged that it was a common practice for welders to leave unplugged for prolonged periods the containers which were intended to keep weld rods heated.<sup>148</sup> The purpose of keeping the rods heated is to prevent the welding rods from absorbing moisture.<sup>149</sup> If the rods do absorb moisture, the moisture will escape as steam during the welding. This will cause surface porosity.<sup>150</sup> (Porosity is holes or voids made in a weld by escaping steam.)<sup>151</sup> Porosity is a visual inspection criterion for welds under the American Welding Society code.<sup>152</sup> If unheated rods cause welds with porosity, the weld must be inspected and repaired.<sup>153</sup> This will solve the problem caused by the unheated rod. Thus, this allegation involves construction practices rather than quality assurance and it involves practices which would not affect the safe operation of the facility.

The Board asked the applicant how welding in safety-related buildings would be verified prior to operation of the nuclear plant. In describing the welding verification process, the applicant stated that all Class I, II, III and V supports in safety-related areas will be examined on a case-by-case basis prior to turnover to the operations group.<sup>154</sup> The process includes looking for evidence in the inspection record that there was a final visual inspection and other inspections that were required to be performed on all pipe and equipment supports.<sup>155</sup> The Board concludes that this voluntary action of the applicant is important to assure the integrity of these supports.

The Stiners also alleged that adequate quality control was not maintained over torquing of Hilti bolts. The quality assurance inspector is supposed to observe the torquing of Hilti bolts and to apply a material known as Torque Seal after the proper torquing has occurred. (Inspection is not required for 100% of Hilti bolt torquing, but that is the goal of the program.)

The Stiners alleged that quality control inspectors performing a Hilti bolt inspection would not always stand where they could observe the

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<sup>148</sup> D. Stiner Testimony, CASE Ex. 667, at 39 (Tr. 4163).

<sup>149</sup> Tr. 4597.

<sup>150</sup> Tr. 4302, 4597.

<sup>151</sup> Tr. 4631.

<sup>152</sup> Tr. 4632. Porosity is not a criterion for inspections performed to the ASME code. *Id.*

<sup>153</sup> Applicant's Rebuttal Panel Testimony, App. Ex. 141, at 35 (Tr. 4690); Tr. 4597.

<sup>154</sup> Tr. 4646-48.

<sup>155</sup> *Id.*

actual torquing;<sup>156</sup> that Torque Seal, whose handling was supposed to be controlled, was improperly in the hands of craft workers;<sup>157</sup> and that Torque Seal had been found on Hilti bolts that had not been properly torqued.<sup>158</sup> The applicant's response in this area was that it was not necessary for the inspector to observe the actual torquing of a Hilti bolt if the inspector checks the torque wrench for a proper setting, hears the click indicating that the bolt has been torqued, sees the craft person doing the torquing, and has no room to be in position to see the torquing indicator on the wrench.<sup>159</sup> The applicant's panel admitted that it was likely that the possession of Torque Seal was not entirely limited to quality assurance personnel, in spite of attempts to control it.<sup>160</sup> The applicant argued that this was not a cause for concern, however, because final verification of Hilti bolt torquing is dependent on a review of quality assurance inspection records.<sup>161</sup>

The Board finds that there is no problem with the nature of the quality assurance inspections performed on Hilti bolts.<sup>162</sup> The Board is concerned, however, that Mrs. Stiner understood her instructions to be that she should assume that all Torque Seal had been applied by quality assurance and that she should sign her inspections on that basis.<sup>163</sup> If quality control inspectors signed inspections because they found Hilti bolts covered with Torque Seal, the paper review of inspections would not reveal the fact that quality assurance had not actually checked whether the Hilti bolt had been torqued. Consequently, this is an open item. There needs to be further evidence, based on field investigation, concerning whether quality control inspectors considered the presence of Torque Seal to be so definitive that they did not check quality assurance records further.

Mrs. Stiner alleged that an NCR which she had written on a burned bus box adjacent to the polar crane rail and resulting in gouges in the polar crane rail was unfairly voided.<sup>164</sup> The disposition of the NCR was that it was voided because its subject was not an item covered by the quality assurance program.<sup>165</sup> There is no evidence that the bus box in

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<sup>156</sup> D. Stiner Testimony, CASE Ex. 667, at 34 (Tr. 4158); H. Stiner Testimony, CASE Ex. 666, at 23 (Tr. 4225); Tr. 4299-4300.

<sup>157</sup> D. Stiner Testimony, CASE Ex. 667, at 31 (Tr. 4155).

<sup>158</sup> *Id.* at 36 (Tr. 4160); CASE Ex. 667R.

<sup>159</sup> Applicant's Rebuttal Panel Testimony, App. Ex. 141, at 32-33 (Tr. 4687-88); Tr. 4537-39.

<sup>160</sup> Tr. 4534, 4536.

<sup>161</sup> Applicant's Rebuttal Panel Testimony, App. Ex. 141, at 33 (Tr. 4688); Tr. 4541-42, 4544.

<sup>162</sup> *See also* Staff Ex. 178 at 7-8.

<sup>163</sup> Tr. 4085.

<sup>164</sup> D. Stiner Testimony, CASE Ex. 667, at 53 (Tr. 4177); Tr. 4073, 4102.

<sup>165</sup> *Id.* at 54 (Tr. 4178).

question is safety-related, so there is no reason for us to declare a *sua sponte* issue.

Mrs. Stiner made several other allegations to which the staff and applicant have not responded. Some of them are reasonably specific and are open questions. These include her allegations that Hanger #SW-1-102-106-Y33K is in a safety-related area and is severely mismatched;<sup>166</sup> that a craft person was involved in performing quality assurance liquid penetrant inspections on the fuel pool liner;<sup>167</sup> and that ineffective action was taken when she identified numerous problems on a hanger previously approved by quality assurance.<sup>168</sup>

Two allegations made by Mrs. Stiner may simply be dismissed without further consideration. She alleged that there is no traceability of materials until quality assurance becomes involved.<sup>169</sup> Applicant argues that traceability is only required *for* the quality assurance program and that it need not be applied to materials that are not covered by that program. In this posture, there is some ambiguity in the record, but we conclude that there is only one logical explanation for that ambiguity. Theoretically, it is possible that items that had not previously been traced could be added to the quality assurance system, where they would then become traceable. However, we exclude this inference because testimony that items in the program are traceable means that their entire pedigree must be known. Those items could not previously have been untraceable. On this basis, we accept applicant's explanation.<sup>170</sup>

The second allegation is that material from a scrap bin could be utilized on the site and would lack traceability.<sup>171</sup> Since there is no allegation this has happened, it raises no issue about the quality of actual construction at Comanche Peak.

Mrs. Stiner alleged that she was unqualified for a quality assurance position which she held.<sup>172</sup> The CAT report discusses inspector qualification and this allegation will be considered in connection with our decision on matters in the CAT report.

Mrs. Stiner alleged that management at Comanche Peak had harassed her because she would be testifying for the intervenors in this proceeding.<sup>173</sup> This is related to a matter considered in the CAT report

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<sup>166</sup> *Id.* at 45 (Tr. 4169).

<sup>167</sup> *Id.* at 49 (Tr. 4173).

<sup>168</sup> *Id.* at 56-57 (Tr. 4180-81).

<sup>169</sup> *Id.* at 46 (Tr. 4170).

<sup>170</sup> A party with information that our resolution of this issue is factually in error would have an obligation to correct the record, even if our finding were favorable to its interests.

<sup>171</sup> *Id.* at 57 (Tr. 4181).

<sup>172</sup> *Id.* at 8 (Tr. 4132).

<sup>173</sup> *Id.* at 63-72 (Tr. 4187-96).

and reflects on management's commitment to its quality assurance program. It will be evaluated in a subsequent decision.

### 5. *Allegations by Charles A. Atchison*

Charles A. Atchison was employed by Brown & Root to work on the Comanche Peak site from February 27, 1979 to April 12, 1982.<sup>174</sup> He testified in these proceedings on behalf of CASE. Among his many allegations, Mr. Atchison claimed that he was improperly fired for performing inspections.<sup>175</sup> This allegation has been covered by a previous Memorandum and Order of this Board.<sup>176</sup> That decision found that Mr. Atchison was improperly fired.

The allegations not covered in either of our decisions include the following: (1) problems with welding on Chicago Bridge and Iron pipe whip restraints and moment restraints;<sup>177</sup> (2) problems with welding on NPSI pipe whip restraints;<sup>178</sup> (3) uncertified employees performed liquid penetrant testing;<sup>179</sup> (4) unstated management direction to overlook problems;<sup>180</sup> (5) and pressure to approve an audit of Tennessee Wall, Tube and Metal.<sup>181</sup> These appear to be open issues. Issue number 4 is the subject of two ongoing investigations, which may also cover number 5.

Other Atchison allegations are vague, unrelated to the quality assurance program, or are speculative. These allegations, which are not treated in detail in this opinion, are that (1) the quality control vault may not be fireproof;<sup>182</sup> (2) there is low morale among workers;<sup>183</sup> (3) he was not instructed to use special care because he was working on a nuclear facility;<sup>184</sup> (4) Japanese steel was being used on site;<sup>185</sup> (5) pictures he had found in a desk on site showed a void at an unspecified location in

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<sup>174</sup> Testimony of Charles A. Atchison, Witness for Intervenor CASE, Case Ex. 650, at 5-7.

<sup>175</sup> See, e.g., *id.* at 53-54.

<sup>176</sup> LBP-83-34, 18 NRC 36 (1983).

<sup>177</sup> Atchison Testimony, Case Ex. 650, at 23-24, 40-41; Supplementary Testimony of Charles A. Atchison, Witness for Intervenor CASE, CASE Ex. 656, at 2-3, 5-6.

<sup>178</sup> Atchison Testimony, CASE Ex. 650, at 33.

<sup>179</sup> *Id.* at 51.

<sup>180</sup> *Id.* at 58.

<sup>181</sup> Atchison Supp. Testimony, CASE Ex. 656, at 2.

<sup>182</sup> Atchison Testimony, CASE Ex. 650, at 34.

<sup>183</sup> *Id.* at 49, 64.

<sup>184</sup> *Id.* at 67.

<sup>185</sup> Atchison Supp. Testimony, CASE Ex. 656, at 1-2.

Reactor Building 1;<sup>186</sup> (6) an individual, employed as a contractor's quality assurance manager, ordered for Brown & Root;<sup>187</sup> and (7) engineering permitted a type of welding by NPSI not authorized by procedures.<sup>188</sup>

Among Mr. Atchison's more substantial concerns is the allegation that there were problems with getting component modification cards to the document control center and incorporating them into appropriate document revisions.<sup>189</sup> This allegation is related to matters discussed in the CAT report and will be discussed later in that context.

Mr. Atchison alleged that A490 bolts were being broken and that after tests were run to establish torque values for the bolts, the new torque values were not incorporated into site procedures.<sup>190</sup> Neither the applicant nor the staff has responded to the allegation. It is an open item.

Another allegation made by Mr. Atchison was that he had observed a welder "quenching" a weld directly, in violation of site procedures.<sup>191</sup> It appears from Mr. Atchison's testimony that he wrote an NCR on this matter and that the project engineer determined that, while the quenching violated site procedures, it did not affect the quality of the weld.<sup>192</sup> However, we have no understanding of the reason for prohibiting the quenching of welds or why this particular weld was found to be acceptable.

Mr. Atchison alleged that a flammable lubricant was used to assist in pulling cable through electrical conduit.<sup>193</sup> The lubricant was tested in a laboratory and found to be satisfactory. Without having been present for the laboratory test, Mr. Atchison questioned whether it reasonably approximated conditions in the field.<sup>194</sup> In essence, Mr. Atchison gave no reason for questioning the accuracy of the results of the laboratory tests. We find nothing in this allegation which we should pursue *sua sponte*.

Mr. Atchison also alleged that there were too few quality control inspectors to perform the quality assurance work at Comanche Peak.<sup>195</sup> Applicant provided rebuttal testimony indicating that during the time Mr. Atchison was employed at Comanche Peak, the ratio of quality control inspectors to craft personnel was within the average for the

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<sup>186</sup> *Id.* at 7.

<sup>187</sup> *Id.* at 9.

<sup>188</sup> *Id.* at 8.

<sup>189</sup> Atchison Testimony, CASE Ex. 650, at 35-36.

<sup>190</sup> *Id.* at 29-31.

<sup>191</sup> *Id.* at 50-51.

<sup>192</sup> *Id.* at 50.

<sup>193</sup> *Id.* at 55.

<sup>194</sup> *Id.* at 55-56.

<sup>195</sup> *Id.* at 57.



industry.<sup>196</sup> In addition, the applicant's witnesses testified that if the ratio had been less favorable it could have influenced how rapidly required inspections were performed, but would not have affected whether they were performed.<sup>197</sup> Accepting the applicant's testimony that the inspections will be performed regardless of the number of inspectors, Mr. Atchison's allegation does not by itself raise an important issue about the number of inspectors. We do not decide whether the parallel issue raised by the CAT inspectors is meritorious.

Mr. Atchison alleged that hundreds of flange bolt-up joints had not been submitted to quality assurance for final inspection. Thus, he alleged the start-up group would repeatedly disassemble and reassemble the joints.<sup>198</sup> Certainly, if the units are to be disassembled, this should be done before the final quality assurance approval. It does not appear that Mr. Atchison is alleging that these joints will never be submitted for final quality assurance approval. They appear to be just one additional item left for inspection during the final walk-down at the end of the project.

Mr. Atchison alleged that he had observed the "cold springing" of two lines from reactor coolant pump compartment number three.<sup>199</sup> In rebuttal, the applicant indicated that the cold sprung pipe was part of the component cooling water system, that an NCR had been written on it, and that repair work had been required.<sup>200</sup> Mr. Atchison was reasonably specific about the lines he alleged had been cold sprung. The applicant did not indicate how they determined that the lines to which he referred were not part of the reactor cooling system. They may well be correct in their conclusion; however, there is an important gap in our record that needs to be filled.

Mr. Atchison's final allegation was that minimum wall thickness violations had occurred in piping.<sup>201</sup> He testified that an NCR had been written on this matter and had led to two backfit programs.<sup>202</sup> As far as he knew the NCR had not been closed.<sup>203</sup> Since an NCR had been written on the problem and there are controls requiring that there be an appropriate disposition, we find that this allegation demonstrates the cor-

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<sup>196</sup> Applicant's Rebuttal Panel Testimony, App. Ex. 141, at 38-39 (Tr. 4693-94).

<sup>197</sup> *Id.*

<sup>198</sup> Atchison Testimony, CASE Ex. 650, at 62.

<sup>199</sup> *Id.* at 63.

<sup>200</sup> Applicant's Rebuttal Panel Testimony at 36-37 (Tr. 4691-92).

<sup>201</sup> Atchison Testimony, CASE Ex. 650, at 63.

<sup>202</sup> *Id.* at 63-64.

<sup>203</sup> *Id.* at 64.

rect working of the quality assurance program and does not present an allegation that we should pursue *sua sponte*.

## 6. Miscellaneous Allegations

### a) Lobbin Report

Mr. B.R. Clements, Vice President, Nuclear of TUGCO commissioned a management study by Mr. Frederick B. Lobbin, to review the effectiveness of management controls within the quality assurance organization.<sup>204</sup> This review was entirely voluntary on TUGCO's part.<sup>205</sup> It was a quick-and-dirty effort to identify problems that Mr. Clements might follow up if he thought additional effort was warranted. Clements at 3-5.

Mr. Lobbin testified that he sometimes overstated his conclusions in order to assure that they would be attended to.<sup>206</sup> Despite this method of exaggeration, each of his findings was evaluated by applicant in a response document.<sup>207</sup>

We conclude that as a result of the nature of Mr. Lobbin's study, his individual findings are entitled to little weight in this proceeding. This conclusion does not prejudice the right of a party to use his findings as cumulative evidence, together with other direct evidence, of positive or negative findings concerning the quality assurance program.

### b) The Number of NCRs

CASE introduced a large number of documents that demonstrated the existence of construction deficiencies at Comanche Peak.<sup>208</sup> However, there were no witnesses that testified that the number of deficiencies was abnormal. Indeed, the staff's resident inspector, Mr. Taylor, testified without contradiction that the number of NCRs indicates only that the quality assurance program is working.<sup>209</sup> In addition, the staff examined a sample of NCRs to detect trends indicative of problems, and they have

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<sup>204</sup> See App. Ex. 48; Testimony of B.R. Clements Regarding Reviews of Management Control Program and Activities of Texas Utilities Company Quality Assurance Organization, App. Ex. 118, at 2-3; Testimony of Frederick B. Lobbin Regarding Review of Management Control Program and Activities of Texas Utilities Generating Company QA Organization, App. Ex. 119, at 2; Clements, Tr. 2156; Lobbin Tr. 2163-64.

<sup>205</sup> B.R. Clements Testimony, App. Ex. 118, at 3; F. Lobbin Testimony App. Ex. 119, at 2. See also 10 C.F.R. Part 50, Appendix B which does not require any such management study.

<sup>206</sup> Lobbin, Tr. 2170.

<sup>207</sup> App. Ex. 49.

<sup>208</sup> See, e.g., CASE Ex. 305-570.

<sup>209</sup> Taylor, Tr. 1712, 1730-31.

concluded that there are no serious problems revealed by the logs of NCRs.<sup>210</sup> Staff examination of corrective actions taken pursuant to NCRs also resulted in a positive evaluation.<sup>211</sup>

We find no evidence that the number of NCRs and of other deficiency reports was in any way excessive for a project of this size. To the contrary, the existence of these reports is consistent with the Commission's quality assurance requirements.

## II. CONTENTION 22

Contention 22 states:

Applicants have failed to comply with 10 C.F.R. Part 50, Appendix E, regarding emergency planning for the following reasons:

- (a) The FSAR does not identify state or regional authorities responsible for emergency planning or who have special qualifications for dealing with emergencies.
- (b) No agreements have been reached with local and state officials and agencies for the early warning and evacuation of the public, including the identification of the principal officials by titles and agencies.
- (c) There is no description of the arrangements for services of physicians and other medical personnel qualified to handle radiation emergencies and arrangements for the transportation of injured or contaminated individuals beyond the site boundary.
- (d) There are no adequate plans for testing by periodic drills of emergency plans and provisions for participation in the drills by persons whose assistance may be needed, other than employees of the Applicant.
- (e) There is no provision for medical facilities in the immediate vicinity of the site, which includes Glen Rose.
- (f) There is no provision for emergency planning for Glen Rose or the Dallas/Fort Worth metroplex.<sup>212</sup>

CASE did not address this contention at all in its proposed findings of fact. In recent hearings CASE has had very few questions for witnesses on emergency planning.<sup>213</sup> CASE's failure to file proposed findings on the emergency planning contention when directed to do so constitutes abandonment of the contention.<sup>214</sup> CASE subsequently has failed to pursue the contention vigorously, confirming the wisdom of declaring this to be an abandonment.

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<sup>210</sup> Stewart, Tr. 1282, 1285; Crossman, Tr. 3021.

<sup>211</sup> Crossman, Tr. 3022.

<sup>212</sup> Order Subsequent to the Prehearing Conference of April 30, 1980, slip op. at 11 (June 16, 1980) (unpublished).

<sup>213</sup> Tr. 7286, 7480-81.

<sup>214</sup> 10 C.F.R. § 2.754(b).

The development of emergency plans is an evolutionary process. In May 1983, the staff introduced into the record an interim finding by the Federal Emergency Management Agency (FEMA) that there is reasonable assurance that the offsite protection of public health and safety is adequate.<sup>215</sup> The documentation attached to this interim finding makes it apparent, however, that the state and county emergency plans do have deficiencies.

The interim finding is based upon a review of the paper plans.<sup>216</sup> The finding is in the nature of a progress report.<sup>217</sup> It indicates that if all the commitments made in the emergency plans are carried out, there is reasonable assurance that the plans will provide adequate protection for the public.<sup>218</sup>

At this stage, it is too early to determine whether all those commitments will be fulfilled. The Board is not satisfied that the plans as presently constituted are adequate. It remains concerned about these promises. Since the evolutionary process is not yet complete (there must, for example, be a drill or exercise),<sup>219</sup> the Board does not believe it should raise any issues *sua sponte* at this time. However, the Board will continue to observe the development of the emergency plans and may raise issues *sua sponte* later if the commitments are not met or the deficiencies are not rectified. Our Order of June 27, 1983 (LBP-83-32, 17 NRC 1164), elaborates further about the extent of our concern about this issue.

### III. BOARD QUESTIONS

In addition to the contentions, the Board had posed four questions. These questions were posed for the purpose of obtaining information so that the Board could determine whether a serious health or safety issue existed which the Board should raise *sua sponte*. This decision resolves those aspects of these Board questions that were raised during hearings occurring prior to March 1983.

#### A. Board Question 1

In Board Question 1 the applicant and staff were asked to "[d]escribe in detail the planned method for handling any hydrogen gas in the

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<sup>215</sup> Memorandum from Lee M. Thomas to William Dircks (September 29, 1982), ff. Tr. 7414.

<sup>216</sup> Tr. 7417-18.

<sup>217</sup> Tr. 7456.

<sup>218</sup> Tr. 7452-54.

<sup>219</sup> Tr. 7416-17, 7441-43, 7481.

CPSES containment structure.”<sup>220</sup> The potential source of hydrogen gas in the containment structure would be a Loss-of-Coolant Accident (LOCA). Combustible gases, principally hydrogen, would be generated inside the containment during a LOCA by: a zirconium-water reaction, release of free hydrogen from the primary coolant system, radiolysis of water, or corrosion of susceptible construction materials in containment.<sup>221</sup> As it has previously indicated on the record,<sup>222</sup> the Board is satisfied that any hydrogen generated within the containment structure can be satisfactorily handled. The Board relies on the large containment structure at Comanche Peak, the redundancy of electrical recombiners provided, and the requirement by the staff that the recommendations for operator training found in the TMI-2 Short Term Lessons Learned report will be implemented prior to issuance of the operating licenses.<sup>223</sup>

## B. Board Question 2

Board Question 2 states:

Applicant and staff should describe in detail the operating quality assurance program for CPSES. A description of the provisions for conduct of quality control audits should be provided, including a description of how reactor operations and reactor operator training will be audited.<sup>224</sup>

The applicant and the staff provided the Board with extensive information on the structure and purpose of the quality assurance program for operations at Comanche Peak.<sup>225</sup> The Board is convinced that if the operational quality control program is instituted as described, it will function adequately. The Board notes that while specific implementing procedures were not provided to the Board, the staff will review them before it will issue the licenses.<sup>226</sup> The staff will also audit implementation of

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<sup>220</sup> Order Subsequent to the Prehearing Conference of April 30, 1980, slip op. at 4 (June 16, 1980) (unpublished).

<sup>221</sup> Final Safety Analysis Report (FSAR) §§ 6.2.5 and 6.2.5A.

<sup>222</sup> Tr. 693, 731.

<sup>223</sup> See Board Ex. 1; Tr. 730-31.

<sup>224</sup> Order Subsequent to the Prehearing Conference of April 30, 1980, slip op. at 5 (unpublished).

<sup>225</sup> Testimony of B.R. Clements Regarding Management Commitment to Quality Assurance, App. Ex. 8; Testimony of David N. Chapman Regarding the Operating Quality Assurance Program for Comanche Peak, App. Ex. 9; Testimony of R.A. Jones Regarding Commitment of On-Site Management to Quality Assurance, App. Ex. 10; Testimony of Antonio Vega Regarding Provisions for Conduct of QA Audits and Reactor Operator Training, App. Ex. 12; staff Testimony of John G. Spraul Regarding Operating Quality Assurance (Board Question No. 2), Staff Ex. 5; App. Ex. 11; Tr. 506-662.

<sup>226</sup> Tr. 657-58, 662.

the operational quality assurance program.<sup>227</sup> In light of the commitments made by the applicant and the staff, the Board is satisfied at this time that the Board need not pursue this matter further by raising it as a separate, *sua sponte*, issue.<sup>228</sup>

### C. Board Question 3

Board Question 3 asked the applicant and the staff to describe the status of the resolution of Safety Issue TAP-9 (Anticipated Transient Without Scram or ATWS) as it relates to Comanche Peak. The staff answered the Board question with three affidavits.<sup>229</sup> The staff noted that the Commission has issued a notice of rulemaking on ATWS.<sup>230</sup> Prior to operation of Comanche Peak, the applicant will be required to develop emergency procedures and to train its operators to recognize and cope with an ATWS event. The staff indicated that the scram systems were redundant and highly reliable and that in view of favorable operating experience, Comanche Peak could be operated without undue risk during the period pending the final ATWS rule.

With respect to the favorable experience, Mr. Pyatt stated that, "There have been roughly one thousand reactor years of experience accumulated in foreign and domestic commercial light-water-cooled reactors without an ATWS accident." He chose his words carefully to avoid having to mention that there had been at least one ATWS event.

Although the Board had considered the staff's response on ATWS to be satisfactory,<sup>231</sup> we note that on February 25, 1983, a potentially serious ATWS event occurred at Salem Unit 1 as a result of a failure of redundant reactor trip breakers.<sup>232</sup> After that event, we asked whether the reactor trip breakers at Comanche Peak were similar to the Salem breakers and whether there would be any new requirements prior to operation. The staff has informed us that a task force has been formed to look into the generic implications of the Salem event and that final actions in response to the event are still under consideration.

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<sup>227</sup> Tr. 656.

<sup>228</sup> This conclusion would not prevent us from renewing our concern about operations quality assurance should we ascertain that there have been substantial deficiencies in aspects of the construction quality assurance program that also are present during operations.

<sup>229</sup> Affidavits by David W. Pyatt, James W. Clifford and Marvin W. Hodges, dated May 5, 1982 (Bd. Ex. 3).

<sup>230</sup> 46 Fed. Reg. 57,521 (1981).

<sup>231</sup> Tr. 693.

<sup>232</sup> Memorandum from Darrell G. Eisenhut to Chairman Palladino, *et al.* (March 3, 1983) (Board Notification 83-26 — Failure of Reactor Trip Breakers to Open in Trip Signal).

Consequently, we are not yet satisfied concerning the need to declare ATWS to be a *sua sponte* issue.

#### D. Boron Injection Tank

When the Emergency Core Cooling System at Comanche Peak is activated, high-head pumps<sup>233</sup> take borated water from the refueling water storage tank and inject that water into the reactor cooling system. The original design called for the insertion of a Boron Injection Tank (BIT) between the high-head pumps and the reactor cooling system. The applicant proposes to omit the BIT.<sup>234</sup> The Board inquired into the appropriateness of the deletion.<sup>235</sup>

The concentration of boron in the refueling water storage tank is 0.2%; the concentration of boron in the BIT would have been 12%. Such a high concentration of boron would require that the tank and all lines and valves of the BIT be kept at high temperature to prevent the precipitation of boron crystals in the BIT and the consequent plugging of valves and lines which connect the high pressure injection system (HPIS) to the primary coolant system, a potential hazard to the operation of the ECCS system during a transient.

Representatives from Westinghouse have informed the staff that the BIT was included in the original design for the sole purpose of mitigating the consequences of a steam-line break accident. They have made an analysis of a worst case scenario, a large steam-line break when the reactor is just critical, at zero power and at operating temperature. In this scenario, the secondary system would rapidly depressurize causing rapid cooling of the primary system, an increase in reactivity above critical (due to more optimal moderation at the reduced temperature) and a return to power production in the core. The reduction in primary coolant temperature and pressure would trip the safety injection signal and initiate the pumping of borated water into the core. If there is a BIT, the power would peak<sup>236</sup> at about 15% of full power and then gradually decrease as the boron reduces the reactivity. Without the BIT the power would peak at about 20% of full power and persist somewhat longer.<sup>237</sup>

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<sup>233</sup> Pumps designed to inject into the primary cooling system when it is fully pressurized.

<sup>234</sup> The description of the BIT system and its effectiveness in reducing the transient following a steam-line break is taken chiefly from the affidavit of staff witness Sammy Diab (following Tr. 781) and the attached "Summary of Meeting on Comanche Peak Design Change and Responses to RSB Questions."

<sup>235</sup> Order of April 2, 1982 at 2-3.

<sup>236</sup> The main steam-line break incident is analyzed using a conservative assumption that the control rods for the most reactive section of the core do not insert. Most of the power that is generated comes from this one section.

<sup>237</sup> Figures 3-4 and 3-5 in Attachment 1 to the Testimony of S. Diab, following Tr. 781.

Applicant, with support from the staff, has argued that this increase in power without the BIT is not significant. It relies on Westinghouse calculations that show that the DNBR (departure from nucleate boiling ratio) would remain above 2.5, indicating a wide margin of safety before the coolant would reach a "film" condition which would interfere with the safe removal of heat from the core.

Although applicant and staff support deletion of the BIT in order to reduce the risk that boron crystals might interfere with ECCS operation, neither identified an instance where the ECCS had been compromised due to precipitation of boron.<sup>238</sup> The witnesses stated, generally, that there have been operational problems with the BIT.<sup>239</sup> However, the Board is independently aware that there have been boron-crystallization events of sufficient seriousness to be called precursors to potentially severe core damage accidents.<sup>240</sup>

We agree with applicant and staff that on balance the Comanche Peak Station apparently would be safe without the BIT. However, we are concerned that the NRC staff has relied entirely on the Westinghouse analyses.<sup>241</sup> We recognize that the matter also has been brought to the attention of the Advisory Committee on Reactor Safeguards (ACRS); however, the staff's reliance on the Westinghouse analyses was not brought out<sup>242</sup> and is a matter of concern to us. We request the staff to bring this matter to the attention of the ACRS once again, clearly indicating that the staff relies entirely on Westinghouse analyses of DNBR.

## ORDER

For all the foregoing reasons and based on consideration of the entire record in this matter, it is this 29th day of July 1983,

### ORDERED

1. This is a proposed decision.
2. Pursuant to the Board's authority to require the filing of Findings of Fact, objections to this decision are waived unless they are filed in

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<sup>238</sup> Tr. 746; Tr. 783.

<sup>239</sup> Tr. 778 and 782, staff; Tr. 746, applicant.

<sup>240</sup> Science Applications Incorporated and Oak Ridge National Laboratory, NUREG CR-2497, *Precursors to Potential Severe Core Damage Accidents: 1969-1979 (A Status Report)* (June 1982) at Appendix C, pp. C-9 to C-10.

<sup>241</sup> Tr. 782.

<sup>242</sup> Advisory Committee on Reactor Safeguards, 259th Annual Meeting (November 13, 1981), Tr. 360-61, 369. See also staff presentations of November 11 and 13 (1981), appended to the ACRS transcript.



compliance with the format requirements prescribed near the beginning of the Proposed Initial Decision.

3. Objections to this decision must be *received* within 22 days of issuance of this Order.

4. Replies to objections must meet the same specificity requirements applicable to the objections themselves. In particular, they must clearly state what they are replying to and provide a reasoned, documented discussion that responds directly.

5. Replies must be filed within ten days of receipt of the objection being replied to.

**FOR THE ATOMIC SAFETY AND  
LICENSING BOARD**

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

**Walter H. Jordan  
ADMINISTRATIVE JUDGE**

**Kenneth A. McCollom  
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland**



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

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

**In the Matter of**

**Docket No. 50-309**  
**(10 C.F.R. § 2.206)**

**MAINE YANKEE ATOMIC POWER  
COMPANY**  
**(Maine Yankee Atomic Power  
Station)**

**August 2, 1983**

The Commission affirms the Director's denial of a petition seeking an order to show cause why the licensee should not be ordered to discontinue operation of the Maine Yankee facility for alleged financial incapability to operate the plant safely and dispose of spent fuel stored and to be generated there. The Commission also decides as a matter of discretion to direct the staff to review whether there are any safety problems at the plant which might stem from financial difficulties.

**FINANCIAL QUALIFICATIONS: PUBLIC HEALTH AND  
SAFETY CONCERNS**

The Commission's concern with financial problems of a licensee is limited to the relation which these problems may have to the protection of public health and safety. *See Pacific Gas & Electric Co. v. State Energy Resources Conservation and Development Commission*, 000 U.S. 000, 75 L. Ed. 2d 752, 767 (1983).

## **FINANCIAL QUALIFICATIONS: PUBLIC HEALTH AND SAFETY CONCERNS**

A showing that a licensee is undergoing financial difficulties does not by itself require that the Commission halt operations of the licensee's plant. Allegations, however, that defects in safety practices have in fact occurred or are imminent would form a basis for enforcement action, whether or not the root cause of the fault was financial.

## **RULES OF PRACTICE: GENERIC RULEMAKING (EFFECT ON INDIVIDUAL PROCEEDING)**

Proceedings will not generally be instituted in response to a 10 C.F.R. § 2.206 petition to consider an issue the Commission is treating generically through rulemaking.

## **ATOMIC ENERGY ACT: WASTE DISPOSAL**

There is reasonable assurance that, until the availability of geologic repositories for safe, permanent disposal, spent fuel can be stored safely in storage basins at reactor sites for up to thirty years beyond the expiration date of operating licenses. *See* 48 Fed. Reg. 22,730 (1983).

## **NUCLEAR WASTE POLICY ACT: WASTE DISPOSAL (CONTRACTS FOR SERVICES WITH DOE)**

Under the Nuclear Waste Policy Act, utilities are required to contract with the Department of Energy (DOE) and provide prepayment for waste disposal services they will ultimately require. *Id.*

## **MEMORANDUM AND ORDER**

The Commission has considered and affirms the Director's Decision, DD-83-3, 17 NRC 327, issued February 14, 1983 under 10 C.F.R. § 2.206.<sup>1</sup> The Decision denied the October 20, 1982 petition of Safe Power for Maine, Emil G. Garrett, John B. Green and John Jerabek (collectively "Safe Power") for action pursuant to 10 C.F.R. § 2.206. Safe Power sought an order to show cause why Maine Yankee Atomic

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<sup>1</sup> By successive orders of the Secretary pursuant to 10 C.F.R. § 2.772, the time in which the Commission may take review of the Director's Decision was extended to July 29, 1983.

Power Company ("Maine Yankee" or "licensee") should not be ordered to discontinue operation of its nuclear power plant at Wiscasset, Maine, in light of Safe Power's allegations of Maine Yankee's financial incapability to operate the Wiscasset facility safely and dispose of spent fuel now stored there and to be generated during the remainder of the licensing period. The Commission has concluded that denial of this petition lay within the Director's discretion but notes that subsequent developments provide additional justification for the Director's Decision. Accordingly, rather than simply declining to review the Director's Decision the Commission is issuing this memorandum and order to enlarge the discussion of the issues raised by the petition.

In its petition for a show cause order Safe Power alleged a number of circumstances indicating "poor financial condition of Maine Yankee."<sup>2</sup> Safe Power requested that the Commission halt operation of Maine Yankee until the licensee "has demonstrated that it has adequate financial backing and adequate financial support . . . to raise capital requirement to continue operation, to make any changes or capital investments required by the NRC, and to provide for the funding of its shutdown and disposal of spent fuel at the end of its licensed term." Safe Power also asked that the Commission determine what amounts Maine Yankee should collect to provide for decommissioning and disposal of spent fuel and order the creation of a trust fund in which these monies would accumulate until needed.

In denying Safe Power's petition the Director correctly observed that the Commission's concern with financial problems of a licensee is limited to the relation which those problems may have to the protection of public health and safety.<sup>3</sup> Allegations about financial difficulties at an operating facility are not by themselves a sufficient basis for action to restrict operations. In the Commission rulemaking, cited by the Director, which eliminated the financial qualifications review for electric utilities,

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<sup>2</sup> These asserted circumstances include: (1) use of funds obtained through pledge of the company's stock of nuclear fuel for purposes other than purchase, remanufacturing and handling of nuclear fuel; (2) need to ask for early payment from Central Maine Power Company to meet Maine Yankee's daily cash requirement because its unsecured borrowing limit has been reached; (3) exhaustion of all of Maine Yankee's established sources of capital with the exception of infusion of additional common equity contributions by its sponsors; and (4) need for "sponsor guarantees" to continue the fuel financing.

<sup>3</sup> Recently in an opinion issued subsequent to the Director's Decision the Supreme Court took note of this limitation on the Commission's concern with economics:

The Nuclear Regulatory Commission (NRC) . . . does not purport to exercise its authority based on economic considerations, 10 C.F.R. 8.4, and has recently repealed its regulations concerning the financial qualifications and capabilities of a utility proposing to construct and operate a nuclear power plant. 47 Fed. Reg. 13751. In its notice of rule repeal, the NRC stated that utility financial qualifications are only of concern to the NRC if related to the public health and safety.

*Pacific Gas & Electric Co. v. State Energy Resources Conservation and Dev. Comm'n*, 461 U.S. 190, 75 L. Ed. 2d 752, 767 (1983).

47 Fed. Reg. 13,750 (1982), the Commission noted the absence of evidence that financial problems are inevitably linked with corner-cutting on safety.<sup>4</sup> Thus, even had the Commission retained its financial qualifications review requirements, a showing that Maine Yankee was undergoing financial difficulties would not by itself require that the Commission halt operations at that plant.<sup>5</sup> On the other hand, allegations that defects in safety practices have in fact occurred or are imminent would of course form a possible basis for enforcement action, whether or not the root cause of the fault was financial. In the case at issue Safe Power has offered no evidence nor made any claim of actual hazards at Maine Yankee. Indeed, Safe Power's petition supports a view that Maine Yankee has continued to seek and receive from its "prime sponsors" or otherwise the funding which it needs to conduct its operations in a safe fashion. The Director did not abuse his discretion in refusing to take enforcement action based on mere speculation that financial pressures might in some unspecified way undermine the safety of Maine Yankee's operation.

Safe Power's concerns about decommissioning of the plant and disposal of spent fuel address matters which are presently the subject of rulemaking. The Director correctly advised Safe Power that proceedings will not generally be instituted in response to a petition under 10 C.F.R. § 2.206 to consider an issue the Commission is treating generically through rulemaking. The Commission currently expects to issue early in 1984 a proposed rule dealing with decommissioning of nuclear power plants and addressing, among other questions, how to assure the adequate financing of decommissioning by the licensee. In the absence of any evidence of need for early decommissioning at Maine Yankee, Safe Power's concerns about financing for decommissioning afford no safety-related reason to take individual enforcement action against Maine Yankee, pending completion of the Commission's generic treatment of the issue.<sup>6</sup>

Similarly, Safe Power's concern about adequate financing for spent fuel storage and disposal presents no need for safety-related enforcement action. The Commission has determined in its decision in the so-called

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<sup>4</sup> The Commission's rule is currently under review in the D.C. Circuit in *New England Coalition on Nuclear Pollution v. NRC*, No. 82-1581 (filed May 24, 1982).

<sup>5</sup> Under Section 186 of the Atomic Energy Act the Commission may revoke a license when a condition exists that would have permitted the Commission to deny the license in the first instance, but it is not required to do so, especially where means short of license suspension are available to provide continued assurance of public health and safety.

<sup>6</sup> In the event of an accident that might require premature decommissioning, increased property insurance levels now available for accident decontamination and required by NRC provide substantial assurance that funding will be available. See 47 Fed. Reg. 13,750 (1982).

“Waste Confidence” Rulemaking, 44 Fed. Reg. 61,372 (1979), that there is reasonable assurance that spent fuel can be stored safely in storage basins at reactor sites for an extended period of time (*i.e.*, up to thirty years beyond expiration of reactor operating licenses) until the availability of geologic repositories for safe, permanent disposal. *See* 48 Fed. Reg. 22,730 (1983). Thus the issue raised by Safe Power’s petition is not a matter of safety but rather a question of the assurance that Maine Yankee will be able to pay the costs of storage and disposal of spent fuel produced by the facility. That assurance is enhanced by two developments subsequent to the Director’s Decision denying the petition.

With regard to financing of spent fuel disposition, the Commission has proposed for public comment an amendment to 10 C.F.R. Part 50 whereby reactor licensees must submit for Commission approval no later than five years before expiration of the operating license written notification of the program by which the licensee intends to manage and provide funding for management of spent fuel at the facility upon expiration of the operating license until ultimate disposal in a repository. 48 Fed. Reg. 22,730, 22,732 (1983).

The Commission noted that [t]he procedures established by this amendment are intended to confirm that there will be adequate lead time for whatever actions may be needed at individual sites to assure that the management of spent fuel following the expiration of the reactor operating license will be accomplished in a safe and environmentally acceptable manner.

42 Fed. Reg. 22,731 (1977).

As the Director noted, establishment of a fund for ultimate disposal of spent fuel was provided by Congress in the Nuclear Waste Policy Act of 1982, 42 U.S.C. § 10,101. That provision is part of a comprehensive framework for disposing of spent nuclear fuel and high-level radioactive waste, of domestic origin, generated by civilian nuclear power reactors. 48 Fed. Reg. 16,590 (1983).

Subsequent to the Director’s Decision in the instant matter, the Department of Energy (DOE), acting pursuant to the Nuclear Waste Policy Act, issued first a proposed rule for comment<sup>7</sup> and then a revised final rule requiring utilities, including Maine Yankee, to contract with DOE for waste disposal services that they will ultimately require.<sup>8</sup> While the contracts have separate fee structures for spent fuel in place on April

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<sup>7</sup> 48 Fed. Reg. 5458 (1983).

<sup>8</sup> 48 Fed. Reg. 16,590 (1983).

4, 1983<sup>9</sup> and spent fuel to be generated after that date,<sup>10</sup> they provide in essence for total prepayment for the waste program.

On June 14, 1983 DOE received from Maine Yankee an executed contract, which when accepted by DOE will impose on Maine Yankee an obligation to begin monthly payments to DOE to cover disposal costs for spent fuel being generated. Within a maximum of two years Maine Yankee must elect how to pay for disposal of spent fuel now on site and begin to pay for that disposal, which must be paid for in full by the end of ten years. These provisions are in addition to Commission requirements for insurance and for decommissioning with which Maine Yankee will be obliged to comply.

In summary, Safe Power's petition demonstrated no safety-related concerns which might require immediate enforcement action, and there are procedures proposed or already in place to deal in a timely manner with the financial concerns raised by Safe Power's allegations. The Commission therefore affirms the Director's Decision that the relief requested by Safe Power should be denied.

Although the Commission has concluded that it may legally deny Safe Power's petition and has affirmed the Director's Decision, the Commission has decided as a matter of discretion to direct the staff to look into the situation at Maine Yankee to determine whether there are any safety problems which might stem from financial difficulties.

Commissioner Roberts believes that financial qualifications reviews do little to enhance the protection of the public's health and safety. Thus, as a policy matter, he would spend staff resources on safety-related issues.

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<sup>9</sup> Three options are available: payment in a lump sum within two years without interest; payment in a lump sum within ten years with interest and payment in four installments per year over ten years with interest.

<sup>10</sup> There is a pay-as-you-go charge of 1 mil per kilowatt hour to be paid monthly to cover disposal of spent fuel being generated.



Commissioner Gilinsky dissents from this decision. His separate views are attached.

It is so ORDERED.

For the Commission\*

SAMUEL J. CHILK  
Secretary of the Commission

Dated at Washington, D.C.,  
this 2nd day of August 1983.

**SEPARATE VIEWS OF COMMISSIONER GILINSKY  
MAINE YANKEE ATOMIC POWER COMPANY**

I am not prepared to join in the Commission's overblown and highly legalistic rejection of Safe Power for Maine's petition under Section 2.206 of our regulations. The petition alleges the Maine Yankee Atomic Power Company is suffering from financial difficulties and that the Company has inadequate resources to continue to operate the reactor safely and to dispose of the spent fuel and decommission the plant at the expiration of its license. The Commission argues that since it no longer examines the financial qualifications of utilities for the purposes of licensing, and because the petitioners did not identify specific safety problems, the NRC is not obligated to look any further.

Whatever the merits of the petition, it should have been handled differently. Section 2.206 is intended to serve as an informal way for members of the public to raise concerns which they would like the NRC to address. The NRC's objective in responding should not be solely to determine whether the specific action requested should be granted or denied, but to make a reasonable evaluation of the concern raised and to do what is sensible.

The Commission has repeatedly professed that it wants to get away from legalistic formalities and to find more commonsense ways of

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\*Commissioner Gilinsky was not present when this Order was approved but had previously indicated his disapproval.

dealing with safety concerns. Here, instead, it has run a relatively straightforward petition through a series of legal buzz saws.

The NRC's response quotes statutes, rules and court decisions, yet there is no record that at any point anyone looked into whether there are, in fact, any safety problems at Maine Yankee which might stem from financial difficulties. It would have been more helpful in dealing with this petition if, instead of peppering us with legal citations, the Director of Nuclear Reactor Regulation had told us that he had called the Region-I Administrator to check if there have been any such problems.

When the Commission dropped its licensing review of a utility's financial qualifications — because these reviews had never been useful in determining an applicant's qualifications to build and operate a nuclear power plant — it was not intended that absolutely no notice ever be taken of a utility's financial difficulties. These may well be a reason to double-check that a company is complying with NRC's safety requirements. While I am pleased that the Commission has agreed with my suggestion that the staff undertake such a check at Maine Yankee, I would not act on the petition until we have a response.

As a final matter, this petition should serve as a reminder to the Commission that it must face up to setting a standard for decommissioning. Instead of saying that it "currently expects to issue in early 1984" the long promised — and long delayed — decommissioning rule, the Commission should set a firm deadline of no later than December 31, 1983, for the NRC staff to submit a proposed rule.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

**Christine N. Kohl, Chairman**  
**Dr. John H. Buck**  
**Gary J. Edles**

**In the Matter of**

**Docket Nos. 50-440-OL**  
**50-441-OL**

**CLEVELAND ELECTRIC ILLUMINATING**  
**COMPANY, et al.**

**(Perry Nuclear Power Plant,**  
**Units 1 and 2)**

**August 24, 1983**

The Appeal Board dismisses, as an impermissible interlocutory appeal, the intervenor's exceptions to the Licensing Board's grant of an NRC staff motion for summary disposition on one of a number of contentions in the proceeding.

**RULES OF PRACTICE: INTERLOCUTORY APPEALS**

Appeals from licensing board orders that do not eliminate a party to a proceeding or dispose of a major segment of the case — such as a grant of summary disposition — are interlocutory and must await the issuance of the initial decision (or partial initial decision). *Cincinnati Gas & Electric Co.* (William H. Zimmer Station), ALAB-633, 13 NRC 94 (1981); *Houston Lighting & Power Co.* (Allens Creek Nuclear Generating Station, Unit No. 1), ALAB-629, 13 NRC 75, 77 n.2 (1981); *Toledo Edison Co.* (Davis-Besse Nuclear Power Station), ALAB-300, 2 NRC 752, 758 (1975).

## RULES OF PRACTICE: INTERLOCUTORY APPEALS

The only procedural vehicle by which a party may seek review of interlocutory matters is a request for directed certification. The exercise of the appeal board's discretionary authority to grant directed certification, however, is reserved for those important licensing board rulings that, absent immediate appellate review, threaten a party with serious irreparable harm or pervasively affect the basic structure of the proceeding. *See, e.g., Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-706, 16 NRC 1754, 1756 (1982).

### APPEARANCE

Susan L. Hiatt, Mentor, Ohio, for intervenor Ohio Citizens for Responsible Energy.

### MEMORANDUM AND ORDER

Intervenor Ohio Citizens for Responsible Energy (OCRE) has filed exceptions to the Licensing Board's grant of the NRC staff's motion for summary disposition on Issue 13, concerning turbine missiles. *See* LBP-83-46, 18 NRC 218 (1983). Because the Board's order does not eliminate OCRE as a party to the proceeding or dispose of a major segment of the case, it is interlocutory. Appeals from such orders must await the issuance of the Licensing Board's initial decision (or partial initial decision): *Cincinnati Gas & Electric Co.* (William H. Zimmer Station), ALAB-633, 13 NRC 94 (1981); *Houston Lighting & Power Co.* (Allens Creek Nuclear Generating Station, Unit No. 1), ALAB-629, 13 NRC 75, 77 n.2 (1981); *Toledo Edison Co.* (Davis-Besse Nuclear Power Station), ALAB-300, 2 NRC 752, 758 (1975).<sup>1</sup>

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<sup>1</sup> *Louisiana Power and Light Co.* (Waterford Steam Electric Generating Station, Unit 3), ALAB-220, 8 AEC 93 (1974), relied upon by OCRE, is not to the contrary. That decision simply stands for the proposition that an order declining to grant a motion for summary disposition is interlocutory and therefore not amenable to appeal. It was not intended to imply the converse — *i.e.*, that a grant of summary disposition is a final, appealable order.

The only procedural vehicle by which a party may seek review of interlocutory matters is a request for directed certification. The exercise of our discretionary authority to grant directed certification, however, is reserved for those important licensing board rulings that, absent immediate appellate review, threaten a party with serious irreparable harm or pervasively affect the basic structure of the proceeding. *See, e.g., Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2) ALAB-706, 16 NRC 1754, 1756 (1982).

OCRE's exceptions are *dismissed*.<sup>2</sup>  
It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

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<sup>2</sup> This dismissal is, of course, without prejudice and reflects no judgment on the merits of the Licensing Board's ruling.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

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

**In the Matter of**

**Docket Nos. 50-443-OL**  
**50-444-OL**

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

**August 26, 1983**

The Appeal Board denies petitions for directed certification of a Licensing Board order (LBP-82-32A, 17 NRC 1170 (1983)) granting partial summary disposition in applicant's favor on two contentions dealing with evacuation time estimates.

**RULES OF PRACTICE: INTERLOCUTORY APPEALS**

Under 10 C.F.R. § 2.718(i) and § 2.785(b), appeal boards have the power to direct the certification of legal issues raised in proceedings pending before licensing boards. Exceptional circumstances must be demonstrated, however, before they will exercise that authority. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-271, 1 NRC 478, 483 (1975).

**RULES OF PRACTICE: INTERLOCUTORY APPEALS**

An appeal board will undertake interlocutory review, in its discretion, where the ruling below either (1) threatens the party adversely affected

by it with immediate and serious 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 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: TIME LIMIT FOR FILING CONTENTIONS**

Commission's regulations direct that contentions be filed in advance of a prehearing conference. 10 C.F.R. § 2.714(b).

#### **RULES OF PRACTICE: TIME LIMIT FOR FILING CONTENTIONS**

Under 10 C.F.R. § 2.714(a), good cause may exist for a late-filed contention if it (1) is wholly dependent upon the content of a particular document; (2) could not therefore be advanced with any degree of specificity in advance of the public availability of that document; and (3) is tendered with the requisite degree of promptness once that document comes into existence and is accessible for public examination. The contention, however, is amenable to rejection on the strength of a balancing of all five of the late intervention factors set forth in that section. CLI-83-19, 17 NRC 1041, 1045 (1983).

#### **OPERATING LICENSES: CRITERIA (EMERGENCY PREPAREDNESS)**

No operating license may be issued unless a finding is made that there is 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).

#### **EMERGENCY PLANNING: EVACUATION TIME ESTIMATES**

Both notification time and preparation time are now considered to be components of evacuation time estimates under Rev. 1 of NUREG-0654/FEMA REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (January 1980), at Appendix 4, Table 2; Section IV.B; and Figure 2; and NUREG/CR-2504, "CLEAR (Calculates Logical Evacuation And Response): A Generic Transportation Network Model for the Calculation of Evacuation Time Estimates" (March 1982).

## **RULES OF PRACTICE: INTERLOCUTORY APPEALS**

An argument that future litigation may be required does not satisfy the test for directed certification. See *Pennsylvania Power & Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-641, 13 NRC 550 (1981); *Houston Lighting & Power Co.* (Allens Creek Nuclear Generating Station, Unit No. 1), ALAB-635, 13 NRC 309, 310 (1981).

### **APPEARANCES**

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

**Robert A. Backus**, Manchester, New Hampshire, for the intervenor, Seacoast Anti-Pollution League.

**Jo Ann Shotwell**, Boston, Massachusetts, for Attorney General Francis X. Bellotti, Commonwealth of Massachusetts.

**Thomas G. Dignan, Jr., and R.K. Gad, III**, Boston, Massachusetts, for the applicants, Public Service Company of New Hampshire, *et al.*

**Roy P. Lessy, Jr., and Robert G. Perlis** for the Nuclear Regulatory Commission staff.

## **MEMORANDUM AND ORDER**

### **Introduction**

At hand are two petitions for directed certification in this operating license proceeding now pending before the Licensing Board.<sup>1</sup> One was filed by the New England Coalition on Nuclear Pollution (Coalition). The other was filed by the Attorney General of the Commonwealth of Massachusetts.<sup>2</sup> Both petitions seek immediate interlocutory review of

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<sup>1</sup> We recently denied two earlier petitions in ALAB-731, 17 NRC 1073 (1983) and ALAB-734, 18 NRC 11 (1983).

<sup>2</sup> The Seacoast Anti-Pollution League (SAPL), an intervenor in the proceeding, has filed a pleading joining the Attorney General's petition for directed certification.



the same Licensing Board order, which granted partial summary disposition in the applicants' favor on two Coalition contentions dealing with evacuation time estimates. LBP-83-32A, 17 NRC 1170 (1983).<sup>3</sup> The applicants and the NRC staff oppose the petitions.

Under the provisions of 10 C.F.R. § 2.718(i) and § 2.785(b), appeal boards have the power to direct the certification of legal issues raised in proceedings still pending before licensing boards. Exceptional circumstances must be demonstrated, however, before we will exercise that authority. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-271, 1 NRC 478, 483 (1975). As we indicated in *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-405, 5 NRC 1190, 1192 (1977), we undertake discretionary, interlocutory review

only where the ruling below either (1) threaten[s] the party adversely affected by it with immediate and serious irreparable impact which, as a practical matter, could not be alleviated by a later appeal or (2) affect[s] the basic structure of the proceeding in a pervasive or unusual manner.

Because we find that they meet neither of the *Marble Hill* criteria, we deny both petitions.

## Discussion

1. The applicants moved the Licensing Board for summary disposition of the Coalition's contentions dealing with evacuation time estimates. The Coalition opposed the motion, claiming, in part, that the estimates were inaccurate because they were not based on the actual evacuation routes to be incorporated in the final emergency plans. Such routes are to be chosen in due course by the local governmental bodies. The

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<sup>3</sup> The contentions read as follows:

### III.12

The evacuation time estimates provided by the Applicants in Appendix C of the Radiological Emergency Response Plan are inaccurate in that they provide unreasonably optimistic estimates of the time required for evacuation. In addition, the estimates provided in the radiological emergency plan are useless to emergency planning because they fail to include bounds of error, to indicate the basis for codes or assumptions used for the time estimates, to indicate whether the model used is static or dynamic, to provide a sensitivity analysis for the estimates or to reveal the underlying assumptions.

### III.13

The preliminary evacuation time estimates submitted by the Applicants assume favorable weather conditions and thus fail to account for the worst case situation of adverse weather conditions developing on a busy summer weekend afternoon. Nor do they take into account evacuee directional bias, evacuation shadow, or reasonably expected vehicle mix. As a result, the estimates are unduly optimistic and useless to future planning.

Licensing Board recognized that the plans were incomplete in that respect. Nevertheless, it granted summary disposition, holding that the Coalition's assertion "simply presents no litigable issue, nor can any adverse legal conclusion be drawn from the present incompleteness of the estimates." See LBP-83-32A, *supra*, 17 NRC at 1180.

The staff argues that the Board dismissed this portion of the Coalition's contention without prejudice to resubmittal once the actual routes are designated. In the staff's view, the Board properly found that there was no litigable issue before it at this time. NRC Staff Response to Petitions for Directed Certification (August 11, 1983) at 14. The Coalition contends, however, that there can be no certainty that its grievance regarding evacuation times can be redressed in a timely fashion. It claims that there is no assurance that it will ever have an opportunity to litigate the adequacy or completeness of the evacuation estimates because the applicants' ability to submit revised estimates depends entirely on the completion of the offsite emergency plans by the local governments. The Coalition asserts that, at a minimum, it will be required to satisfy the heightened threshold imposed by the Commission's recent *Catawba* decision if it attempts to file new contentions to litigate the merits of any revised evacuation estimates.<sup>4</sup> We conclude that the Licensing Board's decision does not improperly foreclose litigation of contentions directed toward the evacuation estimates or necessarily impinge upon the Coalition's ability to file additional contentions at a later date.

The Commission's regulations mandate that no operating license be issued unless a finding is made that there is 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). Evacuation is one of the measures routinely considered. It may turn out, as the Coalition

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<sup>4</sup> The Commission's regulations direct that contentions be filed in advance of a prehearing conference. 10 C.F.R. § 2.714(b). On occasion, an intervenor will tender a contention at a later date. In the *Catawba* case, we held that

as a matter of law [such] a contention cannot be rejected as untimely if it (1) is wholly dependent upon the content of a particular document; (2) could not therefore be advanced with any degree of specificity (if at all) in advance of the public availability of that document; and (3) is tendered with the requisite degree of promptness once the document comes into existence and is accessible for public examination.

*Duke Power Co. (Catawba Nuclear Station, Units 1 and 2)*, ALAB-687, 16 NRC 460, 469 (1982). On its review of that determination, the Commission agreed that this "three-part test constitutes a reasonable and useful test of the good cause factor as applied to late-filed contentions based solely on information contained in institutionally unavailable licensing-related documents." CLI-83-19, 17 NRC 1041, 1047 (1983). But it went on to hold that a belated contention is nonetheless amenable to rejection on the strength of a balancing of all five of the late intervention factors set forth in 10 C.F.R. § 2.714(a). *Id.* at 1045. Only one of those factors relates to good cause for the late filing; one of the others is "[t]he extent to which the petitioner's participation will broaden the issues or delay the proceeding."

suggests, that there can be no basis for a finding that the Seabrook area can be evacuated within the times predicted by the applicants in the absence of information on the actual routes chosen. See NECNP Petition for Directed Certification (July 21, 1983) at 7. It may also be that the selection of the actual routes will necessitate a material alteration in the estimates. Those issues, however, are not amenable to resolution now, and thus do not warrant our involvement in the proceeding at this stage. We can review in due course any decision the Licensing Board may eventually reach regarding the actual routes chosen or, in the event the routes are not known before the Board issues its initial decision on the merits, the adequacy or completeness of the existing evacuation time estimates. For the present, we hold only that the Licensing Board did not abuse its discretion in disposing of matters currently before it, proceeding to hearing, and leaving ultimate resolution of the question of the adequacy of the existing evacuation time estimates for future disposition.<sup>5</sup>

It is true that, applying the Commission's *Catawba* decision, the Licensing Board might reject a new contention on the basis of its balancing of all of the Section 2.714(a) lateness factors,<sup>6</sup> even though the Coalition had no earlier opportunity to formulate sufficiently specific contentions relating to the final evacuation plans. But that consideration does not have any bearing upon whether the Licensing Board correctly disposed of the Coalition's current contentions summarily on prematurity grounds.<sup>7</sup>

Moreover, we are unprepared to assume for present purposes that there is a high probability that the Licensing Board would reject as untimely a further contention put forth by the Coalition once actual evacuation routes have been selected and announced. In adopting its *Catawba* rationale, the Commission expressly relied on the traditional willingness of licensing boards to apply the lateness criteria generously to admit late-filed safety contentions on a showing of good cause.<sup>8</sup> And the Licensing

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<sup>5</sup> For similar reasons, we do not agree with the Coalition that the effect of the Licensing Board's decision is to accept the applicants' commitment to comply with Commission regulations as a substitute for a demonstration of compliance. In the final analysis, before the plant may be licensed, the applicants must demonstrate that there is reasonable assurance that the public will be adequately protected in the event of an emergency.

<sup>6</sup> See note 5, *supra*.

<sup>7</sup> We note, in passing, that we also need not rule here upon the Coalition's claim that, had it moved for such relief, it would itself have been entitled to summary disposition on those contentions because the failure to include information on the actual evacuation routes in the time estimates already supplied rendered those estimates incomplete as a matter of law. NECNP Petition, *supra*, at 9. That claim was not presented to the Licensing Board and thus cannot be pressed before us.

<sup>8</sup> CLI-83-19, *supra*, 17 NRC at 1046.

Board appears to understand its responsibilities in this regard. In passing on the petitions to intervene and admission of contentions, for example, the Board explicitly declared its willingness to accept new emergency planning contentions "when the additional plans and reports are issued, provided contentions are filed shortly after issuance of the plans or reports." See LBP-82-76, 16 NRC 1029, 1078 (1982). And later, in acting on the motion for summary disposition, the Board noted that the applicants had committed themselves to revise their estimates once the evacuation routes have been chosen. Although the Board's rulings were made before issuance of the Commission's *Catawba* opinion, the Coalition has given us no cause to believe that the Board will not properly evaluate whether the exclusion of the actual evacuation routes from the estimates renders them incomplete or inadequate, or that it will foreclose litigation of properly submitted new contentions.<sup>9</sup>

We have reviewed the other allegations of error raised (explicitly or by adoption) by the Coalition and SAPL. In our judgment, none justifies our interlocutory appellate intercession in the face of the long standing articulated Commission policy generally disfavoring such review. See 10 C.F.R. § 2.730(f). One matter does warrant comment, however.

The Coalition argued below that the evacuation estimates should include a computation for notification and preparation time. The applicants indicated that estimates for notification, evacuation of special facilities and persons with special needs, and for confirmation that an evacuation has been completed, "will be developed in detail as the arrangements for Seabrook Station are established. . . ."<sup>10</sup> The Licensing Board determined that, as a matter of law, the applicants' evacuation time estimates were not deficient in omitting notification and preparation times. This matter would not merit comment at this stage had the Licensing Board simply deferred ultimate consideration until the applicants' later

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<sup>9</sup> The applicants state that the selection of the evacuation routes will have the sole effect of refining the evacuation time estimates to reflect savings that may accrue as a result of local traffic control measures. They assert, therefore, that the Board has already concluded that only the initial time estimates constitute licensing items subject to litigation. See Applicants' Answer to Petitions for Directed Certification (August 8, 1983) at 27 n.19. As noted above, we interpret the Board's order simply to have dismissed the Coalition's contention as premature. Nothing in that order suggests that the Board deems contentions directed to the effect of the selection of routes on the evacuation time estimates to be automatically outside the scope of litigable issues. Indeed, specific routes and road conditions have been the subject of litigation in some cases. See, e.g., *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), LBP-82-96, 16 NRC 1408, 1422 (1982), *aff'd*, ALAB-730, 17 NRC 1057 (1983). Whether the existing evacuation plan is sufficient to demonstrate reasonable assurance that adequate protective measures can and will be taken in the event of an emergency, if the actual routes have not been selected, must be left for the Licensing Board's determination in the first instance.

<sup>10</sup> See Attachment A to the affidavit of James A. McDonald, accompanying the Applicants' Twenty-First Motion for Summary Disposition (Contention NECNP III.12 and .13) (February 14, 1983), Preliminary Evacuation Clear Time Estimates for Areas Near Seabrook Station (August 4, 1980) at 11.

submission. But the Board's decision relies in part on NUREG-0654/FEMA REP-1 (Rev. 0), "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (January 1980). That document explicitly states that "[t]he requested estimates for time required for evacuations relate primarily to the time to implement an evacuation as opposed to the time required for notification." *Id.* at 4-1. The Board recognized that the current version of NUREG-0654, *i.e.*, Rev. 1, omits that explanatory phrase, but could find "no indication that the NRC purposely intended to change the requirement." LBP-83-32A, *supra*, 17 NRC 1178. In short, the Board may well have discouraged the formulation and submission of estimates that include notification and preparation times.

We believe the Board may wish to reconsider its conclusion in this regard. In Section 13.3 of the Seabrook Safety Evaluation Report (SER), Supplement No. 1 (April 1983) at 13-15, the staff utilizes NUREG-0654, Rev. 1, as the criterion against which to measure the applicants' emergency plan. It is plain that the Board also recognized that Rev. 1 is the relevant regulatory document. While there is no clear specification in the text of Rev. 1 regarding the makeup of the overall evacuation time estimate, we believe the omission of the explanatory phrase included in the earlier version was quite intentional. In this connection, there are statements in the greatly expanded Appendix 4 of Rev. 1 that establish that evacuation time is made up of several components, and that both notification and preparation times are now to be included among those components. *See* Appendix 4, Table 2; Section IV.B; and Figure 2. They are, in fact, included among the components listed in NUREG/CR-2504, "CLEAR (Calculates Logical Evacuation And Response): A Generic Transportation Network Model for the Calculation of Evacuation Time Estimates" (March 1982). In our judgment, the change from Rev. 0 to Rev. 1 was deliberate, and NUREG-0654, Rev. 1, now contemplates that the makeup of the estimated evacuation time include time estimates for notification and preparation.<sup>11</sup>

2. Turning to the Attorney General's petition, the record discloses that he did not oppose the applicants' request for summary disposition below. Such lack of interest certainly undermines the justification for his request that we step into the proceeding at this interlocutory stage. While a lack of participation below may not absolutely foreclose grant of

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<sup>11</sup> The applicants argue that, in any event, the Coalition errs in suggesting that mobilization and preparation times were ignored in its estimates. *See* Applicants' Answer to Petitions for Directed Certification, (August 8, 1983) at 31 n.22. A review of the underlying referenced document (*see* note 10, *supra*), however, reveals that preparation and notification, although not, strictly speaking, "ignored," were plainly and intentionally excluded from the calculation at this time.

a request for directed certification in all circumstances, it does increase the movant's already heavy burden of demonstrating that our intercession is necessary. The Attorney General offers no explanation for his sudden manifestation of interest and, apart from his argument that the Board has ruled incorrectly, claims only in the most conclusory manner that the Licensing Board's decision will result in unusual litigation expense and delay and impede the development of a sound record for decision. Such general assertions are insufficient to warrant directed certification.<sup>12</sup>

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The petitions for directed certification are *denied*.  
It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

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<sup>12</sup> An argument that future litigation may be required does not satisfy the test for directed certification. See *Pennsylvania Power & Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-641, 13 NRC 550 (1981); *Houston Lighting & Power Co.* (Allens Creek Nuclear Generating Station, Unit No. 1), ALAB-635, 13 NRC 309, 310 (1981).

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 No. 1)**

**August 31, 1983**

Upon consideration of the motions of several intervenors to reopen the record in the management phase of this proceeding, the Appeal Board grants the motions in part (insofar as they deal with certain allegations concerning leak rate data) and remands the matter to the Licensing Board for further hearing.

**RULES OF PRACTICE: REOPENING OF PROCEEDINGS**

A motion to reopen a record must satisfy a tripartite test: (1) Is the motion timely? (2) Does it address significant safety or environmental issues? (3) Might a different result have been reached had the newly

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\*On August 13, 1981, the Commission authorized the issuance of an amendment transferring the license to operate TMI-1 from Metropolitan Edison Company to GPU Nuclear Corporation. See CLI-81-17, 14 NRC 299. Because no one has asked for a substitution of parties, we will continue to show Metropolitan Edison in the caption, consistent with all prior decisions and orders in this proceeding.

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). See *Kansas Gas and Electric Co.* (Wolf Creek Generating Station, Unit No. 1), ALAB-462, 7 NRC 320, 338 (1978); *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 523 (1973).

#### **RULES OF PRACTICE: REOPENING OF PROCEEDINGS**

The proponent of a motion to reopen a record bears a heavy burden. *Wolf Creek, supra*, 7 NRC at 338.

#### **NRC: AUTHORITY TO INVESTIGATE**

The pendency of a criminal investigation by the Department of Justice does not necessarily preclude other types of inquiry into the same matter by the NRC. See *SEC v. Dresser Industries, Inc.*, 628 F.2d 1368 (D.C. Cir. 1980) (en banc), cert. denied, 449 U.S. 993 (1980); *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 2), CLI-80-22, 11 NRC 724, 729-30 (1980).

#### **RULES OF PRACTICE: REOPENING OF PROCEEDINGS**

A matter may be of such gravity that a motion to reopen may be granted notwithstanding that it might have been presented earlier. *Vermont Yankee, supra*, 6 AEC at 523.

#### **NRC: ADJUDICATORY AND INVESTIGATORY RESPONSIBILITIES**

Commission policy recognizes that ongoing NRC investigations and adjudicatory proceedings that involve the same subject matter can proceed simultaneously, subject to specified procedures to deal with conflicts concerning public disclosure of investigatory information. 48 Fed. Reg. 36,358 (1983).

#### **RULES OF PRACTICE: EX PARTE COMMUNICATIONS**

The staff's communication of the results of its reviews, through public filings served on all parties and the adjudicatory boards, does not constitute an ex parte communication.



## **RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES**

All parties, including the staff, are obliged to bring any significant new information to the boards' attention. *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 untimely provision of significant information is an important measure of a licensee's character, particularly if it is found to constitute a material false statement. See *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), CLI-76-22, 4 NRC 480, 488-93 (1976).

## **APPEARANCES**

**Marjorie M. Aamodt and Norman O. Aamodt**, Coatesville, Pennsylvania, intervenors *pro se*.

**Louise Bradford and Joanne Doroshow**, Harrisburg, Pennsylvania, for intervenor Three Mile Island Alert.

**Ellyn R. Weiss**, Washington, D.C., for intervenor Union of Concerned Scientists.

**Douglas R. Blazey and Robert W. Adler**, Harrisburg, Pennsylvania, for the Commonwealth of Pennsylvania.

**Ernest L. Blake, Jr., and George F. Trowbridge**, Washington, D.C., for licensee Metropolitan Edison Company, *et al.*

**Jack R. Goldberg and Mary E. Wagner** for the Nuclear Regulatory Commission staff.

## **MEMORANDUM AND ORDER**

Intervenors Marjorie M. Aamodt and Norman O. Aamodt and Three Mile Island Alert (TMIA) collectively have filed three motions to

reopen the record in the management phase of this proceeding. They base their motions on various reports and other information that assertedly have come to light recently and bear upon the Licensing Board's partial initial decisions concerning management competence and integrity, which are now before us on appeal. See LBP-81-32, 14 NRC 381 (1981), and LBP-82-56, 16 NRC 281 (1982). Intervenor Union of Concerned Scientists and the Commonwealth of Pennsylvania, responding to our request for additional comments on certain matters ostensibly relating to the motions, generally support reopening. Licensee opposes each of the motions. The NRC staff opposes some of the relief requested but asks us to defer ruling on other issues and to await the completion of several ongoing staff inquiries.

For the reasons set forth below, we grant the motions insofar as they seek reopening for further hearing on the so-called Hartman allegations of falsification of leak rate data. In all other respects, the motions are denied.

## I.

The criteria that a motion to reopen must satisfy have evolved over the last decade into a well-defined tripartite test.

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

*Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-598, 11 NRC 876, 879 (1980). See *Kansas Gas and Electric Co.* (Wolf Creek Generating Station, Unit No. 1), ALAB-462, 7 NRC 320, 338 (1978); *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 523 (1973). Although the basic standard is settled, applying it to a particular motion to reopen often proves a disproportionately greater task. Thus, we have characterized the burden of such a motion's proponent as a "heavy" one. *Wolf Creek, supra*, 7 NRC at 338.

## II.

The Aamodts' first motion to reopen concerns information revealed in Board Notification BN-82-84 (August 17, 1982).<sup>1</sup> Attached to the Board Notification was an inspection report that discussed the discovery in May 1982 by licensee's Radiological Assessor of several unattended radiation worker examinations and their answer keys. Although this apparently occurred on two occasions over a three-day period, the NRC staff inspector concluded that licensee's corrective actions were adequate and that it appeared to be an isolated incident. Inspection Report No. 50-289/82-07 (July 1, 1982) at 17. The Aamodts suggest, however, that this matter raises questions about licensee's training program, warranting further hearing. They also assert that the "withholding" of information about this incident for over three months casts doubt on the integrity of both licensee's management and the NRC staff.

In their second motion to reopen, the Aamodts list five categories of assertedly new and significant evidence. This information came to light, according to the Aamodts, in the now-settled civil lawsuit brought as a result of the accident at TMI-2 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) (hereinafter "*B&W* trial").<sup>2</sup>

The first such information is the testimony at the *B&W* trial of Harold W. Hartman, Jr., a former TMI-2 control room operator. Hartman testified that the technical specification for unidentified leak rates at that facility, one gallon per minute (gpm), was exceeded and the corresponding data were falsified for a period of several months before the accident. The Aamodts contend that it is not unlikely that licensee's management (specifically Robert Arnold, now president of GPU Nuclear Corporation, the new entity responsible for TMI) knew of this matter. In their view, the Hartman testimony shows a lack of management integrity and thus could have provided the Licensing Board with the evidence necessary to find management involvement in the instances of cheating on operator license examinations already explored at hearing. See LBP-82-56, *supra*, 16 NRC at 292-93.

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<sup>1</sup> The Aamodts filed this motion with the Licensing Board. In ALAB-699, 16 NRC 1324 (1982), we agreed with that Board that it lacked jurisdiction over the motion and that it should be referred to us.

<sup>2</sup> The Aamodts' motion to reopen is contained within their comments to the Commission on the adequacy of the staff review of the *B&W* trial record. The Commission referred the motion to reopen to us for disposition by Order of May 5, 1983 (unpublished), at 3-4. Accordingly, we address here only those arguments directed to the motion to reopen for further hearing on the five categories of information specified.

The second piece of new information, by the Aamodts' account, is a 1978 in-house audit of TMI management. Among the deficiencies noted was training, an area contributing to the accident and explored at the restart hearing. Third is the *B&W* trial court's "[c]hastisement of Robert Arnold for [m]isleading [t]estimony." Aamodt . . . Motions to Reopen (April 16, 1983) at 9. The Aamodts contend that Arnold displayed a similar lack of forthrightness at the hearing on the cheating incidents and that the Licensing Board erred in not giving it greater weight. In their opinion, the new evidence — *i.e.*, the *B&W* trial court's perception of Arnold's candor — supports their position on management involvement in cheating.

The Aamodts' fourth category of new and significant information concerns evidence presented at the *B&W* trial showing B&W's superior technical resources. In short, this "new evidence" assertedly supports the Aamodts' apparent belief that B&W, rather than licensee and the NRC, should be principally responsible for training and administering operator examinations, respectively. Finally, according to the Aamodts, new evidence gleaned from the *B&W* trial transcript casts doubt on the Licensing Board's findings concerning operator ability to respond in an emergency. *See, e.g.*, LBP-81-32, *supra*, 14 NRC at 474-75. The Aamodts urge the creation of a backup decision center, staffed by B&W experts and equipped with the capability to tap into all significant control room instrumentation.

TMIA's motion to reopen is based primarily on the staff's recent action to "revalidate" its position on licensee's management integrity. *See pp.* 184-85, *infra*. As part of that effort, the staff prepared Inspection Report No. 50-289/83-10 (May 17, 1983), which covers a number of areas at issue in the management phase of this proceeding. Included is a discussion of the Hartman allegations, based on a review of job titles (not personal interviews) to determine if any individuals who might have been involved in falsification of TMI-2 leak rate data are now involved in TMI-1 management. In a May 19, 1983, memorandum to the Commission, the NRC's Executive Director for Operations, William J. Dircks, identified the following five matters that the revalidation effort and Inspection Report did *not* address and thus are still considered "open issues": (1) the veracity of the Hartman allegations; (2) statements in the *B&W* trial transcript; (3) allegations by two men employed in the TMI-2 cleanup operation (Richard Parks and Lawrence King) about retaliation against "whistleblowers"; (4) concerns raised by two 1983 management audits by outside consultants (the BETA and RHR

Reports);<sup>3</sup> and (5) the timeliness of licensee's submission of the BETA and RHR Reports and other documents to the Commission and this Board, and its implications for management integrity. TMIA seeks reopening to explore each of these five issues.<sup>4</sup>

TMIA also specifies several more areas warranting examination: the credibility of Inspection Report No. 50-289/83-10, especially its treatment of the Hartman allegations and the BETA and RHR Reports; the credibility of an earlier staff review of the *B&W* trial record, headed by Victor Stello; and allegations by other whistleblowers besides Parks and King, and the significance of a Department of Labor finding of management retaliation against Parks.<sup>5</sup> Clearly though, TMIA's chief concern is that the BETA and RHR reports have seriously undermined earlier testimony on a number of areas related to overall management competence and integrity (such as maintenance, training, and operator attitudes).

The Hartman allegations of falsified leak rate data, raised by both TMIA and the Aamodts, unquestionably constitute the most disturbing basis on which the requests to reopen are premised. We turn to this matter first.

#### A.

1. A brief chronology of the events surrounding the Hartman allegations themselves is in order. Allegations of falsification of leak rate data first came to the NRC's attention during a May 22, 1979, interview with Hartman conducted by staff from the Office of Inspection and Enforcement who were investigating the TMI-2 accident ("I&E Interview"). In a deposition taken on October 29, 1979, by Harold L. Ornstein on behalf of the Rogovin Special Inquiry Group, Hartman reiterated his claims ("Ornstein Deposition"). In March 1980 a New York City television station aired a story including portions of its own similar interview with Hartman. At about the same time, I&E interviewed Hartman again and examined existing documentation in an effort to verify the charges. See

<sup>3</sup> See Basic Energy Technology Associates, Inc., "A Review of Current and Projected Expenditures and Manpower Utilization for GPU Nuclear Corporation" (February 28, 1983) ("BETA Report"); P. D'Arcy & J. Sauer, "Priority Concerns of Licensed Nuclear Operators at TMI and Oyster Creek and Suggested Action Steps" (March 15, 1983) ("RHR Report").

<sup>4</sup> TMIA also supports the Aamodts' second motion to reopen.

<sup>5</sup> TMIA also mentions Board Notification BN-83-71 (May 18, 1983) concerning alleged falsification of operator training records in 1977. In supplementary comments, the Aamodts as well refer to this matter. Aamodt Response to Appeal Board Order of June 16, 1983 (July 2, 1983) at 12-13. The NRC's Office of Investigations recently concluded its inquiry into the matter, finding no support for the allegations. See Board Notification BN-83-71A (June 27, 1983). Neither TMIA nor the Aamodts specifically seek reopening on this point or provide additional material information beyond that revealed in BN-83-71A.

*Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 2), CLI-80-22, 11 NRC 724, 728 (1980). On April 2, 1980, the matter was referred to the U.S. Department of Justice (DOJ) for criminal investigation and the NRC halted its own investigation. *Ibid.* Two weeks later licensee hired a Minneapolis law firm to conduct an inquiry. The latter submitted its report to licensee in September 1980 ("Faegre & Benson Report").<sup>6</sup>

As part of its evidentiary presentation before the Licensing Board, the staff prepared a Safety Evaluation Report (SER). Two supplements to the SER, issued in November 1980 and March 1981, each made a passing reference to the allegations of falsified leak rate data, noting the pending DOJ investigation and suspension of any further NRC inquiry. No other evidence on the matter was adduced at the hearing. Consequently, in LBP-81-32 the Licensing Board noted its limited information and made an overall finding of no deficiencies in corporate management, subject to the DOJ investigation. 14 NRC at 557-58. In the meantime, the Justice Department had convened two successive federal Grand Juries to investigate the Hartman allegations. The second such investigation is still pending.

Aware of the then-ongoing *B&W* trial (*see* p. 181, *supra*), NRC Chairman Palladino in December 1982 requested the staff to review that trial record for information that could affect the Commission's restart decision. On January 24, 1983, before all of the evidence for both sides had been presented, the parties to that action reached a settlement. The staff, however, completed its review of the nonetheless substantial trial transcript and exhibits and submitted a report to the Commission on March 28, 1983 ("Stello Report"). The report concluded that the *B&W* trial record did not add substantially to the information already known about the Hartman allegations. Stello Report at 17-18.<sup>7</sup> But in subsequent comments to the Commission, the staff indicated it was "revalidating" its position on the management integrity issue — having previously found no deficiencies in that regard — at least in part because of the Hartman allegations. NRC Staff's Comments on the Analysis of GPU v. B&W Transcript (April 18, 1983) at 4. On May 4, 1983, at the request of staff counsel, licensee submitted the 1980 Faegre & Benson Report to us and the other parties in this proceeding. In the meantime, as part of the revalidation process, the staff completed Inspection Report

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<sup>6</sup> Also known as the "Rockwell Report."

<sup>7</sup> Basically, the part of the *B&W* trial transcript dealing with the Hartman allegations here at issue consists of portions of a deposition of Hartman taken on July 16, 1982, and entered into the *B&W* record at Tr. 7008-95.

No. 50-289/83-10, but listed the veracity of the Hartman allegations among the "open issues" in the May 19 Dircks memorandum. See p. 182, *supra*. At a May 24, 1983, Commission briefing on the staff revalidation, Tim Martin, Director, Division of Engineering and Technical Programs, NRC Region I (and a former NRC inspector who interviewed Hartman in March 1980), stated:

I can tell you for a fact that the records were falsified, that much we knew. What caused those records to be falsified, what was the motivation for those records to be falsified, that I can't tell you because I was not allowed to get far enough into it to find out.

C.Tr. 14.<sup>8</sup>

It is apparent from this chronology that the entire Hartman matter essentially lay dormant, for purposes of this proceeding, from April 1980, when it was referred to the Justice Department, until relatively recently, when examination of the *B&W* trial record led to renewed interest.

2. The allegations themselves can be summarized fairly briefly.<sup>9</sup> The technical specifications for TMI-2 establish a maximum rate of one gpm for unidentified leakage from the reactor coolant system. Tests to measure leakage are to be taken every 72 hours. If the specified rate is exceeded and cannot be limited within four hours, the plant must be placed in "Hot Standby" in the next six hours and "Cold Shutdown" in the following 30 hours. For several months before the March 1979 TMI-2 accident, Hartman states that it was difficult to get a "good" (*i.e.*, less than one gpm) leak rate at the facility.<sup>10</sup> This coincided with leaking safety valves on the pressurizer, as well as substantial oscillations in various plant parameters. Hartman claims that, pursuant to directions from a shift supervisor and a shift foreman, he and at least one other identified control room operator on several occasions redid leakage tests until they obtained a good rate. This involved the addition of hydrogen or water to the system, in small increments and without recording this

<sup>8</sup> "C.Tr." is used to denote the transcript of the Commission's May 24 meeting.

<sup>9</sup> The source of this summary is the Hartman deposition as read into the *B&W* trial record at Tr. 7008-95. See note 7, *supra*. This is the principal evidence concerning falsification of leak rate data upon which both TMIA and the Aamodts rely in support of their motions to reopen. Other documents provided by the staff and licensee, however, are consistent with this account of the circumstances surrounding the charges. See, *e.g.*, I&E Interview; Ornstein Deposition; Faegre & Benson Report, Vols. One and Four.

<sup>10</sup> We note that in a letter and Notice of Violation issued October 25, 1979, the staff concluded that from March 22-28, 1979, unidentified leakage at TMI-2 remained above one gpm and the plant was not placed in "Cold Shutdown." Notice of Violation at 10. The fine for this technical specification violation was included in a total fine of \$155,000 for numerous other violations relating to the TMI-2 accident. Licensee did not challenge the leak rate finding.

action in the control room logs. Hartman says he assumed other unnamed operators and supervisors took similar action because they had talked to him about it. He and others threw out bad test results, with the knowledge of supervisory personnel. Hartman asserts further that he discussed the problem of bad leak rate data with at least one supervisor, who advised him that people were working on it, including modifying the computer program used for the data calculations. Consequently, Hartman assumed that personnel on other shifts and management were aware of his concerns.

3. In addressing the three-prong *Diablo Canyon* standard for reopening (see p. 180, *supra*), licensee argues only that the Aamodts' motion is not timely.<sup>11</sup> Licensee states that Hartman's allegations are not new, having been broadcast on a New York television station in March 1980 and publicized in Harrisburg newspapers at about the same time. Licensee also notes that, in December 1981 at the reopened hearing on cheating, Mrs. Aamodt said that she had read the I&E interview with Hartman. See Tr. 26,346-47. Further, licensee argues that the staff's SER, Supplement No. 1 (November 1980), "certainly provided sufficient information to allow the Aamodts to pursue the matter at that time." Licensee's Reply to Aamodts' Motion (May 9, 1983) at 4. Consequently, in licensee's view, "[t]he Aamodts are inexcusably late in seeking to reopen the record on the basis of the Hartman allegations and have provided no new information not available throughout the course of the restart proceeding." *Id.* at 6. Licensee is silent as to whether the Hartman allegations address a significant safety issue and whether the Licensing Board might have reached a different result had this matter been considered initially.

The staff's position is somewhat curious. First it argues, as does licensee, that the Hartman allegations are not new and thus the Aamodts' motion is not timely. NRC Staff's Answer to Aamodt's Motion (May 13, 1983) at 4, 7. The staff also contends that this is not a significant issue because changes in personnel at TMI-1 are such that the leak rate problems alleged to have occurred at TMI-2 are unlikely to occur at TMI-1. *Id.* at 7. See Inspection Report No. 50-289/83-10 at 10-6. Then the staff states that,

although the Hartman allegations themselves provide no basis for changing any aspect of any previously-stated Staff position on management issues, further devel-

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<sup>11</sup> Licensee did not respond to TMIA's motion to reopen insofar as it concerns the Hartman allegations. Licensee contends that TMIA's motion actually discusses only the BETA and RHR reports and, hence, licensee has limited its response accordingly. Licensee's Response to TMIA Motion to Reopen the Record (June 7, 1983) at 3.



opment of the open issues identified in the Revalidation Memorandum [(one of which is the veracity of the Hartman allegations)] is required before the Staff can conclude whether or not one or more of those matters will provide a basis for a change in the Staff's position on any of the management-related issues in this proceeding.

NRC Staff's Answer to TMIA Motion to Reopen (June 13, 1983) at 6. The staff continues: "[the Hartman allegations] could affect the resolution of the management issues involving the technical and character qualifications of Licensee's management, operations and technical staff." *Id.* at 7. But instead of reopening the record now to achieve that resolution, the staff urges us to defer ruling on TMIA's motion "until further development of the open issues permits a sound determination of their significance." *Id.* at 11.

a. We reject licensee's and the staff's arguments that the motions to reopen on the Hartman allegations could have been filed earlier and thus are untimely. It is true that the allegations, first made in the May 1979 I&E Interview, are not "new." But even assuming that intervenors had knowledge of Hartman's claims then or at any time before the Licensing Board issued LBP-81-32,<sup>12</sup> the staff, in rather cryptic comments in its November 1980 and March 1981 supplements to the SER, clearly discouraged any other party from pursuing this at the hearing below. Supplement No. 1 stated that the NRC's initial inquiry into the matter of improper collection of leak rate data was "suspended" so as not to interfere with pending Justice Department and Grand Jury proceedings. As a result, the staff could "draw no conclusions on this item" until the DOJ investigation was completed. SER, Supp. No. 1 (Staff Exhibit 4), at 37. Supplement No. 2 stated that the DOJ inquiry was still ongoing and that involved NRC personnel had "been requested by DOJ not to discuss the details of the matter." SER, Supp. No. 2 (Staff Exhibit 13), at 9. The staff also noted, however, that it would "resume its investigation" when the Justice Department concluded, and that in any event it believed, on the basis of a preliminary review of the allegations, that any management deficiencies have been corrected and that "the identified concerns appear to be only of historical

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<sup>12</sup> The basis for such an assumption is not evident. Licensee points to a March 1980 television broadcast in New York City and unspecified Harrisburg newspaper accounts of the Hartman allegations. We are unwilling to find on either basis that intervenors or any other member of the community surrounding TMI was put on notice of the allegations.

We also note that neither the I&E Interview nor any other pertinent document was provided to the Licensing Board and, in fact, did not come to our attention until licensee submitted the Faegre & Benson Report to us several months ago.

significance.” *Id.* at 9, 10.<sup>13</sup> The message was manifest: the Hartman allegations would not be investigated further because the Justice Department was conducting its own inquiry.<sup>14</sup> Furthermore, the clear implication was that the NRC’s investigation would resume later and could be pursued then at hearing, if necessary. *See also* C.Tr. 16-17.

It is thus understandable that neither the other parties nor the Licensing Board pursued the matter at the hearing below. *See* LBP-81-32, *supra*, 14 NRC at 557-58.<sup>15</sup> The first time that it became apparent to intervenors that Hartman’s allegations were not “off limits” and could be pursued at hearing was upon examination of the *B&W* trial record. That proceeding demonstrated that the pendency of the DOJ investigation does not necessarily preclude other types of inquiries into the same matter.<sup>16</sup> In these circumstances, it would be fundamentally unfair to find that intervenors could and should have raised the Hartman allegations earlier. Had they tried to do so, we have no doubt that the staff and licensee would have interposed forceful objections on the basis of the Grand Jury proceeding.<sup>17</sup>

b. Whether the Hartman allegations raise significant safety issues need not detain us long. Alleged violation of technical specifications, noncompliance with proper operating procedures, and destruction and falsification of records at Unit 2 before the accident — all assertedly under the auspices of at least first level management — obviously have serious implications for the proposed restart of Unit 1. The facts that the NRC staff referred this matter to the Justice Department for criminal investigation and that the Department has presented it to two Grand Juries underscore its significance.

Moreover, among the matters the Commission directed the Licensing Board to examine in this phase of the proceeding was Issue 10 —

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<sup>13</sup> The focus of both SER supplements was on alleged failures to adhere to procedures. There was no suggestion that would have alerted the parties — save a reference to “management philosophy” in Supplement No. 1 — to possible management involvement in the alleged wrongdoing.

<sup>14</sup> Although the SER suggests otherwise, there was no legal bar to the NRC’s continued, parallel investigation of the Hartman allegations. *See SEC v. Dresser Indus., Inc.*, 628 F.2d 1368 (D.C. Cir. 1980) (en banc), *cert. denied*, 449 U.S. 993 (1980); *TMI-2*, CLI-80-22, *supra*, 11 NRC at 729-30.

<sup>15</sup> At the December 1981 reopened hearing on cheating, Mrs. Aamodt noted difficulty in reaching Hartman and his inability to “speak with anyone in this hearing because of his involvement in [the Grand Jury] investigation.” Tr. 26,347.

Licensee, as well, did nothing to prompt the full airing of Hartman’s charges. Although it had commissioned an outside study of the matter, it did not disclose the resulting 1980 Faegre & Benson Report to the staff, the other parties, or any adjudicatory board until the spring of 1983. *See* note 38, *infra*.

<sup>16</sup> In addition to the Hartman deposition read into the *B&W* trial record, the deposition of another former TMI-2 control room operator, Theodore F. Illjes, was taken, also addressing the leak rate data problem.

<sup>17</sup> In any event, we have long recognized that “a matter may be of such gravity that the motion to reopen should be granted notwithstanding that it might have been presented earlier.” *Vermont Yankee*, *supra*, 6 AEC at 523. As demonstrated below, this is such a case.

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[.]

CLI-80-5, 11 NRC 408, 409 (1980). The staff early on viewed the Hartman allegations as within the scope of this issue, and no one now claims otherwise.<sup>18</sup> In its first supplement to the SER, the staff stated: "The allegations raised concerns regarding the principles of compliance with operating procedures and management philosophy and actions." SER, Supp. No. 1 (Staff Exhibit 4), at 37. Nothing in the information that has been revealed so far — though certainly not dispositive of any issue — has alleviated those concerns.<sup>19</sup> In fact, the Faegre & Benson Report, Ornstein Interview, and Illjes deposition (*see* note 16, *supra*) are generally consistent with Hartman's I&E Interview. Plainly, they demonstrate the need for additional inquiry.

c. Determining if there might have been a different outcome below, had the newly proffered evidence been considered, is generally the most difficult of the three reopening criteria to decide. That task arises here in a somewhat different context than is ordinarily the case and is less troublesome.<sup>20</sup>

The Hartman allegations highlight a gap in the record that the Licensing Board explicitly acknowledged through its conditional finding of no unremedied deficiencies in licensee's management. The Board stated:

In overall summary of CLI-80-5 issue (10), we have noted our lack of knowledge about the Department of Justice investigation. *Subject to this matter, . . . we find no deficiencies in the corporate or plant management, arising from our inquiry into management's response to the accident, that have not been corrected and which must be corrected before there is reasonable assurance that Unit 1 can be operated safely.*

LBP-81-32, *supra*, 14 NRC at 557 (emphasis added).<sup>21</sup> Thus, in effect, the record on this point has never closed. The Board's decision to qualify

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<sup>18</sup> Issue 13 — "such other specific issues as the Board deems relevant to the resolution of the issues set forth in this order" — also provides a basis for including the Hartman allegations within the scope of the proceeding. CLI-80-5, *supra*, 11 NRC at 409.

<sup>19</sup> In SER Supplement No. 2, the staff described the Hartman allegations as having only "historical significance." SER, Supp. No. 2 (Staff Exhibit 13), at 10. The staff has recently recanted on this point and now says only that licensee's actions in response to the allegations were adequate. NRC Staff's Comments on the Analysis of the GPU v. B&W Transcript, *supra*, at 3 n.5.

<sup>20</sup> Neither licensee nor the staff argues that intervenors have failed to meet their burden on this point.

<sup>21</sup> At the same time, the Board also stated that its limited information about the allegations provided "no basis to conclude that *restart* [(a decision entrusted to the Commission itself)] should not be permitted until the DOJ investigation is complete." LBP-81-32, *supra*, 14 NRC at 557 (emphasis added).

its finding of management competence and integrity, because of the ongoing investigation, is tantamount to a determination that consideration of the Hartman allegations might well have made a difference in the outcome.<sup>22</sup> We would agree.

Moreover, we cannot make any final judgment on appeal as to licensee's management competence and integrity without an adequate record. The Hartman allegations fall within the scope of the issues the Commission has directed be resolved through the hearing process. *See* pp. 188-89, *supra*. The absence of a materially complete record precludes us from reaching any conclusion on those issues, one way or the other.<sup>23</sup> "The Commission's primary commitment . . . to a fair and thorough hearing and decision" in this case requires no less than an exploration of Hartman's charges at hearing. CLI-79-8, 10 NRC 141, 147 (1979).<sup>24</sup>

4. The staff's request that we defer ruling, pending the outcome of its overall management revalidation review and a separate inquiry by the Office of Investigations (OI) specifically into the Hartman allegations, does not present a satisfactory alternative. By the staff's own admission, completion of the revalidation review is " 'many months away.' " NRC Staff's Memorandum on the Status of Its TMI-1 Restart Review (July 21, 1983) at 2. The OI investigation of the Hartman allegations is estimated to be complete by December 1983 but, in the staff's view, it may nevertheless be constrained by the pending Grand Jury proceeding. *Id.* at 2-3. It is already more than four years since Hartman first made his allegations of falsification of leak rate data to NRC inspectors, and three years since this agency halted its investigation and referred the matter to DOJ. One Grand Jury has expired without action, and another is still sitting, with no prospect of imminent decision.<sup>25</sup> In short, by next year we may be exactly where we are today — "square one." Further deferral of inquiry into a matter clearly within the scope of this adjudicatory proceeding — to await the outcome of an investigation that should have been undertaken and completed at least three years ago — would be unconscionable, as well as contrary to the Commission's expressed desire that this proceeding be conducted expeditiously. *See* CLI-79-8, *supra*, 10 NRC at 147.

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<sup>22</sup> For example, additional license conditions might have been imposed.

<sup>23</sup> Similarly, in another part of this same proceeding, we reopened the record for supplementation on the issue of decay heat removal. *See* ALAB-708, 16 NRC 1770 (1982).

<sup>24</sup> We note that the Commission directed the Licensing Board to "exercise its authority to seek 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.

<sup>25</sup> Apparently the Grand Jury has until spring 1984, when the statute of limitations on the possible crimes involved expires, to hand down an indictment. *See* letter from J. Scinto (Deputy Director, Hearing Division, NRC Office of Executive Legal Director) to Appeal Board (August 4, 1983) at 1.

Moreover, recent staff action pursuant to its revalidation effort provides no meaningful substantive basis for abiding the outcome of the various ongoing investigations. In Inspection Report No. 50-289/83-10, the staff discusses the alleged falsification of leak rate data, but notes that it restricted its inquiry into the matter to a review of present and former job titles. No individuals in the TMI-1 organization were interviewed and no job descriptions or other company records were examined. Consequently, the report includes "findings" based wholly on the staff's speculation and are thus highly suspect.<sup>26</sup>

In other circumstances, we are reluctant to interfere with staff reviews and investigations. But here, too much valuable time has been wasted. Evidence and witnesses' memories are getting stale. *See Dresser*, note 14, *supra*, 628 F.2d at 1377. It simply is time to move forward on the Hartman allegations, as our independent responsibility to protect the public health and safety under the Atomic Energy Act requires. *See id.* at 1375, 1377, 1380; *TMI-2*, CLI-80-22, *supra*, 11 NRC at 730.

We believe the most fruitful way to achieve this is within the adjudicatory setting and with the active participation of all parties.<sup>27</sup> We also believe that the Licensing Board in this case is better equipped than we to preside over a reopened hearing on the Hartman allegations. We therefore remand the case to that Board for further hearing on a schedule that permits this matter to be explored and resolved fully and as expeditiously as possible. (In the meantime, we will continue our consideration of the appeals of other aspects of the management phase of the proceeding. An order scheduling oral argument will be issued soon.)

We entrust the mechanics of the reopened hearing to the Licensing Board's expertise. However, our review of the material recently submitted to us in connection with the Hartman allegations — which the Licensing Board has not yet had an opportunity to scrutinize — prompts us to note several areas that should be pursued at the hearing.

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<sup>26</sup> As only one example, the report notes that the present Manager of Plant Operations at TMI-1 may have been aware of TMI-2 leak rate testing difficulties because he held a dual license to operate both units. It also notes that he could have been involved in such testing if he had ever filled in at TMI-2 as a shift supervisor. Without ever interviewing that individual (or others in a position to know) or examining personnel records, the inspectors simply concluded that it was "unlikely" that he had any "direct" connection with TMI-2 leak rate testing irregularities. Inspection Report No. 50-289/83-10, *supra*, at 10-5, 10-6. Such conclusory statements create a lack of confidence in the staff review and certainly provide no reliable basis on which a decision of any nature can be based.

<sup>27</sup> As we have pointed out at note 14, *supra*, the pendency of the Grand Jury proceeding does not legally bar parallel administrative action. There is also apparently no reason to continue deferring to the Justice Department on the basis of comity. *See C.Tr.* 26. Moreover, the Commission has recently adopted a policy statement addressing the relationship of ongoing NRC investigations and adjudicatory proceedings that involve the same subject matter. The policy recognizes that both can proceed simultaneously and establishes procedures to deal with conflicts that may arise concerning the public disclosure of investigatory information. 48 Fed. Reg. 36,358 (1983).

a. The focus on the Hartman allegations thus far has been on whether new operating procedures are adequate to prevent a recurrence of the problems described by Hartman. *See, e.g.*, SER, Supp. No. 2 (Staff Exhibit 13), at 10; C.Tr. 52. The individuals implicated by Hartman's charges, however, should not be overlooked, particularly if they are now employed in connection with TMI-1. Even if they no longer work for licensee or have no duties at TMI-1, these persons are still in a position to shed light on the matter.<sup>28</sup>

b. The Faegre & Benson Report includes a fairly comprehensive technical analysis of the leak rate problem, and we assume it will be offered into evidence.<sup>29</sup> The report seems to show that oscillations and lack of control of plant parameters existed for approximately a year and may have been a significant cause of the operators' alleged inability to obtain consistent leak rate data. *See generally* Faegre & Benson Report, Vol. Two, at 93-107.<sup>30</sup> Because of its limited scope, however, the report does not contain any meaningful information about management efforts to identify and correct the oscillation problem.<sup>31</sup> We believe it would be useful to obtain such information, because the ability to operate a plant without substantial oscillations in vital plant parameters bears on management competence.<sup>32</sup> Thus, Hartman's allegations raise questions about not only management integrity, but also management willingness and ability to resolve important operational deficiencies.

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<sup>28</sup> Among the specific questions to ask are: Did the incidents described by Hartman in fact occur? If so, who knew about them? Who authorized them? Who looked the other way? Did the operators and any other individuals involved assume their actions were acceptable operating procedures? On the other hand, did they assume otherwise and hope they would not get caught or be reprimanded?

<sup>29</sup> Because a number of key plant personnel declined requests for interviews, the report does not include an analysis of possible management involvement in the falsification of leak rate data. Faegre & Benson Report, Vol. One, at 13.

<sup>30</sup> Another factor that seems to account for the asserted difficulty in getting a "good" leak rate at TMI-2 is the one gpm unidentified leakage technical specification limit itself. Because the leakage pathways at the two units are classified differently, the TMI-2 limit is more stringent than that for TMI-1 and curiously does not allow for evaporative losses. *See id.*, Vol. Two, at 14-16.

<sup>31</sup> Several of Hartman's statements include references to a supervisor's general comment that people were "working on" the leak rate data problems of concern to Hartman. *See, e.g.*, B&W trial Tr. 7056, 7058.

<sup>32</sup> The Faegre & Benson Report, Vol. One, at 57 reaches the same conclusion.

We recognize that licensee "has instituted major organizational and staffing changes in order to provide additional safety review and operational advice regarding TMI-1." LBP-81-32, *supra*, 14 NRC at 519. *See generally id.* at 519-28, 558-63. Presumably, the new procedures are designed to detect and remedy problems such as substantial oscillations in plant parameters. Our review of the pending appeals will consider the adequacy of these changes. But in order to achieve a complete hearing on the Hartman allegations, we believe it is also necessary to reopen to examine management's specific response to all aspects of the leak rate data problem raised by Hartman.

## B.

The Aamodts' earlier motion to reopen concerns the May 1982 discovery of unattended radiation worker examinations and answer keys, revealed in Board Notification BN-82-84 and Inspection Report No. 50-289/82-07. See p. 181, *supra*. The motion itself is timely, as both the staff and licensee concede. We agree with them, however, that this new information is neither significant nor likely to have affected the Licensing Board's decision. We therefore deny the motion.

The motion contains rather generalized complaints about management integrity. It refers to portions of the Special Master's report and the Licensing Board's subsequent partial initial decision in the reopened hearing on cheating. The referenced material concerns the Aamodts' earlier allegations of cheating on radiation worker permit tests. The Aamodts' only witness in support of these allegations was found by both the Special Master and the Licensing Board to be not credible, and thus the allegations, not proven. LBP-82-34B, 15 NRC 918, 988-89 (1982); LBP-82-56, *supra*, 16 NRC at 333. Our attention has been directed to nothing that casts doubt on these judgments.

In supplemental comments submitted after oral argument on the motion, the Aamodts refer to a March 17, 1982, Notice of Violation concerning unauthorized entry to a high radiation area at TMI-1. Even if this information had been provided in a timely manner, the Aamodts have failed to establish a specific nexus between the subject of that notice and the unattended examinations and answer keys discussed in BN-82-84.<sup>33</sup>

The inspection report itself also provides no basis for granting the motion. Although there were two instances in three days of examinations being left unattended, the report concludes that this was apparently "an isolated incident attributable to a single individual's practices." Several corrective measures were undertaken, including use of new examinations, storage of copies in locked containers when not in use, and reprimand of the involved supervisor.<sup>34</sup> These actions were described in an internal TMI memorandum within about two weeks of the

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<sup>33</sup> Although the notice was made public in April 1982, before the incidents on which the Aamodts base their request to reopen, the information was thus also available well before the Aamodts filed this motion to reopen.

We also note that a May 4, 1982, letter from H. Hukill (Director, TMI-1) to R. Haynes (NRC Region I Administrator) described the various corrective actions taken by licensee in response to the notice.

<sup>34</sup> Licensee elaborates on the corrective action and informs us that this individual later resigned. Licensee Answer to Aamodt Motion (September 20, 1982) at 3-4, 8-9. We remind licensee that information of this nature is more properly provided in affidavit form.

initial incident. Based on a review of all these measures, the NRC inspector determined that no further action (including a formal Notice of Violation) was necessary. Inspection Report No. 50-289/82-07, *supra*, at 17. We have no reason to conclude otherwise.

We reject the Aamodts' claim that these incidents show licensee's inability to prevent a compromise of its training and testing program. On the contrary, we believe that the series of events described in Inspection Report No. 50-289/82-07 is evidence that the *system* is working. Irregularities were discovered by licensee itself and promptly corrected. This is fully consistent with the evidence presented to the Special Master by Dr. Robert L. Long, now Vice President of Nuclear Assurance for licensee. His testimony was that "specific methods . . . for ensuring that exams are secured" would be provided; his staff would "take measures to protect the efficacy of the exams [they] administer"; cheating and similar misconduct is to be reported promptly and will result in appropriate disciplinary action by responsible management; and GPU Nuclear requires "strict compliance" with these policies. Long, fol. Tr. 24,925, at 25-28. Licensee did not promise that problems of this nature would never occur, nor could it. Where there is human involvement, it is not possible to speak in absolutes.

As for the Aamodts' charge that both the staff and licensee unduly withheld information concerning this matter, we disagree. The incidents themselves and licensee's corrective action were disclosed within days by licensee to the staff during a routine inspection conducted May 11-June 8, 1982. The inspection report is dated July 1 and was placed in the public docket rooms (including Harrisburg) on July 22. The Board Notification was issued to us and the parties on August 17. Although we frequently remind the staff of its obligation to issue board notifications as promptly as possible, we do not regard the time lapses set out above as unreasonable, given inherent bureaucratic delays and the nature of the matter involved.<sup>35</sup>

### C.

The Aamodts' second motion seeks reopening for hearing on four matters in addition to the Hartman allegations already discussed above. We deny the motion on all four counts.

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<sup>35</sup> Our judgment on this motion should not be perceived as reflecting our views on licensee's overall training program or on the cheating inquiry. Those matters will be taken up in our consideration of the merits of the pending appeals.



1. The Aamodts contend that a 1978 in-house management audit at TMI, an exhibit at the *B&W* trial, constitutes “new and exceedingly germane” evidence. Aamodt . . . Motions to Reopen, *supra*, at 8. Of particular relevance, in intervenors’ view, is the audit’s discussion of training deficiencies. Both the staff and licensee point out that this audit was made available to all parties during prehearing discovery in March 1980. NRC Staff’s Answer to Aamodt’s Motion, *supra*, at 8; Licensee’s Reply to Aamodts’ Motion, *supra*, at 7. It therefore does not constitute new evidence and the Aamodts are unjustifiably late in seeking reopening on this basis. Moreover, the significance of the audit to this proceeding is not apparent. Its findings do suggest much room for improvement in TMI management in 1978. But as a result of the accident at Unit 2 and the extensive hearings below, licensee’s present management and training program are substantially different from that in 1978. See LBP-81-32, *supra*, 14 NRC at 403-79.<sup>36</sup> The Aamodts fail to explain how consideration now of this report — critical of a management organization that no longer exists — might affect the outcome of this proceeding.

2. The Aamodts suggest that certain comments made by the judge presiding at the *B&W* trial are new evidence, casting what they consider to be further doubt on the credibility of Robert Arnold, president of GPU Nuclear. Aamodt . . . Motions to Reopen, *supra*, at 9, 10. We reject the notion, however, that these comments — even if accurately stated by the Aamodts — might have some bearing on the resolution of this case.<sup>37</sup> Arnold testified extensively before the Special Master and Licensing Board, and thus both had the opportunity to observe his demeanor and weigh the credibility of his testimony given *in this very proceeding*. The Licensing Board’s ultimate judgment on this score is a matter to be taken up when we consider the intervenors’ pending appeals. In this circumstance, we believe that it would be inappropriate to give weight to the comments of a judge during trial in a different proceeding, involving different parties and issues, particularly when that litigation ended in a stipulated settlement before the judge heard all the evidence and issued a formal opinion.

3. The *B&W* trial record, in the Aamodts’ view, establishes the superior technical resources of B&W. Although it is unclear exactly what the

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<sup>36</sup> In affidavits attached to the staff’s reply to the motion, three staff witnesses aver that they have reviewed the 1978 audit and that it would not alter their previous testimony on present TMI management. Affidavits of Lawrence P. Crocker (May 5, 1983), Frederick R. Allenspach (May 4, 1983), and Richard R. Keimig (May 5, 1983), attached to NRC Staff’s Answer to Aamodt’s Motion, *supra*.

<sup>37</sup> We have reviewed the *B&W* trial transcript pages cited by the Aamodts (Tr. 1555, 1690-99, 1741) and do not fully agree with their characterization of the judge’s remarks.

new and significant evidence undergirding their motion is, the Aamodts assert that it could lead to a more adequate resolution of the deficiencies in training explored at the hearing below. Their apparent view is that B&W, rather than licensee and the NRC, should bear principal responsibility for training and testing at TMI.

We agree with licensee and the staff that the Aamodts have provided no basis for reopening the record on this point. In the first place, licensee concedes that B&W's expertise in certain areas is superior to its own and notes that extensive testimony was adduced below concerning B&W's participation in various aspects of licensee's training program. Licensee's Reply to Aamodts' Motion, *supra*, at 10. The staff emphasizes that, while the NRC encourages the use of vendor personnel in training, it is not required, inasmuch as the nuclear steam supply system vendor typically cannot provide all necessary information on plant components supplied by other manufacturers. Ultimately, the utility, as the holder of an NRC license, must bear principal responsibility for operation and thus training. Further, the NRC cannot legally delegate its operator licensing authority to a private company like B&W. See Affidavit of Bruce A. Boger (May 12, 1983), attached to NRC Staff's Answer to Aamodt's Motion, *supra*. The information on B&W's superior resources that the Aamodts seek to admit into the record would not alter any of these factors.

4. According to the Aamodts, the *B&W* trial record "calls into question the Board's decision that the operators were able to handle emergencies with no undue risk to the public." Aamodt . . . Motion to Reopen Record, *supra*, at 13. They claim that comments by GPU counsel at the *B&W* trial show that various stresses in the control room will reduce the operators' ability to cope during an emergency, contrary to the Licensing Board's findings. See LBP-81-32, *supra*, 14 NRC at 474-75. The Aamodts urge the establishment of an offsite decision center with remote readout capability from the control room as a means of ameliorating this situation.

The comments of counsel upon which the Aamodts rely constitute no new or significant information concerning operator ability to act in an emergency. That an emergency will create a certain amount of stress in the control room is neither a revelation nor a matter that can be eliminated entirely. The Licensing Board fully considered it and concluded that licensee has "consciously factored [this] into its program for preparation of operators" and has undertaken sufficient measures "to alleviate or minimize the potential for stress in operators under critical situations." *Id.* at 475. The cited portions of the *B&W* trial transcript (Tr. 33, 65, 79, 80) do not undermine this finding. As for the Aamodts'

suggestion of a fully equipped offsite decision center, the staff expects licensee's onsite Technical Support Center and offsite Emergency Operations Facility to have computer terminals displaying all critical plant parameters following the first refueling outage after restart (if authorized). Affidavit of Falk Kantor (May 12, 1983) at 3, attached to NRC Staff's Answer to Aamodt's Motion, *supra*. Whether this should be a prerequisite to restart is a matter for the Commission to decide in the course of its "immediate effectiveness" review.

#### D.

As discussed earlier (*see pp. 182-83, supra*), TMIA's motion seeks reopening on, in addition to the Hartman allegations, the following four "open" items in the staff's revalidation effort: statements in the *B&W* trial record; the Parks and King allegations of retaliation against whistleblowers at the TMI-2 cleanup operation; concerns raised by the recent BETA and RHR management audits; and the timeliness of licensee's submission of the BETA and RHR Reports and other documents.<sup>38</sup> We agree with the staff that it is premature to reopen the record at this point for further hearing on any of these four items. As explained in greater detail below, TMIA has failed to call to our attention anything so far that might have made a difference in the Licensing Board's decision. Moreover, the staff review in each instance (including that of OI) is still under way and may yet disclose other related information that does warrant further hearing.<sup>39</sup> If that proves to be the case, intervenors may then seek again to satisfy the *Diablo Canyon* criteria for reopening.

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<sup>38</sup> We assume that among the "other documents" that the staff is considering in this regard is the Faegre & Benson Report, dated September 1980 but not submitted to the staff, parties, or any adjudicatory board until spring 1983.

<sup>39</sup> *See, e.g.*, Board Notification BN-83-117 (August 4, 1983), where the staff advises us that certain documents uncovered during its review of the *B&W* record relate to present management's role in responding to the TMI-2 accident and thus may be relevant to the resolution of Issue (10). The matter is being referred to OI for investigation.

In this connection, we distinguish the staff's still ongoing review of the Hartman allegations. As explained above, *deferral of our ruling on the motion and of further hearing is not satisfactory, given the already protracted delays in that investigation. The four items discussed here are of considerably more recent vintage and we are thus more amenable to letting the staff complete its review.*

TMIA mistakenly believes that permitting the staff to advise us of its evaluation of these open issues constitutes an improper *ex parte* communication. TMIA Motion to Reopen the Record (May 23, 1983) at 6. In the first place, the results of such staff reviews are communicated to the adjudicatory boards through public filings, served on all parties. Any party is free to seek reopening (or other appropriate relief) on the basis of the newly disclosed information. There is nothing *ex parte* or otherwise violative of a party's hearing rights about that. Moreover, all parties, including the staff, are *obliged* to bring any significant new information to the boards' attention. *Tennessee Valley Authority* (Browns Ferry Nuclear Plant, Units 1, 2 and 3), ALAB-677, 15 NRC 1387, 1394 (1982).

This is not to say that the four matters on which TMIA bases its motion to reopen are unimportant. For example, reprisals against whistleblower-employees — if they are proven and if a nexus to TMI-1 management is suggested — certainly reflect negatively on management integrity and would provide a basis for further exploration. See Board Notification BN-83-46 (April 11, 1983).<sup>40</sup> The untimely provision of significant information is also an important measure of a licensee's character, particularly if it is found to constitute a "material false statement." See *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), CLI-76-22, 4 NRC 480, 488-93 (1976).

As for the BETA and RHR Reports, we agree with TMIA that some portions of each are critical of TMI management. But other selective excerpts reflect favorably upon licensee. Significantly, the specific focus of the BETA Report is on ways to cut costs and improve the efficiency of operations, not on safety matters. BETA Report at 1. A follow-up letter from the principal author of the BETA Report, William Wegner (provided to the parties and us at the same time as the report), stresses this fact and explains the relationship of the report to testimony he gave before the Licensing Board in 1981.

[T]he latest BETA review did not address the same issues [as the 1980 review] even though many of the same functional areas were reviewed. The predictive nature of my 1981 testimony was in almost all cases fully substantiated by the 1982 review. Where expectations fell short it was in the area of efficiency rather than matters relating to safety or competence.

Letter from W. Wegner to R. Arnold (May 13, 1983) at 4. See generally Wegner, fol. Tr. 13,284. A co-author of the RHR Report on operator attitudes states that his work represents only the initial stage of a much larger consulting activity and is "one-sided." The survey and resulting data, which combined TMI and another licensee facility (Oyster Creek), were not designed to address management integrity directly, and he acknowledges that some questions and their responses may have been confusing. Letter from P. D'Arcy to R. Arnold (May 13, 1983). Given the limitations in both reports 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

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<sup>40</sup> We note that one of the alleged whistleblowers, Parks, is actually an employee of Bechtel (the principal contractor for the TMI-2 cleanup operation) and recently reached a settlement of his complaint. See Preliminary Notification of Event PNO-TMI-83-06 (July 27, 1983). One of TMIA's other bases for reopening is an earlier Department of Labor finding in favor of Parks. Presumably this is a matter that the pending OI investigation will take into account, along with Labor's disposition of the King complaint. We understand that the latter was initially denied and is now on appeal within that agency.

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.

The other three bases on which TMIA's motion rests also fail to support reopening of the record. First, we are inclined to agree with TMIA that Inspection Report No. 50-289/83-10 is not a very credible document. *See* p. 191, *supra*. But so far that document is not in evidence and thus its credibility is not in issue. If the document is introduced into evidence at the reopened hearing, TMIA is, of course, free to challenge and discredit it at that time. Similarly, the credibility of the Stello Report on the *B&W* trial (*see* p. 184, *supra*) is also not at issue here. Moreover, the Commission itself has requested the more thorough review of the *B&W* record now under way, essentially mooted the adequacy of the Stello Report as an issue. Finally, TMIA's references to allegations by whistleblowers other than Parks and King are completely undocumented.

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In conclusion, the motions of the Aamodts and TMIA are *granted* insofar as they seek reopening of the record for further hearing on the Hartman allegations. We remand this matter to the Licensing Board for hearing consistent with the views expressed in this opinion. Otherwise, the motions to reopen are *denied*.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Peter B. Bloch, Chairman  
Dr. Oscar H. Paris  
Mr. Frederick J. Shon**

**In the Matter of**

**Docket No. 50-155  
(Spent Fuel Pool Amendment)**

**CONSUMERS POWER COMPANY  
(Big Rock Point Plant)**

**August 1, 1983**

The Licensing Board determines that applicant has complied with the Board's earlier initial decision (LBP-82-77, 16 NRC 1096 (1982)) concerning emergency planning. The Board also decides that it is not necessary to conduct a hearing before making this determination.

**EMERGENCY PLANNING**

Applicant satisfied the Board that it had demonstrated sufficient compliance with the applicable emergency planning requirements of the Commission for the purpose of a proceeding concerning a license amendment to expand a spent fuel pool.

**RULES OF PRACTICE: HEARING ON COMPLIANCE WITH BOARD ORDER**

A hearing is not required to determine whether applicant has complied with a Board order if the written submissions fail to raise any serious deficiencies that the Board might remedy. Considering the

circumstances, a hearing is very unlikely to be productive and need not be held.

## TECHNICAL ISSUES DISCUSSED

Radiological training  
Transportation of people without access to personal vehicles  
Evacuation for schoolchildren  
Compilation of a list of invalids.

## SUPPLEMENTARY INITIAL DECISION (Compliance with Emergency Planning Initial Decision)

On September 14, 1982, the Atomic Safety and Licensing Board issued an initial decision<sup>1</sup> sustaining several emergency planning subcontentions of Christa-Maria, *et al.* (Christa-Maria) and finding that Consumers Power Company (applicant) had not complied with certain aspects of the Commission's rules governing emergency planning.

In filings of December 3 and 17, 1982, and of January 7 and 21, 1983, applicant has attempted to demonstrate its compliance with our decision. Its filings include nine affidavits and a report prepared by Stone & Webster Engineering Corporation (Stone & Webster).

The Federal Emergency Management Agency (FEMA) has found that applicant has complied with our decision;<sup>2</sup> however, Christa-Maria and John O'Neill challenge that conclusion and seek an evidentiary hearing concerning compliance.

We have concluded that there are no serious deficiencies in applicant's efforts to comply with our decision. Compliance has been in good faith and the plan is greatly improved over its former state. Consequently, although FEMA continues to be responsible for assuring compliance with the emergency planning requirements, we can no longer justify our continued assertion of jurisdiction.<sup>3</sup>

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<sup>1</sup> LBP-82-77, 16 NRC 1096 (1982) at 1097-1104, 1105.

<sup>2</sup> The complete FEMA filing is attached to a staff filing of July 15, 1983.

<sup>3</sup> Our initial assertion of jurisdiction rested on a finding of "the possibility of occurrence of improbable incidents" if the license amendment were granted. LBP-82-32, 15 NRC 874 (1982) at 881. Although applicant's response may have satisfied the standard applicable in an operating license proceeding, we have not applied that standard. Our authority relates to the pending amendment application. Our concern is that applicant demonstrate sufficient compliance with the emergency planning regulations so that the granting of the license amendment will not adversely affect public safety.



In this decision, we review each of the deficiencies found in our previous initial decision and the responses of the parties. The deficiencies, which we will discuss, are that applicant had not demonstrated: (a) the adequacy of radiological training of local and school officials, including school bus drivers, (b) that evacuation plans provide adequately for the transportation of people who do not have access to private vehicles, (c) the adequacy of evacuation means for schoolchildren, and (d) the adequacy of the list of invalids that officials have compiled so that they can provide evacuation assistance.

## I. RADIOLOGICAL TRAINING

Our finding was that applicant had failed to determine the extent of the need for radiological training of local officials or school officials or to show that the need is being met in a satisfactory fashion by the combined efforts of applicant and state and local governments. Applicant's response included affidavits from Lt. James M. Tyler, Commanding Officer of the Pre-Disaster Services Section of the Emergency Management Division of the Michigan State Police, and from Mr. Earl Muma, Emergency Services Director/Coordinator for Charlevoix County, Michigan.

Mr. Tyler's Affidavit demonstrates that "the Pre-Disaster Services Section has developed a comprehensive training program for all support groups who will have responsibilities during a radiological emergency. . . ." <sup>4</sup> It also documents an impressive list of activities that have helped to train the people who would have primary responsibilities during an emergency. <sup>5</sup> This training even includes an annual briefing session for the press. <sup>6</sup> There is no reason to question the contents of the training. <sup>7</sup>

Mr. Muma's Affidavit demonstrates that there has been a successful training session for school bus drivers. <sup>8</sup> It also establishes that as of December 1, 1982 there were plans to train the other local emergency response personnel thought to require radiological training. <sup>9</sup>

Subsequently, as we learned in an untimely filing by Christa-Maria, Mr. Muma has changed his mind about the financing available to permit

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<sup>4</sup> Tyler Affidavit at 12. Exhibit C to that affidavit lists support groups identified as needing training. Tyler Affidavit at 14.

<sup>5</sup> *Id.* at 7-11.

<sup>6</sup> *Id.* at 11.

<sup>7</sup> The contents are set forth in Tyler Affidavit at 12-14.

<sup>8</sup> Muma Affidavit at 5-8.

<sup>9</sup> *Id.* at 8-9.

him to fulfill his responsibilities.<sup>10</sup> Since this subsequent affidavit represents a clarification of previous testimony, we will consider it even though it is untimely. However, we do not consider this deficiency sufficiently serious for us to retain jurisdiction in this license amendment case. Now that there is a plan calling for training and for other local action, officials are aware of what would be required to meet the needs identified in the plans. A substantial portion of those needs have already been met. Although it is hard for local governments to find the money to meet the additional needs, it may well be that this shortage of funds will prove to be temporary. If not, it is FEMA's continuing responsibility to see that the emergency planning responsibilities are adequately implemented.

Admittedly, FEMA's conduct in this case has not inspired complete public confidence. Previous to the Board's findings that there were several offsite emergency planning deficiencies, FEMA had not identified any serious deficiencies. Then, in analyzing applicant's response to our Order, in which we found several serious deficiencies, FEMA completed a reasoned analysis. However, FEMA did not address intervenors' filings until it was requested to do so. Even after FEMA was requested to review the comments of intervenors, whose knowledge of local circumstances might have assisted FEMA, its written explanation of its review was conclusory, not bothering to provide reasons for summarily rejecting each of the comments of the intervenors.<sup>11</sup>

We are hopeful that FEMA will fulfill its responsibilities for assuring the adequacy of offsite emergency planning after we have renounced jurisdiction. In particular, we trust that FEMA will realize the importance of providing reasoned responses to the concerns of informed people. The process of providing reasons often proves useful in clarifying the mind and improving decisions. It also helps to fulfill people's expectation that their government hears their problems and responds to them in a reasoned fashion.

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<sup>10</sup> Muma Affidavit, attached to Christa-Maria letter of July 3, 1983, at 1-2.

<sup>11</sup> Mr. Dan Bement's letter of May 19, 1983, for FEMA, does not appear to address any of the intervenor's comments directly, merely stating the conclusion that "the intervenors [sic] reply . . . [has] been reviewed" and that FEMA reaffirms its earlier conclusions, favorable to the emergency plan. Mr. Bement does not address or provide reasons for disregarding such specific comments as "numerous licensed day care facilities have not been included in the plans and have evacuation needs," that the plan for loading school buses to 120% of capacity leaves too little flexibility, that drivers from surrounding school districts are not trained and that no money is available to train them, that Charlevoix County has run out of money for training, that plans for evacuation of hospital patients are inadequate, that transients are inadequately provided for, that the Charlevoix County Hospital cannot be used because it is within the emergency planning zone, and that certain evacuation routes are improper.

## II. ASSISTING PERSONS WITHOUT VEHICLES

We found that applicant failed to determine the extent of the need for transportation of persons who lack personal vehicles or to demonstrate that the need is being met in a satisfactory fashion by the combined efforts of applicant and state and local governments.

Applicant has persuaded us that it is now doing an excellent job on this aspect of its emergency planning responsibilities. There has been substantial advertising to obtain names of invalids,<sup>12</sup> an appeal for names of invalids was made in the emergency planning booklet,<sup>13</sup> and knowledgeable citizens have cooperated in compiling these lists.<sup>14</sup> Local institutions that care for those unable to provide their own transportation have been consulted.<sup>15</sup> Plans have been made to evacuate Charlevoix Hospital.<sup>16</sup> The Director of Personal Health Services for District Health Department No. 3, which runs a Home Health Program that includes hospital post-care, has developed a reasonable procedure for identifying people who are temporarily incapacitated.<sup>17</sup> The Charlevoix Ministerial Association has been requested to help in identifying people in need of transportation, and its cooperation is expected to be obtained.<sup>18</sup>

We also are convinced that the rather unusual, jitney-type transportation system provided by the Charlevoix County Public Transportation System places that system in an excellent position to transport invalids, who are already an important part of their constituency.<sup>19</sup> This system is equipped to handle wheelchairs and regularly provides on-demand service to people who call to request transportation.<sup>20</sup>

Although plans for the evacuation of schoolchildren require intensive use of all available transportation, we consider the provisions to be adequate. It makes sense to us that school buses be utilized at 120% or more of rated capacity during an emergency;<sup>21</sup> otherwise, the public

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<sup>12</sup> Affidavit of George Thomas Lasater (attached to applicant's December 3, 1982 filing) at 3, 5.

<sup>13</sup> *Id.* at 4.

<sup>14</sup> *Id.* at 3. District Health Department No. 3 and Art Saworski, who is Director of the Charlevoix County Commission on Aging, have been consulted. Further Affidavit of George Thomas Lasater (attached to applicant's filing of December 17, 1982) at 7-8.

<sup>15</sup> Further Affidavit of George Thomas Lasater (attached to applicant's filing of December 17, 1982) at 2-7. County jail inmates can be moved in an emergency. Stone & Webster Engineering Corp.'s report, *Identification and Analysis of the Transportation-Dependent Population Within the Five-Mile Plume Exposure Pathway Emergency Planning Zone of the Big Rock Point Nuclear Plant* (January 7, 1983 submission).

<sup>16</sup> Affidavit of Roger W. Sinderman (attached to applicant's January 21, 1983 filing) at 3.

<sup>17</sup> Affidavit of Frances Hooper (attached to applicant's December 17, 1982 filing) at 2-5.

<sup>18</sup> Further Affidavit of George Thomas Lasater at 8-9.

<sup>19</sup> Affidavit of Art Saworski (attached to applicant's December 3, 1982 filing) *passim*.

<sup>20</sup> *Id.*

<sup>21</sup> Affidavit of Vincent R. Olach (attached to applicant's December 18, 1982 filing) at 2-8.

school system would need to divert precious school funds to purchase 20% more bus capacity in order to prepare for an event that is highly unlikely ever to occur. Even if the school absenteeism rate were 3% (a conservative assumption used in applicant's estimate) the students would be accommodated with less overcrowding than adults generally experience when commuting on metropolitan-area bus systems throughout the nation.

We are impressed by the quality of the Stone & Webster Engineering Corp.'s report, *Identification and Analysis of the Transportation-Dependent Population Within the Five-Mile Plume Exposure Pathway Emergency Planning Zone of the Big Rock Point Nuclear Plant* (January 7, 1983 submission). That report helped to identify some emergency planning deficiencies and to suggest ways of remedying those deficiencies. Applicant has demonstrated that these deficiencies are being addressed reasonably and efficiently, by joint efforts of the applicant and responsible local agencies.<sup>22</sup>

Although we agree with Christa-Maria and John O'Neill about the inadequacy of a newsletter notification to parents about plans to evacuate their children in an emergency, we do not consider this to be a serious deficiency. Given the remoteness of the need for an evacuation, any *current* notice to parents is likely to be overlooked or forgotten. The time to inform parents is during the emergency itself, should one occur. We are confident that appropriate messages will be broadcast at the time of the event so that parents will know where to meet their children.<sup>23</sup>

Applicant has demonstrated its compliance with regulatory provisions concerning transportation of persons who lack personal vehicles.

### III. AVAILABILITY OF SCHOOL BUS DRIVERS

We held that applicant had failed to show that there is a satisfactory method for alerting school bus drivers who are not on duty or that such bus drivers have agreed to perform emergency transportation duties when they are not on duty.

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<sup>22</sup> Affidavit of Roger W. Sinderman (attached to applicant's January 21, 1983 filing) *passim*. We do not agree with John O'Neill's characterization of applicant's program, that "to depend upon poor people to identify themselves is not enough . . ." (Replacement filing for telefax, March 14, 1983.) Local governments are using many means to find people that do not rely on their identifying themselves. We consider these means to be reasonable.

<sup>23</sup> The record does not appear to show that such a message is planned, but we are confident that if plans have not already been made that the need for such a message is so obvious and that appropriate plans will be made.

It is FEMA's conclusion that the fan-out system of notification of off-duty bus drivers is not wholly satisfactory because it does not make provision for an alternate call if a person in the network does not answer.<sup>24</sup> However, we expect that the responsible officials will remedy this problem now that it has been pointed out; therefore, we do not consider this to be a serious deficiency.

We also have some concern about the plans to notify bus drivers who are en route during the declaration of an emergency. We agree with FEMA that merely telling the drivers to report to the bus garage with a partial load is not adequate. During the morning rush hour, this could leave some school age children at home without their parents. Consequently, more complete directions should be given to the drivers. We suggest that, unless time is extremely short (as is unlikely), they should complete their routes, picking up children who do not have other means of transportation. In the afternoon, consideration should also be given to having them complete their routes, dropping off those children for whom adults with transportation are available. We are confident that the governments, with aid from FEMA, will find a satisfactory resolution of these questions, which we therefore do not consider serious.

We also are satisfied that bus drivers generally will be available, for reasons given to us by Mr. Olach, who affirmed that he knows each of the bus drivers personally and has confidence that they place a very high value on seeing to the safety of the children.<sup>25</sup> Because we can imagine an accident so severe that it would tax the mettle of our most courageous citizens, we understand intervenors' concerns that these bus drivers could not be counted on in an emergency. However, the rapidly unfolding worst-case scenario feared by intervenors is a kind of emergency that is highly unlikely to occur and is not the kind of event in which an emergency plan could ever be expected to work well. Emergency planning is a last-resort measure, prepared for the purpose of protecting people if all the other safety precautions have failed.

We think the plan for busing children is well conceived. It is likely to perform its function best in the kind of slowly unfolding scenario that is most likely to occur; but it is also reasonably well suited to a worst-case scenario, where it would help the surrounding communities to do their best in a time of adversity. The plans for assuring the availability of school bus drivers are adequate.

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<sup>24</sup> Olach Affidavit at 8-9; FEMA Memorandum of March 3, 1983 (attached to staff filing of July 15, 1983) at Deficiency "C." (We would appreciate having all pages numbered in filings with this Board.)

<sup>25</sup> Olach Affidavit at 11-12.

#### **IV. TRANSPORTATION FOR SCHOOLCHILDREN**

Our order questioned the adequacy of transportation for schoolchildren. Since people are particularly concerned about schoolchildren, we thought it appropriate to single out this deficiency. However, transportation for schoolchildren is only one aspect of transportation for people who lack their own vehicles; consequently, we have already discussed this subject under the portion of our decision dealing with the more encompassing deficiency. Applicants have satisfied us about provisions made to transport schoolchildren.

#### **V. ADEQUATE LIST OF INVALIDS**

This subject has been discussed in the portion of our decision dealing with transportation for people who lack their own vehicles. Applicants have satisfied us that measures being taken to compile this list are adequate.

#### **VI. USE OF EMERGENCY BUS ROUTES**

We found that there was insufficient evidence for us to be satisfied by the method by which emergency bus routes would be established or about how bus drivers would be able to drive routes they never have seen before. However, applicant has demonstrated that the jitney-type public transportation is used to providing on-demand service, so its drivers have demonstrated that they do not need pre-established routes.<sup>26</sup>

The Boyne Falls school system has offered back-up support in the case of an emergency. Although plans have been made to train these drivers, including orientation in emergency routes, the apparent shortage of local funds makes the availability of this training uncertain.<sup>27</sup> Although we do not consider this a serious safety issue, we are hopeful that ways will be found to train these reserve bus drivers properly.

#### **VII. HEARING RIGHTS**

In a letter of May 4, 1983, Christa-Maria maintained that it was entitled to a hearing on the adequacy of applicant's response to the Board's

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<sup>26</sup> Affidavit of Art Saworski (attached to applicant's December 3, 1982 filing) *passim*.

<sup>27</sup> Christa-Maria filing of March 14, 1983 at 3.

September 14, 1982 Order. After considering the record before us, we conclude that there are no genuine issues for hearing, that no constructive purpose would be served by having a hearing, and that no hearing should be convened. Consequently, we grant applicant's May 3, 1983 motion to resolve the matters pending based on the pleadings.

Paragraph (3) of our September 14 Order<sup>28</sup> established the procedure for resolving matters raised by that Order. It gave the intervenors an opportunity to come forward with reasons why a hearing is needed.

We find that intervenors have come forward with some substantial criticisms of applicant's response. However, we also have concluded that none of those criticisms amounts to a serious deficiency that would require further correction under the jurisdiction of this Board. We note that the issues are rather straightforward. Intervenors are not contending that applicant's expert witnesses could be shown to lack credibility under the pressure of cross-examination; the matters they have testified to are largely matters of fact that can be addressed without the need for cross-examination. Nor do intervenors seek to call witnesses of their own.

## ORDER

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

### ORDERED

1. Christa-Maria, *et al.*'s Contentions 9(2) (insofar as it concerns training), 9(4) and 9(5) are dismissed.

2. Consumers Power Company is found to have complied with this Board's Order of September 14, 1982.

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<sup>28</sup> 16 NRC at 1105.

3. This decision is an initial decision that shall not be appealable until we declare that we are issuing our final initial decision in this case.

**THE ATOMIC SAFETY AND  
LICENSING BOARD**

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

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

**Mr. Frederick J. Shon  
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland**



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Peter B. Bloch, Chairman  
Dr. Oscar H. Paris  
Mr. Frederick J. Shon**

**In the Matter of**

**Docket No. 50-155  
(Spent Fuel Pool Amendment)**

**CONSUMERS POWER COMPANY  
(Big Rock Point Plant)**

**August 15, 1983**

**MEMORANDUM  
(Addendum to Supplementary Initial Decision)**

On August 9, 1983 Consumers Power Company (applicant) filed a motion stating that our Supplementary Initial Decision of August 1, 1983 (LBP-83-44, 18 NRC 201), apparently had not considered facts supplied by applicant in its filing of April 19, 1983.

Applicant's inference is correct. Applicant also is correct that the effect of our oversight is that we did not consider additional material which buttresses our decision that a hearing is not required for Contentions 9(2) (insofar as it concerns training), 9(4) and 9(5). In particular, we did not consider affidavits showing that applicant's compliance with our previous decision on emergency planning was more complete than we believed. The additional material related primarily to

applicant's follow-up activities with respect to its Stone & Webster Report, which we discussed in our August 1 decision.<sup>1</sup>

There is no need for us to change the Order we issued at the end of our Supplemental Initial Decision of August 1, 1983.

FOR THE ATOMIC SAFETY AND  
LICENSING BOARD

Peter B. Bloch, Chairman  
ADMINISTRATIVE JUDGE

Bethesda, Maryland

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<sup>1</sup> This new material does not affect our comment with respect to the need to inform parents, during an emergency, of where they may meet their children. By citing this new material with general approval we do not necessarily agree with each of its conclusions.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Morton B. Margulies, Chairman  
Ernest E. Hill  
Dr. Paul W. Purdom**

**In the Matter of**

**Docket No. 50-410-OL  
(ASLBP No. 83-484-03-OL)**

**NIAGARA MOHAWK POWER  
CORPORATION, *et al.*  
(Nine Mile Point Nuclear  
Station, Unit 2)**

**August 4, 1983**

The Licensing Board rules that no hearing is required in this operating license proceeding.

**RULES OF PRACTICE: INTERESTED STATES**

The mere filing by a state of a petition to participate in an operating license application pursuant to 10 C.F.R. § 2.715(c) as an interested state is not cause for ordering a hearing. The application can receive a thorough agency review, outside of the hearing process, absent indications of significant controverted matters or serious safety or environmental issues.

**RULES OF PRACTICE: DISMISSAL OF PROCEEDINGS**

No hearing is required on an operating license application without a request for a hearing made in accordance with section 189a of the Atomic Energy Act of 1954, as amended, and 10 C.F.R. § 2.714.

# MEMORANDUM AND ORDER

## (Ruling on Need for a Hearing)

### PROCEEDING DEVELOPMENTS

The Nuclear Regulatory Commission had published in the *Federal Register* of May 13, 1983, a notice that it received an application from the Niagara Power Corporation (Niagara) to operate a boiling water nuclear reactor, located on the southeast shore of Lake Ontario, in the town of Scriba, Oswego County, New York. It directed that requests for a hearing and petitions for leave to intervene in the proceeding be filed by June 13, 1983.

By order of the Atomic Safety and Licensing Board Panel, this Licensing Board was established to rule on petitions for leave to intervene and requests for hearing in the captioned matter and to conduct the proceeding in the event a hearing is ordered.

On June 7, 1983, the New York State Energy Office filed, pursuant to 10 C.F.R. § 2.715(c), a petition on behalf of the State of New York and its interested agencies to participate in the proceeding as an interested State. Niagara and Nuclear Regulatory Commission Staff (Staff) responded on June 22 and June 23, 1983, respectively, and offered no objection to the request.

On June 10, 1983, Multiple Intervenors, an unincorporated association of industrial consumers of electrical energy submitted a petition for leave to intervene indicating support of the project. By response of June 23, 1983, Staff contended Multiple Intervenors had not made the requisite showing of interest and standing nor had it identified specific aspects of the subject proceeding as to which it seeks intervention. Staff recommended that the petition to intervene be denied unless Petitioner filed an amended petition to cure the alleged defects.

In a response of June 23, 1983, Applicant advised it was of the belief Multiple Intervenors would withdraw its petition to eliminate a hearing inasmuch as it favors prompt issuance of the operating license.

On August 1, 1983, Multiple Intervenors applied "for permission to withdraw its petition for leave to intervene subject to the condition that it be allowed to apply for late intervention if late intervention is granted to any other intervenors which properly make application for intervenor status." No further elaboration of the request was provided.

What Petitioner in effect wants is that the granting of the petition to withdraw not be with prejudice. It recognizes that any refiled petition must meet the stringent requirements for acceptance of a late-filed petition, as provided for in 10 C.F.R. § 2.714(a)(1).

Petitioner does not seek anything it is not entitled to under the Commission's Rules of Practice. The changed conditions it contemplates would permit it to again file a petition for leave to intervene. Whether the petition will be accepted would depend upon the ability of Multiple Intervenors to meet the requirements of the regulation. We grant Petitioner's request for permission to withdraw, without prejudice.

This action will in no way prejudice the interests of Applicant or Staff. It will permit the disposing of the application without a hearing which benefits Applicant. Staff already has opposed Multiple Intervenors' participation. Its withdrawal will not be inconsistent with Staff's position.

### THE NEED FOR A HEARING

The Atomic Energy Act of 1954, as amended, does not prescribe a mandatory hearing for obtaining the operating license which Applicant seeks. Section 189a of the Act provides, "the Commission shall grant a hearing upon the request of any person whose interest may be affected by the proceeding, and shall admit any such person or a party to the proceeding." Section 2.714 of the Code of Federal Regulations sets forth the manner in which a petitioner is to establish before the agency the interest that may be affected. The Commission has held that contemporaneous judicial concepts should be used to determine whether a petitioner has standing to intervene. *Portland General Electric Co.* (Pebble Springs Nuclear Plant, Units 1 and 2), CLI-76-27, 4 NRC 610 (1976). A petitioner must allege an "injury in fact" which must be within the "zone of interests" protected by the Atomic Energy Act or the National Environmental Policy Act of 1969.

With the withdrawal of the Multiple Intervenors' petition, there is but a single pending petition in the proceeding, that of the New York State Energy Office. It was filed pursuant to 10 C.F.R. § 2.715(c) which provides, *inter alia*, that a presiding officer will afford representatives of an interested State, county, municipality, and/or agencies thereof, a reasonable opportunity to participate and to introduce evidence, interrogate witnesses, and advise the Commission without requiring the representative to take a position with respect to the issue.

The reason given for the filing of the petition was, "The State of New York has an interest in assuring that all matters pertaining to the safety of this plant and to the energy, environmental and economic impacts of the issuance of an operating license for this plant are thoroughly considered."

The New York State Energy Office did not request a hearing in its petition. In the Staff response of June 23, 1983 to the petition, it was

stated Staff counsel was authorized to report "New York State is not seeking a hearing but seeks to participate in this proceeding only in the event a hearing will be held."

No basis in fact or law has been provided for holding a hearing in the captioned matter. Nobody has requested a hearing, which is a requisite under section 189a of the Act, for one to be held. The filing of the New York State petition under 10 C.F.R. § 2.715(c) does not *ipso facto* trigger the holding of a hearing. See *Northern States Power Co.* (Tyrone Energy Park, Unit 1), CLI-80-36, 12 NRC 523, 527 (1980). Furthermore, the state expressly does not seek a hearing. Its interest, that the application will be thoroughly considered, is a standard procedure of the agency. There is no requirement that it be accomplished through the hearing process, absent as here, significant controverted matters. Nothing was presented indicating that serious safety or environmental matters are present.

In view of the fact that no request or need has been established for a hearing, it would not be in the public interest to hold one in this uncontested proceeding. To do otherwise would work to defeat the regulatory process.

## ORDER

Upon consideration of all of the foregoing, with all judges concurring:  
It is hereby *ORDERED*:

1. Multiple Intervenors' petition to intervene is withdrawn, without prejudice.
2. That no hearing be held in this operating license application proceeding; and

3. That necessary findings under applicable statutes and regulations be made by the Staff.

FOR THE ATOMIC SAFETY AND  
LICENSING BOARD

Morton B. Margulies, Chairman  
ADMINISTRATIVE LAW JUDGE

Dated at Bethesda, Maryland,  
this 4th day of August 1983.

This order is appealable under the provisions of 10 C.F.R. § 2.714a to the Atomic Safety and Licensing Appeal Board within ten (10) days after service of the Order. *See* 10 C.F.R. § 2.710.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

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

**In the Matter of**

**Docket Nos. 50-440-OL  
50-441-OL**

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

**August 9, 1983**

The Licensing Board holds that intervenors did not raise any genuine issue of fact concerning the adequacy of the interim program, adopted by the applicant and required by the staff, for inspecting and maintaining turbines to prevent the generation of missiles. Consequently, summary disposition of the turbine missile issue is granted. The fact that General Electric Company is conducting a study that could alter this conclusion is not grounds for granting a continuance.

**RULES OF PRACTICE: SUMMARY DISPOSITION**

Summary disposition must be granted unless a party demonstrates the existence of a genuine issue of fact by setting forth "specific facts such as would be admissible in evidence." Since an article, not accompanied by a supporting affidavit, would not be admissible in evidence, the article cannot be the ground for establishing the existence of a genuine issue of fact.



## **RULES OF PRACTICE: SUMMARY DISPOSITION**

Summary disposition may not be denied on speculation that an ongoing study might produce results helpful to the party opposing summary disposition. Nor can a continuance be granted when, after a sufficient period of discovery, a party seeks additional time to obtain an expert witness.

## **TECHNICAL ISSUES DISCUSSED**

Turbine missiles (inspection and maintenance)

Ultrasonic tests, turbines

Turbine missiles, risks

Overspeed protection system, turbines

General Electric nuclear turbines.

## **MEMORANDUM AND ORDER**

### **(Summary Disposition of Turbine Missile Issue)**

The Staff of the Nuclear Regulatory Commission (staff) has requested summary disposition of Issue #13, concerning the risk to safe plant operation from the generation of low trajectory turbine missiles, which could strike safety-related targets at Perry Nuclear Power Plant (Perry) because of the unfavorable orientation of the turbines.

It is the staff's view that the probability of generation of turbine missiles<sup>1</sup> at Perry may be reduced sufficiently by adequate maintenance and inspection of the turbine. The program approved by the staff includes separate provisions for maintaining and inspecting the turbine overspeed protection systems and for detecting stress corrosion cracks.<sup>2</sup> Neither of the intervenors, Ohio Citizens for Responsible Energy (OCRE) nor Sunflower Alliance, Inc. (Sunflower), challenge the overspeed protection

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<sup>1</sup> Previous litigation has defined a missile as "a high-velocity fragment produced by the breakup of an object..." *Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-676, 15 NRC 1117, 1118 n.2 (1982) (hereinafter "North Anna"). A turbine missile was found in that case generally to be caused either by (1) a fracture associated with stress caused by an overspeeding of the turbine due to loss of electric load or by (2) intergranular stress corrosion, which can cause a disc failure at normal turbine operating speeds, as well as under startup stress. *Id.* at 1119-20, 1130.

<sup>2</sup> NRC Staff's Motion for Summary Disposition of Issue No. 13, May 31, 1983 (Motion) at Statement of Material Facts (Facts), 2 (¶ 6), 3 (¶¶ 8-9, 12); SSER 3 at 3-5 to 3-9 (April 1983); Applicant's Answer in Support of NRC Staff Motion for Summary Disposition of Issue No. 13, June 24, 1983 (Applicant's Answer) at Affidavit of D.P. Timo and L.H. Johnson (Applicant's Affidavit), 8-10, 11-18.

program, which consequently is not at issue. Their challenge is limited to the program for detecting cracks.

We find that the motion for summary disposition should be granted. Staff's program for inspection and maintenance consists of two parts. The first, an interim program, contains detailed requirements for periodic visual, surface and volumetric (ultrasonic) examinations of the turbine disks.<sup>3</sup> The staff requires that "Shafts and disks with crack depths near or greater than one-half the critical crack depth are to be repaired or replaced."<sup>4</sup>

The second part of the program, which is longer term, anticipates possible revision of the interim program in light of studies that the manufacturer (General Electric) is expected to perform concerning missile generation probabilities.

It is our conclusion that neither of the intervenors has given us any reason to question the adequacy of the interim maintenance and examination program required by the staff. Since that program will be in effect until applicant demonstrates to the staff that its studies permit it to adopt its own program, there is no genuine issue of fact concerning the safety of Perry during the time that further analysis is being performed by General Electric. There is no genuine issue of material fact for us to set for hearing.

Although intervenors' filings have not demonstrated the existence of a genuine issue of material fact, we also have inquired in somewhat greater depth in order to fulfill our obligation concerning whether or not to declare a *sua sponte* issue based on the materials filed before us. Our conclusion is that we are satisfied that the risk of a turbine missile is sufficiently small for us not to consider this to be a serious safety issue, as defined in the *sua sponte* section of the procedural rules.

## I. SAFETY CONSIDERATIONS AND SUMMARY DISPOSITION

Some limited assurance of safety is available because there has never been a turbine failure in a General Electric nuclear turbine from stress corrosion cracking.<sup>5</sup> Given the rigorous risk standard that has been applied by the staff — a probability of a turbine missile of less than  $1 \times 10^{-7}$  — this limited operating experience is of only minimal value in

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<sup>3</sup> SSER § 3.5.1.3.1.5, "Alternative Procedure for Demonstrating Compliance With Regulations" at 3-5 to 3-6.

<sup>4</sup> *Id.* at 3-6.

<sup>5</sup> Applicant's answer at applicant's affidavit, 2.

demonstrating the safety of the turbine. However, additional assurance is derived from General Electric's inspections of 1300 turbine wheels at 36 operating units. Although 12.5% of these inspections produced indications of stress corrosion cracking, almost all were shallow indications.<sup>6</sup> The largest had a radial depth of only 1.75 inches.<sup>7</sup> All of the flaws are less than one-half the critical crack length<sup>8</sup> — the length of flaw determined through a fracture-mechanics analysis, using conservative assumptions, to be great enough to be of safety concern.<sup>9</sup> Furthermore, all of the indications deeper than ½ inch have been found in BWRs that are different from Perry because they lack the reheat system found at Perry.<sup>10</sup>

We attach considerable significance to these results. The accuracy of the ultrasonic tests has been validated through laboratory tests on samples containing stress corrosion cracks, produced by placing the samples in a caustic environment and experimentally inducing stress.<sup>11</sup> Consequently, we are not as concerned about the comparatively high rate of flaws detected by the testing as is Ohio Citizens for Responsible Energy. Under the circumstances, we consider the three year inspection interval set by staff to be conservative and appropriate.<sup>12</sup>

Only one aspect of the record gives us pause. This aspect is OCRE's citation of Patrick G. Heasler, "Missile Generation Rates from Historical Data," Pacific Northwest Laboratories, for the proposition that:

[T]here is approximately one in a thousand chance of a new turbine in a plant failing soon after it goes into operation.<sup>13</sup>

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<sup>6</sup> *Id.* at 11.

<sup>7</sup> *Id.*

<sup>8</sup> SSER 3 at 3-10.

<sup>9</sup> General Electric Seminar at 4-1.

<sup>10</sup> *Id.*

<sup>11</sup> Large Steam Turbine-Generator Division, *Nuclear Wheel Seminar*, May 5-6, 1982 (GE Seminar) at 2-1. Of course, the validity of the testing depends on the conclusion that "these cracks were successfully detected by the ultrasonic test." We trust that the staff either has examined the data, or will shortly examine the data, in order to assure itself that General Electric's conclusion about the accuracy of the testing is corroborated by the empirical evidence. This corroboration appears to be necessary because of recent experience with the accuracy of ultrasonic testing in detecting stress corrosion cracking in piping.

<sup>12</sup> SSER 3 at 3-10.

<sup>13</sup> OCRE Response to NRC Staff's Motion for Summary Disposition of Issue #13 at 3. OCRE attributes this article to an October 1982 EPRI Seminar on Turbine Missile Effects in Nuclear Power Plants. (Having failed to obtain a copy of the article from our library and having had difficulty contacting OCRE's representative by telephone, the Board obtained a copy of this article from applicant on August 4, 1982. At the same time, at the request of the Board, applicant supplied a copy of S.H. Bush, "A Reassessment of Turbine-Generator Failure Probability," 19 Nuclear Safety 681 (1978).)

Mr. Heasler's article is based on empirical evidence. It differs by an order of magnitude<sup>14</sup> in its conclusions from a staff estimate based on an article by S.H. Bush.<sup>15</sup> It is not clear whether the staff's reliance on an inspection and maintenance program is dependent on its acceptance of the Bush estimate; however, we conclude that the staff cited Bush in the SSER 3 because it does rely on him.<sup>16</sup> Furthermore, it would appear more appropriate for the staff to count on an inspection and maintenance program to reduce the risk of a turbine missile by one order of magnitude, to the level of risk previously accepted by the staff ( $1 \times 10^{-7}$ ), than by two orders of magnitude.

Accordingly, we must decide whether citation of the Heasler article produced a "genuine issue of material fact," the standard defined in 10 C.F.R. § 2.749(b). We conclude that it has not.

We note that this issue of legal interpretation is subtle. It depends to some extent on attaching a precise meaning to "genuine issue," in light of the procedural regulation and the cases (and policy statement) that have interpreted it. At the outset, OCRE faces a serious barrier because the regulations require it to "set forth specific facts such as would be admissible in evidence,"<sup>17</sup> and its citation to Heasler is not supported by an affidavit that would establish its admissibility. In this instance, the requirement of an affidavit has especially important justification: the Heasler article appears to have been succeeded by subsequent field research, using ultrasonic testing, that may have changed Mr. Heasler's views. Consequently, an affidavit by Heasler would have established that he currently believes the facts and opinions stated in his article to be true. Furthermore, submission of an affidavit would have permitted Mr. Heasler to provide further support for his arguments, if he still believes them to be correct, in light of the subsequent research.

Nevertheless, because of the significance of granting a motion for summary disposition<sup>18</sup> and our responsibility to consider whether or not to declare a *sua sponte* issue, we will consider whether an affidavit from Heasler stating that his article and opinions are correct, would be sufficient to result in a denial of summary disposition. We conclude that it would not.

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<sup>14</sup> Heasler's estimate is a risk of one turbine missile per  $10^3$  reactor years during the initial or "burn-in" period; while staff estimates one incident in  $10^4$  years.

<sup>15</sup> See note 13, *supra*.

<sup>16</sup> SSER 3 at 3-3 (§ 3.5.1.3.1.3).

<sup>17</sup> 10 C.F.R. § 2.749(b).

<sup>18</sup> We are also influenced by the fact that OCRE is not represented by an attorney. However, OCRE will be required to conform to the standards for filings on summary disposition in the future.

In *Pennsylvania Power and Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), LBP-81-8, 13 NRC 335 (1981), the Licensing Board stated:

When a response to a summary disposition motion has been provided, we must view the record and affidavits both supporting and opposing the motion in the light most favorable to the opposing party. See *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), LBP-74-36, 7 AEC 877, 879 (1974).

*Id.* at 337. If we interpreted this sentence from Susquehanna literally, viewing Mr. Heasler's article "in the light most favorable" to OCRE, we might deny summary disposition and hear the issue of risk during the burn-in period. However, we do not interpret this precedent to require us to do that. In the case that is most directly in point, *Houston Lighting & Power Co.* (Allens Creek Nuclear Generating Station, Unit No. 1), ALAB-629, 13 NRC 75 (1981) the Appeal Board was confronted with a similar problem. In that case, two expert witnesses testified that a 100 foot diameter test farm had produced evidence that it was feasible to operate a 306 square mile marine biomass farm. Nevertheless, the Appeal Board (and the Licensing Board in that case) examined the conflicting affidavits and found that there was no genuine issue of fact.

We accept the Appeal Board precedent on this issue as sound. The regulations do not require merely the showing of a "material issue of fact" or an "issue of fact." They require a *genuine* issue of material fact. To be genuine, we believe that the factual record, considered in its entirety, must be enough in doubt so that there is a reason to hold a hearing to resolve the issue.

This view is buttressed by the Commission's *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (1981). In section G. Summary Disposition, the Commission declared that:

In exercising its authority to regulate the course of a hearing, the boards should encourage the parties to invoke the summary disposition procedure on issues where there is no genuine issue of material fact so that evidentiary hearing time is not unnecessarily devoted to such issues.<sup>19</sup>

(Emphasis supplied.) In this statement, the Commission linked the phrase genuine issue of material fact to a statement of the purpose to be served by applying the standard: the purpose of avoiding spending unnecessary hearing time on an issue.

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<sup>19</sup> *Id.* at 457.

In this case, we conclude that we would spend unnecessary hearing time trying to resolve the colorable difference existing in our record. The Heasler article is a series of figures and interspersed paragraphs reflecting a presentation he made at a seminar. It is in the nature of a draft. It apparently was not published in a refereed journal, as was the S.H. Bush article that reaches a contrary conclusion.

That is not to say that Mr. Heasler's article, presented to a respected forum, is not credible. It develops an interesting thesis, based on empirical evidence — that the risk of a turbine missile failure is greater during an initial, burn-in period. It is presented in a straightforward, scientific manner and there is no reason to believe that the author suffered from any unfair bias about nuclear reactors.

However, we consider the refereed Bush article to be more credible. Mr. Bush and Mr. Heasler both worked for Battelle's Pacific Northwest Laboratories.<sup>20</sup> Bush was a member of the Advisory Committee on Reactor Safeguards from 1966 to 1977 and was its chair in 1971.<sup>21</sup> Bush presents a variety of assumptions in carefully presented statistical form. His article contains "comments" that in two instances indicate that at least two events could not properly be considered by Heasler as reflecting adversely on operating experience with turbines. These events occurred during a "factory test" or were "preoperational."<sup>22</sup> Heasler's article does not explain why it was appropriate to include these events in his analysis.

Bush's article also contains internal evidence that it may credibly be applied to a General Electric turbine. It derives this credibility because it presents General Electric's argument in favor of the company's modeling approach (which uses failure rates for components actually used in nuclear plants) and then rejects that model because

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<sup>20</sup> Bush at 681 n.1; *see also* the title page of the Heasler article.

<sup>21</sup> *Id.*

<sup>22</sup> In a table on p. 10 of his report, Heasler lists a 1951 brittle fracture at Siemens as a "burn-in" failure, and he also lists a 1972 failure at Kainan as a "burn-in" failure. Both of these incidents are listed in Table 6 of Bush, at 690, but they are described as "factory test" or "preoperational." We consider Bush's characterization to be more credible since it presents a specific fact that was not commented on at all by Heasler.

This inconsistency came to our attention through Applicant's Answer in Support of Summary Disposition at 7 n.2. There, applicant argued that *all* the Heasler incidents occurred during factory or preoperational tests. Although we could not verify that, we did compare the articles and confirmed that the statement was true for two instances. We lack enough knowledge to know whether it is true for the other Heasler incidents as well.

We reject OCRE's argument that it was improper for applicant to respond to intervenor's prior filing. Applicant's filing was proper and timely and we must consider it. Admittedly, this creates an incentive for parties always to file at the last moment so their adversaries will not gain an advantage, but the Board sees no effective way around that particular incentive structure.

factors not yet revealed during the limited experience with nuclear turbines to date may not be properly accounted for in the General Electric and Westinghouse models and therefore will cause their projections to be overly optimistic.<sup>23</sup>

In accepting the Bush conclusions, we also are influenced by the affidavits filed by applicant. In those affidavits, D.P. Timo and L.H. Johnson present the detailed, empirically based analysis of turbine missile failures that this Board relied on at the outset of this opinion. We note that this affidavit, which has not been controverted, postdates Bush and Heasler and derives support from research results that were not available to them. Given its later date, there may well be other data available to its authors that were not previously available. In this instance, we need not prefer the Timo-Johnson analysis to Bush's. We merely accept their analysis as additional corroboration for Bush.

On balance, and after consideration of the entire record, we therefore conclude that neither OCRE nor Sunflower has indicated that it has a genuine issue of material fact to litigate. The motion for summary disposition should be granted.

## II. POSSIBLE *SUA SPONTE* ISSUE

We have decided not to declare any *sua sponte* issue growing out of the challenged contention. The staff and applicant have persuaded us that the maintenance and inspection program to be applied at Perry is adequate with respect to missiles generated from stress corrosion cracks.

In addition, we are favorably impressed by applicant's presentation on overspeed protection. The GE nuclear steam turbines have two separate, automatic systems to protect from overspeed failures.<sup>24</sup> There are additional, manual systems available.<sup>25</sup> All components that could contribute to a turbine-missile failure are designed to be tested on-line.<sup>26</sup> The testing program to be implemented by applicant equals or exceeds what staff requires.<sup>27</sup>

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<sup>23</sup> Bush at 692-96.

<sup>24</sup> Affidavit of Timo and Johnson at 3-6. The hydraulic system is common to these two protection systems, but its failure causes rapid closure of valves that would abort an overspeed event. *Id.* at 6.

<sup>25</sup> *Id.* at 7-8.

<sup>26</sup> *Id.* at 8-10.

<sup>27</sup> Compare Affidavit of Edward J. Turk, Senior Engineer, Nuclear Design & Analysis Section of applicant at 2-3 to SSER 3 at 3-6 to 3-7.

### III. OCRE REQUEST FOR A CONTINUANCE

In its response to the Summary Disposition, OCRE argued that summary disposition was not appropriate because certain tests to be done by General Electric had not been completed. It also stated that it had not yet had time to analyze documents received from applicant in response to a recent Freedom of Information Act request.

We are convinced that the lack of availability of the General Electric study does not provide ground for a continuance. Whatever that study may say, applicant is bound to an inspection and maintenance program as to which there is no genuine issue of material fact. Although that study, or any study, could provide additional doubts about the generation of turbine missiles, it is sheer speculation for us to reach the conclusion in advance that this possibility is enough to delay consideration of the issue. No. It is salutary that research continues into nuclear safety issues even after safety of particular systems seems assured. It is appropriate that the NRC act on the best information available and that additional research also be conducted.

When we received OCRE's filing, however, we were concerned that the recently available Freedom of Information Act documents might provide important information to it. Hence, we asked OCRE to flesh-out its request for a postponement by estimating how long a postponement was required. The response: that a postponement of six months is needed.<sup>28</sup>

This was not the magnitude of request for an extension of time that we contemplated. We deny the request. Despite OCRE's protestations that the recent hearings informed it about what is needed to try a contention successfully, we have had several prior motions for summary disposition and OCRE should be well aware of the nature of the analysis that this Board applies to such motions. There has been adequate time for discovery, since October 1982.<sup>29</sup> OCRE's failure to conduct effective discovery during that time period may have resulted from failure to conduct its case diligently, but it is also possible that it has failed because there is no serious safety problem related to turbine missiles. There is no reason for us to speculate further, however; OCRE (and Sunflower) have had a fair opportunity to make their case and we do not believe that there is an important safety issue for us to pursue.

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<sup>28</sup> Affidavit of Susan L. Hiatt at 1 (filed June 29, 1983).

<sup>29</sup> LBP-82-98, 16 NRC 1459 (1982) (admitting turbine missile contention).



## **ORDER**

For all the foregoing reasons and based on consideration of the entire record in this matter, it is this 9th day of August 1983,

**ORDERED**

The Summary Disposition Motion filed by the Staff of the Nuclear Regulatory Commission on May 31, 1983, is *granted* and Issue #13 is dismissed from this case.

**THE ATOMIC SAFETY AND  
LICENSING BOARD**

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

**Jerry R. Kline  
ADMINISTRATIVE JUDGE**

**Glenn O. Bright  
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**James L. Kelley, Chairman  
Dr. Cadet H. Hand  
Mrs. Elizabeth B. Johnson**

**In the Matter of**

**Docket Nos. 50-361-OL  
50-362-OL  
(ASLBP No. 78-365-01-OL)**

**SOUTHERN CALIFORNIA EDISON  
COMPANY, et al.  
(San Onofre Nuclear Generating  
Station, Units 2 and 3)**

**August 12, 1983**

The Licensing Board grants the Applicants' motion to supplement the record, holding that they had met their burden of demonstrating a reasonable assurance that medical services arrangements had been made for the offsite public in the event of a serious accident.

**EMERGENCY PLANNING: MEDICAL SERVICES  
ARRANGEMENTS**

The Commission has interpreted 10 C.F.R. § 50.47(b)(12) on a generic basis to require only that existing medical facilities be identified with respect to risks of radiation injury to the offsite public. Boards are not to go beyond lists of existing facilities to determine whether those facilities are adequate to cope with various accidents in the site-specific setting.

## MEMORANDUM AND ORDER

### (Ruling on Offsite Medical Services Issue)

#### Background

In our Initial Decision of May 14, 1982 (LBP-82-39, 15 NRC 1163), and in accord with our interpretation of 10 C.F.R. § 50.47(b)(12), we held that the Applicants had not met their burden of proving that adequate medical services had been arranged for members of the public off site who might suffer radiation injuries in a serious accident. Concluding, however, that short-term operation while the Applicants addressed those deficiencies would not endanger the public, we authorized interim operation and retained jurisdiction over the offsite medical services question. 15 NRC at 1186-1200. Subsequently, in the course of ruling on a stay application, the Appeal Board expressed doubt whether we had correctly interpreted the medical services rule. ALAB-680, 16 NRC 127, 136-39. Thereafter, and viewing medical services arrangements as potentially significant generic issues, the Commission directed certification to it of two legal questions bearing upon their proper scope. CLI-82-27, 16 NRC 883. In response to a certified question from this Board, the Commission directed us not to proceed with a site-specific hearing on medical services arrangements, pending further Commission order. Memorandum and Order of November 19, 1982 (CLI-82-35, 16 NRC 1510). On April 5, 1983, the Commission decided the certified questions (CLI-83-10, 17 NRC 528). The Commission did not address the medical services arrangements reflected in the record in this case. Rather, it gave generic guidance and directed this Board to "take any further action it deems necessary to comply with this decision." *Id.* at 537. Pursuant to procedures agreed upon among the Board and parties, the Applicants first submitted their position on satisfaction of section 50.47(b)(12) requirements as they have now been interpreted by the Commission, supported by proposed findings of fact and conclusions of law and a motion to augment the record. The Intervenor and NRC Staff then responded to the Applicants' filings. Finally, the Applicants and Staff commented on the Intervenor's response.

In the succeeding paragraphs, we will summarize the Commission's decision and the Applicants' position (which the Staff supports), and we will discuss the Intervenor's objections. We conclude that the Applicants' position is correct, that they have now fully satisfied the requirements of 10 C.F.R. § 50.47(b)(12), and that no further proceedings or license conditions concerning medical services arrangements are necessary.

## **The Commission's Rulings**

The Commission's opinion provided separate guidance on required arrangements for two categories of members of the public who might be injured in a nuclear accident. The first category comprises persons who become traumatically injured and also contaminated — *e.g.*, a person with a broken limb who is also contaminated by accident debris. As to such persons, the Commission stated that —

[T]he arrangements that are currently required for onsite personnel and emergency workers provide emergency capabilities which should be adequate for treatment of members of the general public. Therefore, no additional medical facilities or capabilities are required for the general public. However, facilities with which prior arrangements are made and those local or regional facilities which have the capability to treat contaminated injured individuals should be identified. Additionally, emergency service organizations within the plume exposure pathway emergency planning zone (EPZ) should be provided with information concerning the capability of medical facilities to handle individuals who are contaminated and injured.

16 NRC at 530.

The second category comprises persons who may have been exposed to dangerous levels of radiation. As to such persons, the Commission stated that —

Treatment requires a lesser degree of advance planning and can be arranged for on an as-needed basis during an emergency. Emergency plans should, however, identify those local or regional medical facilities which have the capabilities to provide appropriate medical treatment for radiation exposure. No contractual agreements are necessary and no additional hospitals or other facilities need be constructed.

*Id.*

## **The Applicants' Position and Motion**

As the Applicants point out, this Board has already determined that the Applicants' medical services arrangements for onsite and emergency workers are in place and adequate. 15 NRC at 1244-45. Indeed, the findings on those arrangements were uncontested, although the Intervenor had cross-examined the Applicants' principal witness at some length. Tr. 7731-76, 10,834-41. Pursuant to the Commission's guidance, and as demonstrated in their motion to augment the record, the Applicants have informed the offsite emergency response agencies which hospitals can provide medical services to persons traumatically injured and contaminated by an accident at San Onofre.

With respect to members of the offsite public who may have been exposed to dangerous levels of radiation, the Commission has determined that provision of appropriate medical treatment does not require extensive advance planning. As that rule has now been interpreted, the only requirement is that the emergency plans "identify . . . medical facilities which have the capabilities to provide appropriate medical treatment for radiation exposure." 17 NRC 537. In response to this requirement, the Applicants have submitted updated portions of the plans for Orange and San Diego Counties listing the available facilities in each county. In addition, the Applicants have identified to the Orange County response agencies other hospital facilities that could provide necessary services in an emergency.

### **The NRC Staff and FEMA Positions**

The NRC Staff has reviewed the Applicants' submissions and has concluded that the Applicants have met the applicable medical services requirements, as interpreted by the Commission. They support the Applicants' motion to augment the record and proposed findings of fact, and propose an additional finding of fact for our consideration.

The Staff has also submitted a document bearing the letterhead of "Federal Emergency Management Agency, Region IX" entitled "Review of Offsite Medical Services." Like some other FEMA submissions in this case (*see, e.g.*, 15 NRC 1195 n.21, 1214 n.38; Commission Decision of April 4, 1983, 17 NRC 536 n.12a), this Delphic document raises as many questions as it answers. In the first place, its position in the FEMA hierarchy, and therefore the weight to which it would normally be entitled, is unclear. Is this a "national" view (as implied by the Staff's pleading), a "regional" view (as suggested by the letterhead and sender's title), or merely Mr. Nauman's view (as implied by the first paragraph of the text)? This Board has already learned the hard way that we cannot allow Mr. Nauman, a regional official, to present the national view. ALAB 717, 17 NRC 346, 381-82.

Putting that problem to one side, we find the second and only substantive paragraph of this document hopelessly ambiguous. It speaks first of a capability to handle "contaminated and injured personnel." We can speculate that this phrase refers to plans for workers injured on site, an area over which we no longer have jurisdiction. The last sentence refers in the most general way to the health and safety of the public. Nowhere in the document is there any explicit recognition of our primary concern — existing medical services for the offsite public, particularly persons exposed to dangerous levels of radiation.

That the FEMA officials may not have understood the narrow issue before this Board is also suggested by their apparent focus on the "adequacy" of offsite medical services. Thus FEMA now tells us (without any explanation) that present levels of planning and existing medical resources in the San Onofre area "reflect a capability to meet potential requirements." Prior to the Commission's ruling on the certified questions, this Board had held that arrangements for medical services for injured members of the offsite public were required and that this Board would have to make a site-specific determination on the adequacy of those arrangements. 15 NRC 1196 n.24. As shown by our Order of October 5, 1982 (LBP-83-8C, 17 NRC 297) setting adequacy of medical services issues for hearing, such issues can be rather complex. In response to our certified question, however, the Commission directed us not to conduct such a hearing. And the Commission's subsequent rulings specify only that lists of existing facilities are to be compiled. Thus we read the Commission's rulings on the certified questions, particularly in the context in which they arose, as generic determinations on the adequacy of medical services arrangements. In other words, as to members of the offsite public who may suffer radiation injuries, a licensing board's proper inquiry is quite narrow — whether existing medical facilities have been identified. That identification itself is to be deemed adequate to satisfy the rule as a matter of law, whether the existing facilities are many or few, subject only to the possibility of an exception under 10 C.F.R. § 2.758. Boards are not to go behind the list of existing facilities to determine whether those facilities are adequate (or inadequate) to cope with various accident scenarios in the site-specific setting. Thus FEMA's views on the adequacy of facilities around San Onofre are irrelevant.

In light of these considerations, FEMA's most recent submission has not been helpful. It can remain in the record to evidence the fact that FEMA was duly consulted. We close on this point with two observations. First, while there are technical emergency planning issues on which FEMA's participation may be helpful or even essential, this is not one of them. The Board and parties in this case are perfectly capable of compiling a list of existing medical facilities. Second, although it adds nothing, neither is there anything in the FEMA submission that detracts from our conclusions.

### **The Intervenors' Comments and Objections**

The Intervenors argue, first, that this Board must go behind the listings of existing medical facilities "to determine whether in any specific

case there is a reasonable assurance that [arrangements for adequate treatment] can and will happen.” Comments at 3. As we have already explained, our reading of the Commission’s opinion precludes the kind of site-specific analysis the Intervenor urge. Again, as we understand the Commission, the listing of existing facilities — whatever they may be — is to be deemed adequate. The Intervenor do not point to any specific defects in the proffered listings of the kind we might consider — *e.g.*, that hospital *X* was omitted or that hospital *Y* has no nuclear medicine department.

Among other matters, the Intervenor argue for a requirement that “implementing procedures and SOP’s” for sending people to different hospitals should be developed. Comments at 4. Although this may be a useful suggestion, we read the Commission’s opinion as an exclusive listing of what is required under the rule. We have no power to add this suggestion as another requirement.

The Intervenor ask for further hearings on the adequacy of medical arrangements for onsite workers in light of the Commission’s ruling that such arrangements are also to serve for members of the public who are traumatically injured and contaminated. It is true that the Intervenor’s contention as drafted focused on the offsite public, not onsite workers, and that may explain why they did not present a direct case or proposed findings on the Applicants’ plan for onsite workers. But the Intervenor’s statements that they “were not litigating” the onsite arrangements and that “no cross-examination was tendered thereon” are not accurate. As we noted earlier, the Intervenor cross-examined the Applicants’ principal witness on this subject at some length. Thus they have already had and have taken advantage of one opportunity to probe the Applicants’ onsite plans. *See* 15 NRC at 1175-76, 1186. It may be true as an abstract proposition that the Intervenor might have done more (or something different) with this issue if they had had the benefit of the Commission’s guidance at the time. But that theoretical possibility is not a sufficient basis for a further hearing. First, it is significant that the Applicants’ plans for onsite workers were quite extensive; we found them to be “fully adequate for that purpose.” 15 NRC at 1186. Beyond that, the Commission’s extension of the onsite arrangements to protect persons who may be traumatically injured and seriously contaminated off site involves only a very modest potential extension of those plans. It is unrealistic to expect that large numbers of people off site will, simultaneously, become seriously injured and contaminated, even in a serious nuclear accident. Tr. 11,059-61. Furthermore, the Intervenor do not point to particular features of the onsite plans as justifying their

request for further hearings. At this late stage, we would insist upon a particularized showing of need as a predicate for further hearings.

The Intervenors object that the portions of the emergency plans for Orange and San Diego Counties in the motion to augment the record have not been properly authenticated. The Applicants have met this objection by the Declaration of Mr. Massey and attachments thereto.

Finally, the Intervenors propose a license condition that would require further listings of medical facilities and related modifications of offsite plans. Much of what this condition would require, and all that the Commission's rule requires, have already been done. We reject this proposed condition as unnecessary.

### **Conclusions**

In light of the foregoing, the Board grants the Applicants' motion to augment the record and adopts and incorporates herein by reference the Applicants' proposed findings of fact dated May 16, 1983. We also find that the NRC Staff has reviewed the Applicants' submissions of May 16, 1983 and has determined that they reflect compliance with 10 C.F.R. § 50.47(b)(12), as interpreted by the Commission. Based on the foregoing findings, the Board concludes that the Applicants have met their burden of proof and have demonstrated a reasonable assurance with respect to arrangements for medical services required by 10 C.F.R. § 50.47(b)(12), as that rule has been interpreted by the Commission.

In accordance with the foregoing findings and conclusions, the Director of Nuclear Reactor Regulation is authorized to delete any conditions in the operating licenses for Units 2 and 3 of the San Onofre Nuclear



**Generating Station concerning medical services arrangements pursuant to 10 C.F.R. § 50.47(b)(12). Upon issuance of this Memorandum and Order, the jurisdiction of this Board will terminate.**

**THE ATOMIC SAFETY AND  
LICENSING BOARD**

**James L. Kelley, Chairman  
ADMINISTRATIVE JUDGE**

**Dr. Cadet H. Hand  
ADMINISTRATIVE JUDGE**

**Mrs. Elizabeth B. Johnson  
ADMINISTRATIVE JUDGE**

**Dated at Bethesda, Maryland,  
this 12th day of August 1983.**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

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

**In the Matter of**

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

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

**August 15, 1983**

The Licensing Board holds that it is not appropriate to supplement the record of an ongoing proceeding with unsolicited filings. Parties have an obligation to assist the Board by presenting evidence in a controlled, organized fashion and should await an appropriate opportunity to submit evidence rather than submitting documents in dribs and drabs.

**RULES OF PRACTICE: MOTION TO SUPPLEMENT THE RECORD**

Parties should present evidence in a controlled, organized fashion and the Board will not grant attempts to supplement the record on pending issues by making filings in dribs and drabs.

**MEMORANDUM AND ORDER**  
**(Motion to Supplement and Correct Record)**

Citizens Association for Sound Energy (CASE) filed a motion on August 3, 1983, regarding the completeness of the record in this case. That motion, which was opposed by Texas Utilities Generating Company, *et al.*, is denied for lack of ripeness.

CASE filed material for the record because of its concern that the Licensing Board be kept informed. However, with the exception of Board Notification Procedures applied by the Staff of the Nuclear Regulatory Commission, we do not consider it appropriate for a party to "supplement" the record with respect to issues that may still be heard in this case. By awaiting a possible hearing, which might occur either with respect to our recently issued *Proposed Initial Decision* or with respect to the ongoing investigations being conducted by the Office of Investigation, CASE will be able to assist the Board by presenting its evidence in a controlled, organized fashion. Such a presentation would be far more helpful to the Board than would a series of dribs and drabs that would require the Board to organize and make sense of the record for itself. In this instance, the filing of affidavits prior to a hearing in which direct testimony likely would be elicited is especially nonproductive.

On the other hand, we agree with CASE and with the July 27, 1983 motion by the State of Texas, that the transcript of our telephone conference of July 20, 1983 should be corrected. The State of Texas took the position in that telephone call that it would stipulate to the content of interviews that it had conducted providing that the stipulation included reference to the position of the witnesses that Mr. Atchison had not been fired because he had engaged in protected activities. We note that this is the same conference in which we "denied" CASE's motion for reconsideration on thermal stress. The transcript states, erroneously, that we "applied" the motion.

**ORDER**

For all the foregoing reasons and based on consideration of the entire record in this matter, it is this 15th day of August 1983,

**ORDERED**

Citizens Association for Sound Energy's motion to supplement the record, filed on August 3, 1983, is denied for lack of ripeness. However,

the transcript shall be considered to be corrected pursuant to the accompanying memorandum.

**FOR THE ATOMIC SAFETY AND  
LICENSING BOARD**

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

**Bethesda, Maryland**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Charles Bechhoefer, Chairman  
Dr. James C. Lamb  
Mr. Ernest E. Hill

In the Matter of

Docket Nos. STN 50-498-OL  
STN 50-499-OL  
(ASLBP No. 79-421-07-OL)

HOUSTON LIGHTING AND POWER  
COMPANY, *et al.*  
(South Texas Project,  
Units 1 and 2)

August 16, 1983

The Licensing Board denies a motion by an intervenor for reconsideration of LBP-83-37, which declined to admit a financial qualifications contention or to recommend to the Commission (pursuant to 10 C.F.R. § 2.758) that the rule prohibiting consideration of financial qualifications contentions be waived.

**RULES OF PRACTICE: CHALLENGE TO COMMISSION REGULATIONS**

To make a *prima facie* showing under 10 C.F.R. § 2.758 that a regulation should be waived, a stronger showing than would be required to introduce a new contention must be made. Evidence would have to be presented demonstrating that the facility under review is so different from other projects that the rule would not serve the purposes for which it was adopted.

**MEMORANDUM AND ORDER**  
**(Denying CCANP Motion for Reconsideration**  
**of LBP-83-37)**

In our Memorandum and Order dated July 14, 1983, LBP-83-37, 18 NRC 52, we denied the motion of Citizens Concerned About Nuclear Power (CCANP) for admission of a new contention, dealing with the Applicants' financial qualifications to "complete and operate" the South Texas Nuclear Project (STNP). We also declined CCANP's request for us to certify to the Commission, pursuant to 10 C.F.R. § 2.758, a recommendation that the regulation prohibiting consideration by licensing boards of the financial qualifications of regulated utilities be waived for this proceeding.

On July 29, 1983, CCANP filed a motion for reconsideration of LBP-83-37. We believe that the reasoning in LBP-83-37, supplemented by the comments below, essentially covers the points raised in the motion for reconsideration and, accordingly, we are denying the motion.<sup>1</sup>

Only a few additional comments are warranted:

1. CCANP is claiming we adopted too stringent a standard for determining that waiver of an NRC rule is justified. It asserts that it need only make a *prima facie* showing that the Applicants' ability to demonstrate their financial qualifications is "not substantially certain."

We disagree. Even under the rule in effect prior to March 31, 1982, under which consideration of the financial qualifications of a utility was permitted, the standard was whether there was "reasonable assurance" of an applicant's financial qualifications. 10 C.F.R. § 50.33(f) (1982). To make a *prima facie* showing under 10 C.F.R. § 2.758 for waiving the current rule, a stronger showing than lack of reasonable assurance would have to be made. "Unusual and compelling circumstances" is the standard we referred to in LBP-83-37. To satisfy that standard, CCANP would have to present persuasive "evidence," not "bare allegations." Cf. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-81-5, 13 NRC 361, 362-63 (1981). And, in particular, it would have to present evidence that the STNP is so different from other projects that the rule would not serve the purposes for which it was adopted. CCANP has not made the requisite showing concerning HL&P's financial qualifications.

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<sup>1</sup> On August 12, 1983, we advised the NRC Staff, and suggested that the Staff inform the Applicants, that a response to the motion for reconsideration would not be necessary. Cf. *Maine Yankee Atomic Power Co.* (Maine Yankee Atomic Power Station), ALAB-166, 6 AEC 1148, 1150 n.7 (1973).

2. CCANP has provided additional information concerning what it regards as the inadequacies of Region IV inspection efforts. In LBP-83-37, we recognized that, in limiting the financial qualifications review, the Commission placed some reliance on NRC's inspection efforts. But we found that the Commission was well aware, when it amended its rule, of the asserted 1979 deficiency to which CCANP directed our attention. We also noted that there has been significant reorganization and restructuring of NRC's inspection functions in the recent past. Even if we were to accept the additional information concerning the effectiveness of Region IV inspection efforts which CCANP has provided, it would not alter our opinion that CCANP has not shown that this proceeding is different from the general run of proceedings involving reactors subject to Region IV inspection efforts. Nor have we been provided with any connection between the inspectors now being criticized by CCANP and the South Texas facility. The current criticism may or may not be justified. Acceptance of CCANP's arguments would effectively dictate a waiver of the financial qualifications rule for *every* Region IV reactor. On the basis of the information before us, we are not prepared to make any such waiver recommendation to the Commission.

3. In declining to recommend a waiver of the financial qualifications regulation, we wish to stress that we are merely applying NRC rules as we understand them. We are not indicating any agreement or disagreement with the current rule. CCANP's arguments for waiver appear to us to represent a dissatisfaction with the new rule and a showing why that rule may not be appropriate as a matter of policy, rather than a showing that the regulation is particularly inapplicable to STNP. While we have indicated that CCANP would perhaps have succeeded under the prior rule in introducing a late-filed financial qualifications contention, we must recognize that such rule is no longer in effect and that the rule change must be accorded some substance.

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For the reasons stated, it is, this 16th day of August 1983,  
ORDERED

That CCANP's Motion for Reconsideration of LBP-83-37 is *denied*.

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:**

**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)**

**August 17, 1983**

The Licensing Board denies a motion by an intervenor to reopen the record, on the grounds that the facts asserted to justify reopening do not fall within the scope of an admitted contention and, in addition, are not of sufficient safety significance to warrant a reopening of the record.

**RULES OF PRACTICE: REOPENING OF PROCEEDINGS**

Where the entire record of a proceeding is not closed and an initial decision has not been issued, a party seeking to reopen the record on issues the adjudication of which have been completed must demonstrate that the matter it wishes to have presented is (1) timely presented, and (2) addressed to a significant issue. The timeliness inquiry is subsidiary to the significance of the material to be considered. Where an initial decision has been issued, a party must additionally demonstrate that the matter is susceptible of altering the result previously reached.



## RULES OF PRACTICE: REOPENING OF PROCEEDINGS

A party moving to reopen a record must offer significant new evidence and not merely "bare allegations" or new contentions. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-81-5, 13 NRC 361, 362-63 (1981).

### MEMORANDUM AND ORDER

#### (Denying Motion to Reopen Record on Containment Cracks)

During the evidentiary hearing session on June 27, 1983, Ms. Barbara Stamiris, an intervenor in this consolidated OL/OM proceeding, moved to reopen the record on her Contention 4 (Tr. 17,988-92, 17,994-96).<sup>1</sup> The Applicant and NRC Staff filed responses dated July 18, 1983 and July 22, 1983, respectively, opposing the motion. During the hearing session on August 4, 1983, we heard Ms. Stamiris' reply to the responses of the Applicant and Staff (Tr. 20,481-96). For the reasons which follow, we find that the grounds relied on by Ms. Stamiris do not establish a set of facts which would be encompassed by Contention 4 and, in addition, are not of sufficient safety significance to warrant a reopening of the record.

#### A. Positions of the Parties

##### 1. Contention 4 asserts, in pertinent part, that

Consumers Power Company performed and proposed remedial actions regarding soils settlement that are inadequate as presented because:

\* \* \*

- C. Remedial soil settlement actions are based on untested assumptions and inadequate evaluation of dynamic responses of those structures to such things as dewatering, differential soil settlement, and seismic characteristics:

[a-d, four listed structures, not including containment]

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<sup>1</sup> The contention referred to is Contention 4 of the OM proceeding, as set forth in our Prehearing Conference Order dated October 24, 1980 (unpublished).

#### D. Permanent dewatering

1. would change the water table, soil and seismic characteristics of the dewatered site from their originally approved PSAR characteristics — characteristics on which the safety and integrity of the plant were based, thereby necessitating a reevaluation of these characteristics for affected Category I structures;
2. may cause an unacceptable degree of further settlement in safety related structures due to the anticipated drawdown effect;

\* \* \*

Prehearing Conference Order, dated October 24, 1980, at Appendix pp. 5-7.

In support of her motion to reopen the record, Ms. Stamiris cites reports of containment cracks in Unit 1 set forth in Inspection Report 83-01, dated February 25, 1983<sup>2</sup> (Stamiris Exh. 50) (derived from an inspection conducted on January 11-14, 1983), together with a memorandum from Darl Hood (NRC Project Manager) to files, dated January 19, 1983 (Sinclair Exh. 5), enclosing a record of telephone discussions between the Staff, the Staff's consultants, Consumers and Bechtel concerning, *inter alia*, a "possible explanation" for uneven settlement at the north end of the Main Auxiliary Building — namely, that

The dewatering for underpinning is causing an uneven immediate settlement over a relatively large area in the thick glacial till layer.

Ms. Stamiris also cites certain Stone & Webster reports which assertedly indicate that unanticipated dewatering was necessary to control groundwater seepage in soils underpinning excavations. She claims that the OM record does not include any assessment of the containment cracks or whether the integrity of the glacial till is an adequate foundation for safety-related structures when affected by "soils remedial measures or other soils conditions causing degradation in its essential foundation properties" (Tr. 17,991). She explains that the cracks in the Unit 1 containment "may be an example of how the soils remedial fixes themselves have the capacity to produce irreversible damage to safety class structures" (Tr. 17,992). In essence, she is claiming that the containment cracks resulted from differential settlement of the till which un-

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<sup>2</sup> This report was attached to a letter and Notice of Violation dated March 4, 1983, and was distributed to the Board and parties on that date.

derlies the containment structures, and that the differential settlement was caused by dewatering.

2. In opposing Ms. Stamiris' motion, the Applicant claims both that the motion was not submitted in a timely fashion and that it does not raise a significant safety issue. With respect to timeliness, it claims that Ms. Stamiris should not have waited until June 27, 1983 to file a motion based on an inspection report served on March 4, 1983 (and presumably received by Ms. Stamiris shortly thereafter). As for safety significance, the Applicant supplied the affidavits of Dr. Palanichamy Shunmugavel and Dr. W. Gene Corley (both of whom have previously appeared as witnesses in this proceeding). In sum, they concluded that:

1. The containment cracks occurred prior to the time the containment coating was applied in 1977. Therefore, they are not related to dewatering or any soils remedial action.
2. The containment crack patterns do not suggest that the cracks were caused by settlement. Moreover, there has not been any unusual or unexpected settlement of the containments at Midland.
3. The containment cracks are not unexpected in the locations where they are found and do not represent any safety problem. This will be confirmed by mapping the cracks before and after and by monitoring the cracks during the structural integrity test.

Through its pleading, the Applicant made a commitment to carry out the crack monitoring program referenced in paragraph 3, above (as described in Dr. Shunmugavel's affidavit and approved by Dr. Corley).

3. The Staff took a somewhat different approach. It perceived Ms. Stamiris' motion as raising five issues (Staff response, pp. 2-3):

- Issue 1: Need for the OM record to contain a general discussion of the cracks in the containment building discovered by the Staff in January, 1983 and documented in Inspection Report 83-01. (Stamiris Exhibit 50) (Tr. 17,991)
- Issue 2: Fact that the OM record contains no evidence on the competence of the glacial till. (Tr. 17,991)
- Issue 3: More specifically, the cracks in the containment call into question the competence of the glacial till, and cast doubt on the acceptability of underpinning structures down to the till. (Tr. 17,990, 17,992)
- Issue 4: Possibility that dewatering is causing uneven settlement of the till. (Tr. 17,990-92)
- Issue 5: Need to explore comments made during telephone calls held on January 11 and 12, 1983. The participants were CPC, Bechtel, the Staff and the Staff's

consultants. The purpose of the call was to discuss settlement records for the benchmarks associated with the underpinning of the two Electrical Penetration Areas. In the course of the call CPC speculated that a possible cause of a larger amount of settlement occurring at the north end of the auxiliary building was due to dewatering. (Tr. 17,990)

It found the first two of these issues not to involve the proposed remedial fixes and hence not to fall within the scope of the contention sought to be supplemented by Ms. Stamiris. Moreover, as to questions concerning the foundation competency of the glacial till (including the effects of dewatering on that till), the Staff notes that those questions have already been addressed in this proceeding and that Ms. Stamiris' assertion to the contrary is incorrect.

With respect to what it regards as "new" information — *i.e.*, the suggestion during the January 11, 1983 conference call that a larger amount of settlement at the northern end of the auxiliary building was due to dewatering, and the discovery of cracks in the containment building — the Staff takes the position that the information is not significant enough to warrant reopening of the record. In support of this position, the Staff offered the affidavits of Mr. Joseph Kane and of Mr. Frank Rinaldi (both of whom have also previously appeared as witnesses in this proceeding). In general, Mr. Kane stated that settlement resulting from dewatering had been expected and, in fact, was less than had been anticipated. Although the Staff has not yet ascertained the cause of the containment cracks, Mr. Kane concluded that the cause was not differential settlement. That being so, the Staff asserted that an insufficient basis was proffered to reopen the record on Contention 4.

## **B. Applicable Criteria**

1. The Applicant characterizes Ms. Stamiris' motion as an attempt "to add a new contention after the close of the record." On that basis, it asserts that Ms. Stamiris must satisfy (1) the specificity and basis requirements in 10 C.F.R. § 2.714(d); (2) the standards for admitting a late-filed contention set forth in 10 C.F.R. § 2.714(a)(1); and (3) the criteria established in case law for reopening the record, citing *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-82-39, 16 NRC 1712, 1714-15, (1982); CLI-81-5, 13 NRC 361, 364 (1981); and *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-730, 17 NRC 1057, 1065 & n.7 (1983). It outlines the criteria for reopening the record by referring to the summary of those criteria presented by the Appeal Board in *Fermi, supra*, to the effect that a party must demonstrate that the matter it wishes to have presented is

(1) timely presented, (2) addressed to a significant issue, and (3) susceptible of altering the result previously reached. The Applicant adds that, in ruling upon a motion to reopen the record, we may take into account affidavits and other evidentiary material as if ruling on a motion for summary disposition. *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 523-24 (1973).

2. In discussing the standards for considering Ms. Stamiris' motion, the Staff refers only to the criteria for reopening the record. It stresses that "the proponent of a motion to reopen bears a heavy burden," citing *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 2), ALAB-486, 8 NRC 9, 21 (1978). In order to satisfy that burden, according to the Staff, the motion must be timely presented and addressed to a significant issue. See also *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-598, 11 NRC 876, 879 (1980); *Kansas Gas and Electric Co.* (Wolf Creek Generating Station, Unit 1), ALAB-462, 7 NRC 320, 338 (1978). According to the Staff, significance has long been interpreted as "of major significance to plant safety." *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-124, 6 AEC 358, 365 (1973). As had the Applicant, the Staff pointed out that a party moving to reopen the record must offer significant new evidence and not merely "bare allegations" or new contentions. *Diablo Canyon*, CLI-81-5, *supra*, 13 NRC at 362-63.

3. Ms. Stamiris, in replying to the Applicant's exposition of the standards applicable to her motion, disavowed any intent to add a new and different contention (Tr. 20,481). She claims that only the criteria for a motion to reopen should govern. She delineates those criteria in the same terms as the Applicant and claims that her motion satisfies those standards (Tr. 20,482).

4. We agree with the Staff that Ms. Stamiris' motion presents essentially five issues (as set forth above). We also agree that the first two issues, standing alone, are not encompassed within Contention 4, since they do not directly raise questions concerning the adequacy of remedial actions (the subject of Contention 4). Since Ms. Stamiris has indicated that she does not wish to proffer a new contention but only to reopen the record on an existing contention, we will not consider the first two issues, as outlined by the Staff.<sup>3</sup> That being so, the standards we will

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<sup>3</sup> We note that, contrary to Ms. Stamiris' claim, the record does include significant information on the competency of the glacial till, as outlined in the responses of the Applicant (pp. 4-5) and Staff (pp. 5-6).

apply to our consideration of Ms. Stamiris' motion will be those applicable to reopening a record, and not the standards for the adequacy of contentions or for the acceptance of late-filed contentions.

The criteria outlined by the Applicant (and apparently accepted by Ms. Stamiris) are more stringent than those which properly govern the motion before us. In this situation, the record is not yet closed in the OM proceeding, in which Contention 4 has been litigated. Instead, only the hearing of certain issues has been completed. However, all of the cases but one cited by the Applicant (and the Staff as well) for defining the criteria for reopening a record involved situations where not only had the record been closed but an initial decision had been issued. See *Diablo Canyon*, CLI-82-39, CLI-81-5, and ALAB-598, *supra*; *Fermi*, ALAB-730, *supra*; *TMI*, ALAB-486, *supra*; and *Wolf Creek*, ALAB-462, *supra*. In *Vermont Yankee*; ALAB-124 and ALAB-138, *supra*, the entire record was closed although an initial decision had not been issued at the time the motion was filed. ALAB-124, *supra*, 6 AEC at 363. Only where an initial decision has been issued must a movant to reopen a record establish that the material sought to be presented is susceptible of altering the result previously reached. *Three Mile Island*, ALAB-486, *supra*, 8 NRC at 21. Absent a decision, there is no result to be altered. Thus, the third criterion advanced by the Applicant (although not by the Staff) does not apply to Ms. Stamiris' motion.

The closest decision we have found to the factual situation before us (not cited by either the Applicant or Staff) involved a situation where, although a partial initial decision on certain questions had been issued, the record of the entire proceeding was not closed when a motion to reopen was filed. *Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Unit 2), ALAB-86, 5 AEC 376 (1972). There, the Appeal Board indicated that the motion had to be timely and raise issues "of substance"; these are essentially the first two criteria advanced by the Applicant and accepted by the Staff and Ms. Stamiris. Collectively, all of these decisions suggest that these two criteria would similarly govern the situation before us. Accordingly, we will apply them to Ms. Stamiris' motion. In doing so, we also will take account of the fact that the burden for reopening the record of a proceeding not yet closed (such as this one) may be somewhat less than if the record of the proceeding had been closed. See *Vermont Yankee*, ALAB-138, *supra*, 6 AEC at 523 n.12.

### C. Board's Ruling

1. Applying the foregoing standards to Ms. Stamiris' motion, we need not dwell long on the timeliness question. For, as the Appeal Board has

stressed, the timeliness inquiry is clearly subsidiary to the significance of the material to be considered:

A board need not grant a motion to reopen which raises matters which, even though timely presented, are not of "major significance to plant safety" \* \* \*. By the same token, however, a matter may be of such gravity that the motion to reopen should be granted notwithstanding that it might have been presented earlier \* \* \*.

*Vermont Yankee*, ALAB-138, *supra*, 6 AEC at 523 (citations omitted). Given that guidance, we turn directly to the significance of the matters sought to be raised by Ms. Stamiris, without considering whether her delay from mid-March to late June 1983 in submitting the motion might prove fatal to her motion.<sup>4</sup>

2. Of primary importance is the explanation provided by both the Applicant and Staff of the meaning of the conference call statement concerning the possible effect of dewatering the glacial till on differential settlement of the auxiliary building, on which Ms. Stamiris relies. It is clear from the enclosure to the January 19, 1983 memorandum (in which that statement appears) that dewatering was one of three "possible explanations" of differential settlement which representatives of CPC/Bechtel and the Staff had discussed. According to the Staff, the three possible explanations had been offered by Consumers' consultants (Kane Aff., p. 2).<sup>5</sup> Later in the same document, the Staff expressed its opinion that "the relatively small settlement values and the trends of that data which have been recorded to date are a result of temperature changes" (Sinclair Exh. 5, Enclosure, p. 4). In other words, the apparent differential settlement observed at the auxiliary building was not the result of dewatering.

Beyond that, both the Applicant and Staff have provided affidavits indicating that the total amount of settlement of the containment buildings to date has been less than previously predicted and analyzed. The total settlements recorded up to May 7, 1983 are 1.32 inches for Unit 1 and 0.92 inch for Unit 2 and a maximum differential settlement of approximately one-half inch at both units. These settlements reflect the effects of structural loadings as well as temporary and permanent dewatering. Kane Aff., p. 3. Total predicted settlement during the 40-year life of the plant is 2.4 inches for Unit 1 and 2.3 inches for Unit 2 (Staff Exh. 14,

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<sup>4</sup> We note, however, that in evaluating timeliness we may consider such factors as when the significance of an issue can be fully appreciated and the complexity of the issue. *Point Beach*, ALAB-86, *supra*, 5 AEC at 378.

<sup>5</sup> Mr Kane is the Staff member who authored the enclosure to the January 19, 1983 memorandum in which the statements in question appear.

SSER-2, p. 2-41), or about 2.5 inches (Shunmugavel Aff., p. 10). The Staff attributed 0.4 inch of the observed settlement to dewatering, but it stresses that in its SSER-2 evaluation it had predicted 0.6 inch of settlement due to dewatering (Kane Aff., p. 5). The Applicant had predicted 0.8 inch of settlement from dewatering (Shunmugavel Aff., p. 10; Corley Aff., p. 4). The Staff expressed the opinion that, given the amount of settlement observed and attributable to dewatering, the cracks in the containment were not likely to have emanated from effects of the dewatering system on the glacial till (Kane Aff., p. 3).

During her oral reply (Tr. 20,492-96), Ms. Stamiris and her counsel also expressed concern that the predicted value of settlement of containment buildings due to dewatering (0.6 inch by the Staff and 0.8 inch by the Applicant) applied to the lifetime of the plant; and, since 0.4 inch has already occurred, future settlement due to dewatering may exceed the predicted value. Careful reading, however, shows nothing in the Kane affidavit, SSER-2, or the FSAR to indicate that future settlements of containment buildings caused by dewatering are to be expected after that caused by initial lowering of the water table to about 590 feet, which has already occurred (Kane Aff., pp. 4-5). Even if Ms. Stamiris' interpretation were correct, the proportion of measured-to-predicted settlement from dewatering is not significantly different from the proportion of measured-to-predicted total settlement for the containment buildings.<sup>6</sup> This similarity between measured-to-predicted settlements does not lend credence to Ms. Stamiris' concern that settlement due to dewatering has been excessive.

The only other grounds for questioning the dewatering system are the Stone & Webster reports referred to by Ms. Stamiris (Tr. 17,991) as allegedly showing that greater dewatering than originally predicted had been found to be necessary. We agree with the Applicant (response, pp. 3-4) that Ms. Stamiris has misinterpreted the reports in question.

The dewatering system is the only remedial action contemplated by Contention 4 with respect to which Ms. Stamiris has attempted to

<sup>6</sup> Proportion of measured-to-predicted settlement from dewatering is

$$\frac{0.4 \text{ inch}}{0.6 \text{ inch}} = 67\% \quad (\text{Staff})$$

$$\frac{0.4 \text{ inch}}{0.8 \text{ inch}} = 50\% \quad (\text{Applicant})$$

Portion of measured-to-predicted total settlement is

$\frac{1.32 \text{ inch}}{2.4 \text{ inch}} = 55\% \text{ (Unit 1)}$	$\frac{0.92 \text{ inch}}{2.3 \text{ inch}} = 40\% \text{ (Unit 2)}$	(Staff)
$\frac{1.32 \text{ inch}}{2.5 \text{ inch}} = 53\% \text{ (Unit 1)}$	$\frac{0.92 \text{ inch}}{2.5 \text{ inch}} = 37\% \text{ (Unit 2)}$	(Applicant)



demonstrate a relationship to the containment cracks. On the basis of the information provided by the Applicant and Staff, it appears that the containment cracks cannot be reasonably attributable to the dewatering. That being so, what we have before us is reduced to "bare allegations," not the evidence required to justify reopening of the record on Contention 4. *Diablo Canyon*, CLI-81-5, *supra*, 13 NRC at 362-63.

We might add that, given the lack of any persuasive connection of the cracks to dewatering, we have not attempted to evaluate the Applicant's position that the cracks originated prior to the installation or operation of the dewatering system, and that the cracks have no safety significance. Answers to those questions would not provide the requisite nexus of the cracks to remedial actions covered by Contention 4. Moreover, the Staff itself has not completed its review of either the cause or the significance of the containment cracks. We note, however, that Dr. Corley's affidavit, as well as prior testimony in this proceeding, indicates that the existence of cracks in concrete structures is not unexpected and does not *per se* reflect any safety concern. Corley Aff., p. 2; Wiedner, prepared testimony, fol. Tr. 10,790, at pp. 28-29; Sozen, prepared testimony, fol. Tr. 10,950, Attachment 1, pp. 1.1-1.3, 2.2. In terms of evaluating the significance of the containment cracks, both the Applicant and Staff refer to the structural integrity test which the Applicant must perform, and the Staff indicates that it will defer completion of its evaluation of the cracks until after the test has been completed (Rinaldi Aff.). In addition, we accept the Applicant's commitment to perform the crack monitoring which it has outlined.<sup>7</sup> From what we have before us, we find no basis for concluding that applicable regulatory standards will not be met or that public health and safety will be compromised by the method selected by the Applicant and Staff for resolving the questions surrounding the containment cracks.

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Based on the foregoing, and particularly the lack of any credible connection of the observed containment cracks to the remedial activities questioned by Stamiris Contention 4, it is, this 17th day of August 1983,

ORDERED

1. That Ms. Stamiris' Motion to Reopen the Record on her Contention 4 is *denied*.

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<sup>7</sup> Our action here is not to be taken as precluding the NRC Staff from requiring a more stringent, or different, crack monitoring program, if it should deem such a program to be warranted.

2. That the Applicant is *directed* to undertake the crack monitoring program to which it has committed in its pleading responding to Ms. Stairis' motion.

FOR THE ATOMIC SAFETY AND  
LICENSING BOARD

Charles Bechhoefer, Chairman  
ADMINISTRATIVE JUDGE

Bethesda, Maryland

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Ivan W. Smith, Chairman  
Dr. Dixon Callihan  
Dr. Richard F. Cole

In the Matter of

Docket Nos. STN 50-454-OL  
STN 50-455-OL  
(ASLBP No. 79-411-04-PE)

COMMONWEALTH EDISON COMPANY  
(Byron Nuclear Power Station,  
Units 1 and 2)

August 17, 1983

The Licensing Board reports on its *in camera* receipt of information concerning pending investigations and inspections.

**RULES OF PRACTICE: PRODUCTION OF NRC  
INFORMATION**

Pursuant to 10 C.F.R. § 2.744(c) and the Commission August 5, 1983 Statement of Policy — Investigations and Adjudicatory Proceedings, 48 Fed. Reg. 36,358, the Licensing Board may receive exclusively *in camera* information from the Office of Inspection and Enforcement and the Office of Investigations concerning pending inspections and investigations.

## RULES OF PRACTICE: PRODUCTION OF NRC INFORMATION

Although 10 C.F.R. § 2.744(c) refers only to NRC documents which may be presented for the presiding officer's exclusive *in camera* inspection for relevancy and exemption under 10 C.F.R. § 2.790, the Commission's August 5, 1983 Statement of Policy, Investigations and Adjudicatory Proceedings, 48 Fed. Reg. 36,358, authorizes the presiding officer also to inspect non-documentary information *in camera* and exclusive of other parties.

### MEMORANDUM AND ORDER

On August 5, 1983 the NRC Staff moved for reconsideration of the Board's July 1, 1983 order (unpublished) requiring the parties to present evidence on pending inspections and investigations into Hatfield Electric Company's quality assurance program at Byron. The Staff requested instead that the Board receive, *in camera* and exclusively to the Board, explanations of the allegations which gave rise to the pending inspections.

We found authority for the exclusive *in camera* presentation in 10 C.F.R. § 2.744(c) (pertaining to documents) and in the Commission's August 5, 1983 Statement of Policy — Investigations and Adjudicatory Proceedings, 48 Fed. Reg. 36,358 (pertaining to general information).<sup>1</sup> Accordingly, on August 9 we received exclusively and *in camera*, by means of an information deposition, information from Region III, Office of Inspection and Enforcement (IE). On August 10 we received exclusively and *in camera* more information from Region III and information from the Office of Investigations (OI).

As a result of these presentations, we have determined that some of the pending inspections by the Office of IE are of no interest to the Board. All other pending IE inspections and all pending investigations by OI are in early stages and respective evidentiary presentations now would not produce reliable results. Moreover, to receive an immediate

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<sup>1</sup> The Applicant and Intervenors agreed that the Board may receive documents for its exclusive consideration but objected to an oral presentation. They argued that the only relevant regulation presently in force, § 2.744(c), permits exclusive examination of documents only. We ruled, however, that the Commission authorized a broader inquiry by the August 5 policy statement and that the policy statement is, in effect, the Commission's generic *sua sponte* action under § 2.758 expanding the regulations temporarily to meet recent developments in adjudications. The Commission noted the need for broader authority to review protected information pending the completion of investigations during adjudications.

evidentiary presentation on the pending inspections and investigations would disrupt the IE inspectors and OI investigators and would cause a delay in the ultimate resolution of the respective allegations.

Reports of completed inspections and investigations will be provided to the Board and parties as soon as they are available for disclosure and will be considered as new information on a case-by-case basis.

The transcripts of the exclusive *in camera* presentations will be served on the public record when the respective inspections and investigations have been completed except where necessary to protect privileged information, *i.e.*, the identity of allegers. The NRC Staff and Office of Investigations are reviewing the *in camera* transcripts to determine which portions need not be confidential and these portions will be released as soon as possible.

Accordingly:

(1) The Board's order of July 1, 1983 directing the NRC Staff to present evidence on pending investigations in a reopened proceeding is vacated.

(2) The Board's request of June 21, 1983 to the Office of Investigations for cooperation in the reopened proceeding has been satisfied.

(3) The evidentiary record on the hearing reopened pursuant to the Board's order of June 21, 1983 was closed on August 12, 1983 (Tr. 8021) and will remain closed until further order. The Board does not foreclose all possibilities that it might inquire again into the status of pending inspections and investigations.

FOR THE ATOMIC SAFETY AND  
LICENSING BOARD

Ivan W. Smith, Chairman  
ADMINISTRATIVE LAW JUDGE

Bethesda, Maryland  
August 17, 1983

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

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

**In the Matter of**

**Docket Nos. 50-440-OL  
50-441-OL**

**CLEVELAND ELECTRIC ILLUMINATING  
COMPANY, *et al.***

**(Perry Nuclear Power Plant,  
Units 1 & 2)**

**August 18, 1983**

The Licensing Board reopens its record on quality assurance on its own motion, in order to receive written filings concerning a document that was filed by an intervenor and that apparently indicates serious problems not covered in prior testimony. Intervenor's motion to reopen the record is denied because the failure to introduce this evidence into the record at an earlier time was due to intervenor's failure to pursue its discovery rights in a timely fashion.

**RULES OF PRACTICE: REOPENING THE RECORD**

When the entire record has not been closed, the record on a single issue may be reopened on a showing that the motion to reopen is timely and raises an issue of substance. However, a motion is not timely if it is based on information that should have been discovered prior to an evidentiary hearing.

## LICENSING BOARDS: OBLIGATION TO COMPLETE THE RECORD

When an intervenor brings important information to light, the Board must inquire further in order to have a complete record even if the information should have been filed at an earlier time. This action is particularly appropriate when the new information casts new light on earlier testimony.

### MEMORANDUM AND ORDER (Motion to Reopen)

On July 13, 1983, Ohio Citizens for Responsible Energy (OCRE) filed a Motion to Reopen the Record on Quality Assurance. We consider the motion<sup>1</sup> to be untimely and are therefore denying it. However, OCRE's concern about the L.K. Comstock Engineering Company, Inc.'s (Comstock) use of inspectors on tasks for which they were not certified, is of such potential safety importance that we consider this to be a gap in our record and will require the filing of further evidence in order to fill that gap.

#### I. LEGAL STANDARD

Many of the cases cited to us by the parties are addressed to motions to reopen the record of a case after an initial decision on all or a portion of the record has been written. Those precedents are not applicable here. Instead, we need only find that OCRE's motion is timely and that it raises an issue of substance.<sup>2</sup> We need not find that it would change the result on an issue that we have not yet decided, even though findings of fact have already been filed.

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<sup>1</sup> The motion is supported by Sunflower Alliance Inc., *et al.* (Sunflower) and opposed by the Staff of the Nuclear Regulatory Commission (staff) and by Cleveland Electric Illuminating Company (applicant).

<sup>2</sup> *Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Unit 2), ALAB-86, 5 AEC 376 (1972); *see also Consumers Power Co.* (Midland Plant, Units 1 and 2), LBP-83-50, 18 NRC 242, 248 (1983).

## II. UNTIMELINESS OF MOTION

Despite the appropriateness of this somewhat more relaxed standard, the motion must be denied because Sunflower Alliance Inc., *et al.*'s (Sunflower's) motion is untimely. Although OCRE's request is founded on material it first obtained on June 22, 1983, the reason for this late receipt was entirely within OCRE's control. The information was received in response to a Freedom of Information Act (FOIA) request that OCRE filed on April 15, 1983, but that it could have filed months earlier.

The information OCRE obtained consisted of two documents that have been in existence on or before August 6, 1982. Had OCRE filed its Freedom of Information Act request earlier, or had it filed an appropriate request for documents as part of the discovery process in this case, it could have obtained these documents well in advance of the hearing. Had it done so, these documents could have been used for its cross-examination of applicant and staff witnesses. This would have clarified the issues in a fair and efficient manner, providing the kind of assistance to this Board which parties must provide in order to fulfill their hearing responsibilities.

Under the circumstances, we cannot condone this untimely approach to discovery by granting the motion to reopen the record. Nevertheless, OCRE has brought new information to our attention. It raises questions concerning the completeness of our record and imposes on us the obligation to satisfy ourselves that we understand the full implications of the matters OCRE has raised.

## III. IMPORTANCE OF SOME OF THE NEW INFORMATION

When new information is submitted to this Licensing Board, we have the responsibility to review the information and decide whether it casts sufficient doubt on the safety of Perry so that its inferences must be logically and reasonably addressed and resolved. We think that some of the issues brought to our attention by OCRE require our consideration and accordingly we will reopen the record for the limited purpose of receiving written evidence from the parties.

The most serious matter presented to us is an August 6, 1982 letter from V.A. Eichler (Task Force Letter), leader of an internal Comstock



task force, setting forth "concerns as a result of the review of the equipment installation packages."<sup>3</sup> At the outset, let us note that these are findings generated by Comstock as a result of a study that it undertook and that these findings apparently have resulted in a substantial reinspection program.<sup>4</sup> This reinspection program (whose design and findings are not yet before us) appears to have found that the reinspected areas do not contain any "significant safety problems."<sup>5</sup>

Nevertheless, we agree with OCRE that the Task Force Letter indicates that "CEI's [Cleveland Electric Illuminating Company's] Control of Comstock . . . may be much worse than the testimony presented at the recent hearing would lead one to believe."<sup>6</sup> We share OCRE's concerns that applicant's testimony focused on Comstock's difficulty in obtaining appropriate numbers of quality control personnel but it did not reveal that the Task Force Letter found that only 6 of 22 people whose work was reviewed were certified to complete inspection documents in areas being inspected.<sup>7</sup> This is a serious finding, which Comstock apparently accepted as true.

The Task Force Letter summarizes the importance of its findings in the following concluding passage:

[A]s a result of these findings, all inspections performed prior to 1/1/82 should be considered invalid and the lack of certification of the individuals performing these inspections should be addressed immediately. Additionally, all Megger/Continuity Tests should also be considered invalid, as a result of the acceptance of test results without an approved procedure.

Also, all inspections presently being performed and all personnel certifications should be reviewed at this time because of the fact that some of the inspectors

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<sup>3</sup> Attachment to OCRE's July 13, 1983 finding (Task Force Letter).

<sup>4</sup> Task Force Letter at 4.

<sup>5</sup> Affidavit of Gary R. Leidich, attached to Applicant's Answer to Motion to Reopen (August 4, 1983) at 4. Mr. Leidich also states that the Comstock findings "did not include any analysis of the individuals' actual qualifications to perform their inspection functions," but we are not impressed by this argument because they were required to be properly certified for the functions they did perform and the burden of proof is on the applicant to establish any alternative defense, such as qualification in some other manner than the established certification procedure.

<sup>6</sup> OCRE's Motion to Reopen at 1.

<sup>7</sup> We note that at p. 26 in the testimony of Murray R. Edelman and Gary R. Leidich, dated May 2, 1983, ff. Tr. 1031, the witnesses were asked to summarize "CEI's QA overview of the implementation of L.K. Comstock's program for the period prior to November 1981." The succeeding question, at p. 30 of the testimony, asked for an overview of the program since November 1981. The witnesses did not address this apparent deficiency in either of their answers, even though they mentioned the possibly related issue of a shortage of quality control inspectors.

This area of deficiency also was omitted from the applicant's response to the Board's request for a "blow by blow" of problems concerning Comstock. Given the rushed nature of this response, prepared during the evidentiary hearing, this omission might be understandable but we now feel that more explanation is needed.

[found?]<sup>8</sup> as being not certified in specific activities are currently employed by L.K. Comstock at the Perry Site.

The importance of the findings also is indicated by Comstock's response, which included the development of detailed checklists and the conduct of reinspections by certified inspectors.<sup>9</sup> The situation also led to a staff finding of a severity level IV violation,<sup>10</sup> to the issuance by Comstock of two nonconformance reports that are still open,<sup>11</sup> and to the issuance of a Corrective Action Request (CAR) by applicant.<sup>12</sup>

Now that we have seen the Task Force Letter we more fully appreciate the meaning of the portion of our record containing the Notice of Violation of March 16, 1983. Without that letter we were ill-equipped to appreciate the finding that:

[T]he L.K. Comstock QA Program failed to provide control over deficiencies identified by an internal LKC documentation task force, in that these deficiencies were addressed in uncontrolled review checklists and internal LKC letters.<sup>13</sup>

We also are troubled, now that we appreciate what is at stake, by the enforcement finding that "the LKC personnel indicated that they did not know if many of the generic deficiencies had been corrected, even though related work activities were continuing."<sup>14</sup>

We understand the record to document that Comstock used uncertified inspectors for months, without detection by its own quality control program, the applicant's audit program or the staff. There apparently has been no investigation to determine whether the supervisors who tolerated this practice and others who knew of it were involved in wrongdoing.

Then, when Comstock discovered this deficiency it made no formal report to applicant. Was this consistent with applicable procedures or codes? What did applicant know about the situation, and what did it do? If applicant did know of the situation, why did it not insist that a nonconformance report be filed. If it did not know of it, why did it not know of it?

It would appear that the reinspection burden imposed in response to the Task Force Report was substantial, even in relation to the ongoing

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<sup>8</sup> We must guess at this word because the right hand margin of the document provided to us chops off a portion of the text.

<sup>9</sup> Affidavit of Gary R. Leidich, attached to applicant's answer of August 4, 1983, at 4.

<sup>10</sup> Inspection Report Nos. 50-440/83-06; 50-441/83-06 (March 16, 1983).

<sup>11</sup> Leidich affidavit at 4.

<sup>12</sup> *Id.*

<sup>13</sup> Notice of Violation, ff. Tr. 1619.

<sup>14</sup> Report Nos. 50-440/83-06(DE); 50-441/83-06(DE) at 4 (enforcement report), ff. Tr. 1619.

inspection burden. By the end of 1981, over 49% of the work on both units had been completed,<sup>15</sup> including work in highly congested areas of the plant.<sup>16</sup> Consequently, reinspection would be not only extensive but might, in some instances, prove to be quite difficult. Without further evidence, we cannot judge either the adequacy of the reinspection effort, the adequacy of the conclusion that serious safety problems were not overlooked, or the adequacy of the number of quality control inspectors employed by Comstock.

In light of the Task Force Letter, we find the following explanation of these events in the Inspection Report to be cryptic and unsatisfactory:

Subsequent to this finding [of failure to provide control over the deficiencies found by Comstock task forces], LKC [Comstock] made an assessment of the deficiencies addressed in the Task Force letters. Based on their assessment they stated that all generic deficiencies had already been corrected. The Region III inspectors reviewed and discussed the LKC assessment related to the penetration and circuit activities. The respective generic deficiencies appeared to have been corrected (e.g., appropriate procedure revisions).

Additionally, LKC management stated that the appropriate QA controls would be immediately initiated for all of the specific and generic deficiencies identified by the Task Force.<sup>17</sup>

We do not find any discussion by the staff of its reasons for concluding that Comstock has adequately addressed problems relating to the use of uncertified inspectors. Indeed, we do not even have applicant's explanation of how extensive this reinspection burden is, what physical difficulties might have to be overcome to inspect areas that may now be difficult to access, and whether there were some improper in-process inspections that may not be adequately remedied by reinspection.

In light of the Board's concerns, we are reopening the record to receive documentary evidence and reasoned, documented arguments that respond to the Board's questions.

#### IV. PROBLEMS OF SOME CONCERN

Attachment 4 to the motion to reopen is not evidence. As applicant forcefully points out, it is an unsigned, unattributed typed document provided to OCRE in answer to its FOIA request.

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<sup>15</sup> Tr. 1523.

<sup>16</sup> Tr. 1503.

<sup>17</sup> Inspection Report at 4, ff. Tr. 1619.

Were this document entirely uncorroborated we would inquire no further. However, the document alleges: (1) the applicant's Quality Assurance Advisory Committee (QAAC) "was not doing meaningful reviews," (2) findings from audits of Pullman and Comstock were not being processed in a timely manner, and (3) CEI has not done any significant trending of findings of CEI audits of contractors since 1980. These allegations have in common that they are specific, serious and apparently not contradicted by anything in our record (applicant did not respond to these unsigned allegations).

The first allegation is corroborated by a Notice of Violation issued on July 25, 1983,<sup>18</sup> finding that the QAAC met only twice during 1981 in violation of its own written procedures — hence, lending credibility to the inference that the committee, which has since increased the frequency of its meetings to once every other month,<sup>19</sup> was not doing meaningful reviews during that particular time period.<sup>20</sup>

Applicant<sup>21</sup> and staff<sup>22</sup> testimony described the QAAC in favorable terms. Staff's testimony seems artfully drafted to conceal the question raised about the QAAC; it stated that from 1979 to 1982 the committee was "required to meet and document the results of their reviews and evaluations on a quarterly basis."<sup>23</sup> Staff does not mention that the committee did not meet as often as required during that period.

Our record does not disclose what, if any, significance should be attached to the QAAC.<sup>24</sup> In particular, it would be helpful to know whether the staff person who wrote and retained the unsigned memorandum brought to our attention by OCRE is satisfied with the staff's present position and whether that person has specific evidence that is not reflected in our record but bears on the degree of management commitment to quality assurance at the Perry plant.

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<sup>18</sup> Attached to applicant's answer to the motion to reopen.

<sup>19</sup> Affidavit of Cyril M. Shuster, attached to Applicant's Answer to OCRE Motion to Reconsider (August 4, 1983) at 3.

<sup>20</sup> Compare *Id.* at 2, which lists documents that the QAAC reviews but does not document the nature of those reviews in sufficient detail for the Board to assess their seriousness.

<sup>21</sup> Testimony of Edelman and Leidich, ff. Tr. 1031, at 23-24.

<sup>22</sup> Testimony of NRC Region III, ff. Tr. 1568, at 21-22.

<sup>23</sup> *Id.* at 22.

<sup>24</sup> Compare Affidavit of Cyril M. Shuster at 2-3, providing the excuse that one of the 1981 meetings consisted of site tours by three of the members and that one of the 1981 meetings took place in 1982.

## V. OTHER, LESS SIGNIFICANT, NEW INFORMATION

During the hearing, there was substantial testimony concerning cable trays that were overfilled. OCRE now calls our attention to a document showing that in some instances applicant's engineers resolved nonconformances about overfill by extending the walls of the tray, thereby permitting the overfill. OCRE also argues that this overfill is a violation of Article 318 of the National Electrical Code, which OCRE admits is not applicable to Perry.<sup>25</sup>

Applicant's answer on cable-fill is that it complies with the International Cable Engineers Association (ICEA) standards and that Perry's design exceeds ICEA standards on heat loading.<sup>26</sup> We have no reason to suspect the adequacy of applicant's answer to this allegation.

We also are unconcerned by some of the allegations in the unsigned memorandum submitted by OCRE. There is too little detail in the second paragraph in the memorandum for us to be concerned that a change in format of QA-manager reports seriously affected management's ability to comprehend those reports. On this issue, OCRE owed us at least some explanation concerning why the quarterly reports on quality assurance that are already in our record (at the Board's request) are insufficient for management purposes.

Paragraphs 6 and 7 of the anonymous memorandum do not concern us because they relate to another company, and our prior rulings make it clear that we must reach a preliminary determination that control of Comstock was lost before issues about another company may be raised. We are not prepared to make such a finding now, preferring to give the applicant and staff an opportunity to resolve the Board's uncertainties.

## ORDER

For all the foregoing reasons and based on consideration of the entire record in this matter, it is this 18th day of August 1983,

ORDERED

1. Ohio Citizens for Responsible Energy's July 13, 1983 Motion to Reopen the Record on Quality Assurance is denied.

2. The Atomic Safety and Licensing Board reopens the record on quality assurance to receive the filings authorized in this Order.

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<sup>25</sup> OCRE's Motion at 2.

<sup>26</sup> Leidich Affidavit at 3.

3. Cleveland Electric Illuminating Co., *et al.* (applicant) shall have 30 days from the issuance of this decision to respond by submitting evidence and arguments responsive to the concerns of the Atomic Safety and Licensing Board, as set forth in the accompanying memorandum. Applicant may address the question of whether a further evidentiary hearing is necessary.

4. The Staff of the Nuclear Regulatory Commission (staff) may respond to this Board's concerns within 10 days from the date the applicant files its response, pursuant to paragraph 3 of this order.

5. Intervenors may respond to the Board's concern within 10 days of the date they receive staff's response, or within 15 days of the time that they receive applicant's response if they have been promptly notified that the staff will not respond.

6. Motions for reconsideration of this decision must be filed within 10 days of issuance of this decision.

7. Deadlines falling on non-business days are automatically extended to the next business day.

**THE ATOMIC SAFETY AND  
LICENSING BOARD**

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

**Jerry R. Kline  
ADMINISTRATIVE JUDGE**

**Glenn O. Bright  
ADMINISTRATIVE JUDGE**

Bethesda, Maryland

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**B. Paul Cotter, Jr., Chairman  
Dr. Richard F. Cole  
Gustave A. Linenberger**

**In the Matter of**

**Docket Nos. 50-458-OL  
50-459-OL  
(ASLBP No. 82-468-01-OL)**

**GULF STATES UTILITIES  
COMPANY, *et al.*  
(River Bend Station, Units 1  
and 2)**

**August 26, 1983**

In this memorandum the Licensing Board rules on the admissibility of contentions in this operating license proceeding and establishes procedures for further proceedings.

**LICENSING PROCEEDINGS: FINANCIAL QUALIFICATIONS**

The Commission eliminated the review of financial qualifications from power plant licensing hearings in part because it could not find any reason to consider, in a vacuum, the general ability of utilities to finance the construction of new generation facilities. Only when joined with the issue of adequate protection of the public health and safety does this issue become pertinent.

## **RULES OF PRACTICE: EFFECTIVE COMMISSION REGULATIONS**

Contentions attacking the Commission's regulations are prohibited unless the petitioner can make a *prima facie* showing of "special circumstances" such that applying the regulation in the specific case would not serve the purposes for which it was adopted. 10 C.F.R. § 2.758 (1983).

## **RULES OF PRACTICE: EFFECTIVE COMMISSION REGULATIONS**

The mere allegation of financial problems, three unrelated inspection reports, and an openly requested deviation from standards do not constitute a safety problem so as to permit a finding of "special circumstances" as required by 10 C.F.R. § 2.758 for the waiver of the prohibition of 10 C.F.R. § 50.40(b) barring the review of financial qualifications in licensing hearings.

## **RULES OF PRACTICE: ADMISSIBILITY OF CONTENTIONS**

Where intervenors have not identified a single chemical or effluent of any kind that might interact with some unspecified level or quantity of ionizing radiation, contentions alleging that emissions may cause health hazards either alone or in combination with industrial effluents already present in the area's air and water are too vague and lacking in specificity to permit meaningful litigation.

## **EMERGENCY PLANNING**

The flexibility in the 10-mile EPZ regulatory requirement does not contemplate including so remote a chain of speculative circumstances as that posited by intervenors in a contention alleging that inmates of a prison located 18 miles from the plant might effect a mass, armed escape and disrupt the orderly implementation of the emergency plan.

# **MEMORANDUM**

## **I. INTRODUCTION**

This memorandum rules on the admissibility of contentions and other matters considered at a prehearing conference in the captioned proceed-



ing held pursuant to 10 C.F.R. § 2.751a (1982) and this Board's unpublished orders dated April 5 and April 29, 1983. The conference took place on June 14, 1983 in Baton Rouge, Louisiana and addressed the following subject matter: (1) the admissibility of contentions filed by the state, corporate, and individual petitioners; (2) the status of procedural matters such as the issuance dates of documents needed for hearing, consolidation of any contentions admitted, and a schedule for any discovery needed; (3) the status of River Bend Unit 2 and its relationship to the proceeding; and (4) any other matters appropriate to the expeditious conduct of the proceeding. This decision has been deferred pending receipt of additional information bearing on a contention concerning the Louisiana State Penitentiary at Angola. That information was received on August 15, 1983.

## II. PROCEDURAL HISTORY

The proceeding arises out of petitions to intervene in the application by Gulf States Utilities and Cajun Electric Power Cooperative (Applicants) for a license to possess, use, and operate two boiling water reactors known as River Bend Station Units 1 and 2. The reactors are located in West Feliciana Parish three miles southeast of St. Francisville on the Mississippi River and approximately 24 miles north-northwest of Baton Rouge. Each reactor is designed to operate at a power level of 2,894 megawatts thermal with an equivalent electrical output of approximately 936 megawatts. Construction was authorized on March 25, 1977. Approximately 71% of Unit 1 has been built with construction completion scheduled for April 1985. Applicants have halted construction on Unit 2 which is less than 1% complete. Tr. 25-26.\*

Notice of the applicants' request for a facility operating license was published on September 4, 1981 in the *Federal Register*. 46 Fed. Reg. 44,539. Petitions to intervene were filed by the Louisiana Consumers League, Inc. (LCL), Louisianans for Safe Energy, Inc. (LSE), and Gretchen Reinike Rothschild, individually. The two corporate petitioners and the single individual petitioner will act jointly in this proceeding and will be referred to jointly herein. Tr. 7-8, 130. The State of Louisiana also petitioned to participate both as a party to the proceeding, and as an interested state pursuant to 10 C.F.R. § 2.715 (1981).

The Board found all petitioners to have standing in rulings issued February 10 and July 30, 1982 (unpublished), holding that they could

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\*All transcript citations are to the transcript of the prehearing conference held June 14, 1983 in Baton Rouge, Louisiana.

be admitted as parties to the proceeding upon filing an admissible contention. Louisiana was admitted as an interested state in the February 10 order.

The joint petitioners filed 14 amended and supplemented contentions dated May 31, 1983 which supplanted the first filing of 12 contentions dated December 12, 1982. The amended filing was objected to by Applicants as untimely. Following a stipulation among the joint petitioners, Applicants, and Staff, Applicants' objection as to timeliness was limited to contentions 13 and 14. Tr. 9-10, 12.

On March 15, 1983, the State of Louisiana filed six contentions which supplanted an earlier filing. All but the first of the State's contentions clearly parallel contentions in the amended filing by joint petitioners. For purposes of this decision, the joint petitioners' contentions will be discussed with a cross-reference to the pertinent State contention.

In this memorandum we find that all petitioners have filed at least one admissible contention and admit LCL, LSE, and Ms. Rothschild (hereinafter referred to as "Joint Intervenors") and the State of Louisiana as parties to this proceeding pursuant to 10 C.F.R. § 2.714 (1983). In light of the admission of Louisiana as a party under section 2.714, resolution of any procedural problems arising out of its status as an interested state will be deferred pending a report on discussions among counsel. Tr. 34-36.

### III. DOCUMENTS NEEDED FOR HEARING

At the prehearing conference, counsel for the Staff reported that Staff documents necessary to the hearing would issue as follows:

1. Draft Safety Evaluation Report (SER): June 1983 (70% complete — 147 open items);
2. Final SER: December 1983 (a considerable number of open items);
3. First SER Supplement: May 1984;
4. Draft Environmental Statement (DES): January 1984; and
5. Final Environmental Statement (FES): June 1984. Tr. 22-23.

Staff counsel represented that with the exception of emergency planning matters and some minor deficiencies in the draft SER discussion of the liquid pathway, the draft SER and the DES are complete with respect to the subject matter of the parties' contentions. Tr. 24.

Counsel for Applicants reported that the offsite emergency plan required pursuant to 10 C.F.R. § 50.47 (1982) is scheduled to issue in or about December 1983. Tr. 10, 38-39.

## IV. CONTENTIONS

### A. Contentions Resolved by the Parties

A number of contentions were resolved by unilateral or joint action of the parties following discussions and negotiation. The parties entered into two stipulations which the Board hereby approves and adopts as follows:

1. Joint Petitioners will withdraw and not seek to again raise in this proceeding the matters encompassed by their Contentions Nos. 2, 3, 5, 6 and 10, as identified in "The First Amended and Supplemented Contentions by Joint Intervenor Louisiana Consumers League, Inc., Louisianians [sic] for Safe Energy, Inc., and Gretchen Reineke Rothschild," which pleading is dated May 31, 1983. Applicants and State agree not to object to the admissibility or timeliness of Joint Petitioners' Contention 12 related to the effect of the asiatic clam on the River Bend Station. If the State of Louisiana withdraws its Contention 6, which is contained in the Supplemental Petition of the State of Louisiana, dated March 15, 1983, the Joint Petitioners will at that time withdraw their Contention 12. Tr. 101-02.
2. Contentions arising out of the off-site emergency plan, scheduled to be issued in December 1983, shall be filed no later than 60 days after service of the off-site emergency plan on Joint Intervenor. Such contentions shall not be subject to any special showing as a prerequisite to the Board's consideration of their admissibility. Tr. 10, 38-39, 103.

The latter stipulation effectively refers consideration of State's Contention 2 and Joint Intervenor's Contention 8 concerning the offsite emergency plan with the exception of the Angola prison question discussed below.

In addition, the parties withdrew several contentions during the course of the prehearing conference. Joint Intervenor withdrew Contention 9, "Potassium Iodide Tablets" and Contention 13, "Fossil Plant Thermal Discharge." Tr. 100-01. The State of Louisiana withdrew its Contention 1, "Transuranic wastes and fuel cycle activities" (Table S-3). Tr. 125-26.

The parties agreed further that consideration of Joint Intervenor's Contention 11 and State's Contention 5, "Construction of River Bend Unit 2," should be deferred pending a decision by Applicants concerning resumption of construction. Applicants state that the construction decision will be made in 1985. Tr. 25-30, 102-10. The Board approves the agreement and hereby defers consideration of the contentions concerning construction of Unit 2 until 1985.

## B. Disputed Contentions

### 1. *Contention 1: Financial and Technical Qualifications (No Comparable State Contention)*

#### a. *Positions of the Parties*

In essence this contention alleges that Applicants' "financial status has changed substantially for the worse" resulting in cost-cutting measures which threaten the public health and safety. Tr. 66-75. Joint Intervenors cite three NRC Inspection and Enforcement reports and a memorandum request to "limit or reduce" certain requirements for one-half inch tubing and supports as evidence of potentially harmful cost cutting. Consequently, to consider this contention Joint Intervenors seek an exception from the prohibition in 10 C.F.R. § 50.40(b) (1983) which provides in pertinent part:

§ 50.40 Common standards.

In determining that a license will be issued to an applicant, the Commission will be guided by the following considerations:

\* \* \*

(b) The applicant is technically and financially qualified to engage in the proposed activities in accordance with the regulations in this chapter. *However, no consideration of financial qualifications is necessary for an electric utility applicant for a license for a production or utilization facility of the type described in . . . § 50.22.* (Emphasis added).

Section 50.22 describes Class 103 licenses for facilities such as those at issue here.

This contention constitutes an attack on a Commission regulation. Such attacks are prohibited unless the petitioner can make a *prima facie* showing of "special circumstances" such that applying the regulation in this case would not serve the purpose for which it was adopted. The *prima facie* showing must be made by affidavit. 10 C.F.R. § 2.758 (1983).

Stephen M. Irving, counsel for Joint Intervenors, filed an affidavit with their May 31 amended contentions. The affidavit states that the cost of constructing the facilities in question has been underestimated, the rate of growth of Applicant Gulf States' sales has declined, and various reports concerning construction all point to harmful cost cutting caused by Applicants' alleged financial situation. However, at oral argument Joint Intervenors stated that they supported, and Gulf States has received, a fair rate of return. They ascribed Gulf States' allegedly "strapped" financial condition to prior management but expressed satisfaction with present management and noted that new people had been brought in whose technical qualifications Joint Intervenors were not

challenging. Nevertheless, Joint Intervenors argue that Applicants simply cannot raise the money necessary to build the plant to meet the standards set out in NRC regulations. Tr. 67-74.

Applicants strongly disagree. They deny the existence of any financial difficulty. In a pleading dated April 15, 1983, Applicants argue that: (1) Joint Intervenors fail to show the "special circumstances" required by section 2.758; (2) Joint Intervenors' argument was specifically rejected by the Commission in eliminating financial qualifications from hearings; and (3) at least one other licensing board has rejected a similar argument under stronger circumstances, *Commonwealth Edison Co.* (Byron Station, Units 1 and 2), Docket Nos. STN 50-454-OL and 50-455-OL (August 2, 1982) (unpublished Memorandum and Order). Applicants urge that the instances of deficiencies cited are no more than the minor noncompliances to be expected in a project the size of River Bend. Applicants also note that an affidavit by counsel does not meet the *prima facie* showing requirement of section 2.758. Tr. 66-67. In a pleading filed April 15, 1983 at pp. 8-10, NRC Staff agrees with Applicants that Joint Intervenors have not made the necessary showing of "special circumstances" to warrant a waiver of the prohibition against challenging Commission regulations.

*b. Decision on Contention 1*

The Commission eliminated the review of financial qualifications from power plant licensing hearings in part because it could not "find any reason to consider, in a vacuum, the general ability of utilities to finance the construction of new generation facilities. Only when joined with the issue of adequate protection of the public health and safety does this issue become pertinent." 47 Fed. Reg. 13,751 (1982). The Commission could find no "demonstrable link between public health and safety concerns and a utility's ability to make the requisite financial showing." *Id.*

The Commission addressed the general subject in more detail recently in reviewing a Director's Decision involving a similar allegation concerning an operating plant. In *Maine Yankee Atomic Power Co.* (Maine Yankee Atomic Power Station), CLI-83-21, 18 NRC 257 (1983), the Commission reiterated its observation about the absence of inevitable linkage between financial problems and "corner cutting" on safety and stated:

Thus, even had the Commission retained its financial qualifications review requirements, a showing that Maine Yankee was undergoing financial difficulties would not by itself require that the Commission halt operations at that plant. On the

other hand, allegations that defects in safety practices have in fact occurred or are imminent would of course form a possible basis for enforcement action, whether or not the root cause of the fault was financial. In the case at issue Safe Power has offered no evidence nor made any claim of actual hazards at Maine Yankee. Indeed, Safe Power's petition supports a view that Maine Yankee has continued to seek and receive from its "prime sponsors" or otherwise the funding which it needs to conduct its operations in a safe fashion. The Director did not abuse his discretion in refusing to take enforcement action based on mere speculation that financial pressures might in some unspecified way undermine the safety of Maine Yankee's operation.

\* \* \*

In summary, Safe Power's petition demonstrated no safety-related concerns which might require immediate enforcement action, and there are procedures proposed or already in place to deal in a timely manner with the financial concerns raised by Safe Power's allegations.

*Id.* at 160, 162 (footnote omitted). While we note that the rule amendment eliminating financial qualifications is under review in the D.C. Circuit, *New England Coalition on Nuclear Pollution v. NRC*, No. 82-1581 (filed May 24, 1982); and that the Commission exercised its discretion to direct the Staff to inquire further into the Maine Yankee situation, the basic point remains. There must first be a showing of a legitimate safety concern.

There has been no showing, even *prima facie*, of what could be called a safety problem in the work of constructing the River Bend Plant. Joint Intervenors' citation to three inspection deficiencies in a multi-billion dollar project hardly establishes such a link. Nor does a request to deviate from standards to reduce costs for a single category of tubing add any greater weight to the allegation. Cost cutting *per se* is not harmful. The mere allegation of financial problems, three unrelated inspection reports, and an openly requested deviation do not constitute a safety problem. In short, the Board can find no safety problem, no financial problem, nor any link between the two.

Consequently, the special circumstances required by section 2.758 have not been shown, and the prohibition of section 50.40(b) cannot be waived. The contention will not be admitted.

**2. Contention 4: Liquid Pathways**  
**Contention 14: Synergistic Effects (State Contention 3)**

**a. Positions of the Parties**

State's Contention 3 contains the elements of Joint Intervenors' Contentions 4 and 14. As noted, Applicants object to Joint Intervenors' Contention 14 as untimely. The Commission has a general policy of con-

solidating contentions and intervenors whenever reasonably possible in the interests of the efficient conduct of our proceedings. *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 455 (1981). Accordingly, the Board finds that a ruling on Applicants' motion would not affect the ultimate result. The motion is denied.

The Intervenors' basis for the liquid pathway contention is the possibility of radioactive materials finding their way into surface and ground waters that ultimately feed into the Mississippi River and certain regional aquifers and finally into drinking water supplies derived from these sources. The basis proffered by the State represented further that its concern includes the possibility that the effects of such radioactive materials combining with already present industrial effluents may present synergistic health hazards.

Joint Intervenors alleged further that Applicants have not established "acceptable criteria" for judging the acceptability of the results of any studies. No basis was provided.

Joint Intervenors' Contention 14 charges that Applicants have failed to adequately assess the synergistic and/or cumulative effects of the ionizing radiation to be released from River Bend: (1) into the Mississippi River water in combination with the chemical effluents presently existing therein; and (2) into the air in combination with the chemical effluents presently existing therein. No basis was provided.

The State and Joint Intervenors, in oral argument, emphasized the presence in the air and in the river of industrial effluents from heavily concentrated coal and petrochemical plants, questioned the applicability of Applicants' dye study in the River to the release of radioactive liquids, and questioned whether an earlier performed dye study would be applicable currently. Joint Intervenors argue that the area has one of the highest cancer rates in the country and that the addition of radioactive emissions to existing air and water borne effluents will have a harmful health impact greater than the sum of harmful consequences of all individual effluents. Tr. 76-78, 80-82, 84-85, 112, 124.

Applicants and the Staff opposed all three contentions because: liquid pathway studies had been performed by the Applicants and approved by the Staff; nothing was cited to show anything wrong with Applicants' and Staff's conclusions; and, no basis was given for believing that any specific ambient chemical effluents would react synergistically with radioactive releases. Tr. 82-83, 85, 117.

*b. Decision on Contentions 3 and 14*

Sources of radiation and allowable emissions of any kind are governed by 10 C.F.R. Part 20 (1983). These standards are mandatory and must be met by operators of facilities such as Applicants. 10 C.F.R. § 20.2 (1983).

Against this background, all Intervenors argue that emissions, presumably within the mandatory limits imposed by Part 20, may cause health hazards either alone or in combination with industrial effluents already present in the area's air and water as a result of the heavy concentration of industrial plants already in operation. Yet, despite repeated queries from the Board, Intervenors did not identify a single chemical or effluent of any kind that might interact with some unspecified level or quantity of ionizing radiation.

Moreover, to the extent that the contentions seek to address the long-term effects of low-level ionizing radiation, they are inadmissible. Such effects are presently the subject of generic study.

The Board finds all three of these contentions to be too vague and lacking in specificity to permit meaningful litigation. *General Electric Co. (G.E. Morris)*, No. 70-1038-OLA (June 4, 1980) (unpublished Order Ruling on Contentions of the Party). Accordingly, the Board denies the admissibility of State's Contention 3 and Joint Intervenors' Contentions 4 and 14. 10 C.F.R. § 2.714(b) (1983).

**3: Contention 7: Old River Control Structure (State Contention 4)**

*a. Positions of the Parties*

The Old River Control Structure is a barrier approximately 70 miles north of Baton Rouge, maintained by the U.S. Army Corps of Engineers to prevent the Mississippi River from diverting some portion of its flow into the Atchafalaya River. All Intervenors contend that Applicants have not adequately considered the effect of a failure of the structure on the safe operation of the plant. They contend that the structure's failure will result in a switch of the Mississippi River to the present course of the Atchafalaya River and thus: (1) the volume of the Mississippi River will be greatly diminished; and (2) there will be an increase in salt content in the waters due to the intrusion of more saline waters from the Gulf of Mexico.

The State raised this matter because it had received "virtually no treatment in the FSAR" and the State wanted the Board to know of this "potentially significant event." Tr. 92. In its filing of March 15, 1983 at 7, the State stated as part of its basis that



Engineer Ralph Kazmann of Louisiana State University estimates there is a 50-50 chance that the Old River control structure will fail during the next 20 to 40 years, corresponding roughly to the operating life of River Bend Station.

Applicants have failed to adequately consider the consequences of such failure on the safe operation of River Bend Station, Unit 1, specifically, the effect of a reduced flow and heavy siltation of the Mississippi River on the intake of cooling water, on the relative increase in thermal pollution resulting from the discharge of cooling water into a reduced volume of river water, and the possible effect of salt water intrusion into cooling and other safety and nonsafety related systems utilizing Mississippi River water.

In its filing of May 31, 1983, Joint Intervenors offered the following in support of the proposed contention:

Continued operation of the River Bend Station after the decrease in volume of the Mississippi River water and increase in salt content therein will cause additional pitting of pipes, additional amounts of metal salts and debris in the pipes, and structural weakness. The Applicants have not adequately considered these events on the existing safety related equipment nor for such equipment to be added as a result of post-TMI requirements.

*Id.* at 5. Joint Intervenors and the State conceded that there is probably no immediate safety concern occasioned by the failure of the Old River Control Structure. Tr. 90-91, 93. Joint Intervenors also recognize that emergency cooling water for the reactors is provided by wells. Tr. 90. Nevertheless, both Intervenors expressed concern that failure of the Structure could adversely affect further plant operation. Tr. 91, 93-94.

Both Applicants and Staff would have the Board deny admission of these contentions because neither contention provides a basis for challenging the ability of Applicants to safely shut down the plants and maintain them in a safe shutdown condition should the Old River Control Structure fail. Applicants state that the design of the River Bend Station is such that it places no reliance upon Mississippi River Water as the ultimate heat sink for the Station. It has sufficient storage capacity on site to provide and maintain safe shutdown for an extended period. Makeup to this system is by deep well groundwater. Applicants' April 15, 1983 response at pp. 24-27. Tr. 96-98.

Absent a basis for a challenge to safe operation, they allege that no valid safety concern exists. However, neither Applicants nor Staff refuted the statement that there is a 50% probability of failure of the Old River Control Structure within the lifetime of the plant.

*b. Decision on Contention 7*

The Board is persuaded that failure of the Old River Control Structure does not preclude safely shutting down the plant, and hence that there will be no immediate safety problem. However, the concerns of both Intervenor's about further facility operation under altered river flow and salinity conditions deserves further consideration. This is especially true absent a clear statement by Applicants of their intent with respect to further facility operation subsequent to the hypothesized failure of the structure.

The Board perceives the following unanswered questions as bearing upon both safe operation and the cost-benefit balance:

1. What is the likelihood of failure of the Old River Control Structure over the next 40 years?
2. What are the current plans for repair and/or replacement of the Old River Control Structure in the event of failure?
3. In the event it is necessary, what are the estimates of time required to accomplish repair or replacement of the Old River Control Structure?
4. In the event of failure, what are the current plans of the Applicants relative to plant operation?
5. What are the long-term implications for the River Bend Station from the cost-benefit and safety viewpoints of failure of the Old River Control Structure?

Accordingly, the Board hereby consolidates and rewords the two contentions as follows:

In the event of failure of the Old River Control Structure, Applicants have not considered the public health, safety and environmental impacts of further facility operation under altered river flow and salinity conditions.

State Contention 4 and Joint Intervenor's' Contention 7 are consolidated, reworded, and admitted as stated above, in accordance with 10 C.F.R. § 2.715a (1983).

**4. Contention 8 (Partial): Angola Prison Evacuation (No State Contention)**

*a. Positions of the Parties*

While agreeing to defer other offsite emergency plan issues, the parties argued whether the Angola prison issue is admissible because the facility is located beyond the 10-mile Emergency Planning Zone (EPZ). Tr. 10.

State and Joint Intervenors contend that the offsite emergency evacuation plan should include the Louisiana State Penitentiary at Angola. A plantation farm type prison, the facility houses over 4,000 inmates on a bend in the Mississippi River approximately 18 air miles northwest of the River Bend Station. The facility is surrounded on three sides by the river and on the fourth side by an "impenetrable swamp." It has only one entrance and exit road. Tr. 11, 47-48; Letter dated August 12, 1983 from Charles R. Davoli to William H. Spell. A map submitted at oral argument shows the prison to be located on the same side of the river as River Bend, approximately five miles from the Mississippi and Arkansas state borders.

Emergency plans are governed by 10 C.F.R. § 50.47 (1983). Section 50.47(c)(2) provides in pertinent part that

Generally, the plume exposure pathway EPZ for nuclear power plants shall consist of an area about 10 miles (16 km) in radius and the ingestion pathway EPZ shall consist of an area about 50 miles (80 km) in radius. The exact size and configuration of the EPZs surrounding a particular nuclear power reactor shall be determined in relation to local emergency response needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries.

The purpose of emergency plans is to protect the public in a radiological emergency. See 10 C.F.R. 50.47(a)(1) (1983) and NUREG-0654 Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants."

The 10 mile provision in the regulation is a mandatory standard qualified only by the flexibility necessary for planning officials to address site-specific circumstances. Any such local variation in the EPZ radius would have to be based on the same specific considerations that went into establishing the generic 10-mile radius. See generally, *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), LBP-82-39, 15 NRC 1163, 1177-82 (1982).

Joint Intervenors contend that the Angola prison presents a distinct variable in the demography of the River Bend plant that warrants inclusion of the prison in the River Bend emergency plan. They do not suggest enlargement of the 10-mile EPZ. Tr. 53. Intervenors urge that the report of an accident at River Bend would cause the inmates "to act en masse to escape" which "would present a danger to the persons on the outside who live in the area including Baton Rouge, St. Francisville, and the other surrounding communities." Tr. 49. Intervenors argue that the road out of the prison and the prison population are such that escaped prisoners would travel south toward the plant and Baton Rouge rather than away from it toward the Mississippi or east Louisiana. Tr. 53.

Therefore, the emergency plan should provide for additional prison security and mechanisms to guarantee the inmates a way to get out. Tr. 50.

Applicants oppose admission of the contention, principally on the grounds that control of the Angola prison comes under the jurisdiction of the State, is beyond the jurisdiction of the Licensing Board under applicable NRC regulations and their interpretation, and that the escape scenario is highly speculative and implausible. Tr. 54-59. Staff opposes the contention on the grounds that the regulation does not require evacuation of facilities beyond the 10-mile EPZ, that the posited rebellion is speculative and without basis, that the prison situation is the responsibility of the State in the exercise of its police power, and that an escape is not a radiological threat and, therefore, not within the Nuclear Regulatory Commission's jurisdiction. Tr. 60-61.

The question was raised during the prehearing conference whether the State had an emergency evacuation plan for Angola. Counsel for the State agreed to determine if a plan existed. Tr. 59-60. Thereafter, a letter dated August 12, 1983 from Charles R. Davoli, Assistant Secretary, Louisiana Department of Corrections to William H. Spell, Administrator, Louisiana Nuclear Energy Division, was filed. The letter confirms that a contingency plan for Angola, including plans for total evacuation, has been completed. Mr. Davoli stated that the plan covered "all eventualities including attempted escape and the necessity for reinforcement of personnel at the prison." Mr. Davoli stated further that the Department of Corrections is confident that it can prevent any mass escapes and implement any contingency plans related to an emergency at River Bend. He further requested that the State's emergency plan include notice to the Department of Corrections of an emergency at River Bend requiring action by the Department and that plan development be coordinated with the Department as to any required details.

*b. Decision on Prison Contention*

The apparent thrust of Joint Intervenors' contention is not that the inmates of Angola might be exposed to a radiological threat but rather that they would panic in the event of a radiological emergency at River Bend, effect a mass, armed escape from the prison, and disrupt the orderly implementation of the emergency plan. Tr. 51. To accept such a contention we must assume a mass panic by people 8 miles outside the EPZ and 18 miles from the cause of the assumed panic; we must assume that prison officials will be unable to control the inmates; we must assume the inmates will overpower all prison officials and escape; and,

finally, we must assume that the panic-stricken inmates will flee toward, rather than away from, the cause of their panic. We have no facts upon which to base these assumptions concerning inmate conduct, and we are not inclined to speculate. *Pennsylvania Power & Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), Nos. 50-387 and 50-388, slip. op. at 4 (July 7, 1981) (unpublished Memorandum and Order on Pending Motions and Requests).

Section 50.47 is concerned with protection from radiological emergencies. No such emergency is claimed to exist at Angola by intervenors, and we can perceive none. Consequently, on its face, the contention does not fall within the ambit of the regulation.

Nor can we see any adequate basis for finding that a speculative series of events might disrupt the implementation of an emergency plan drawn up for a 10-mile EPZ. The flexibility in the 10-mile EPZ regulatory requirement does not contemplate including so remote a chain of speculative circumstances as that posited by Joint Intervenors. 10 C.F.R. § 2.714(b) (1983). The assumed chain of events is a matter falling within State jurisdiction and is beyond ours. The contention is denied.

## V. SUMMARY OF DECISIONS ON CONTENTIONS

The contentions of Joint Intervenors have thus been resolved as follows:

1. Contention 1, Financial and Technical Qualifications — Denied;
2. Contention 2, Environmental Qualifications — Withdrawn;
3. Contention 3, Prematurity of Application — Withdrawn;
4. Contention 4, Liquid Pathway Issue — Denied;
5. Contention 5, Generic Safety Issue — Withdrawn;
6. Contention 6, Cracking of Materials — Withdrawn;
7. Contention 7, Old River Control Structure — Admitted as restated;
8. Contention 8, Emergency Response Plan — Deferred, except for the portion of the contention concerning Angola prison which is denied;
9. Contention 9, Potassium Iodide Tablets — Withdrawn;
10. Contention 10, Funds for Premature or Early Decommissioning — Withdrawn;
11. Contention 11, Construction of River Bend Unit 2 — Deferred;
12. Contention 12, Asiatic Clams (*Corbicula leana*) — Admitted;
13. Contention 13, Fossil Plant Thermal Discharges — Withdrawn, and

14. Contention 14, Synergistic Effects — Denied.

The contentions of the State of Louisiana have been resolved as follows:

1. Contention 1, Table S-3 — Withdrawn;
2. Contention 2, Emergency Plan — Deferred;
3. Contention 3, Liquid Pathway — Denied;
4. Contention 4, Old River Control Structure — Admitted as restated;
5. Contention 5, Unit 2 Construction — Deferred; and
6. Contention 6, Asiatic Clams — Admitted.

## VI. FURTHER PROCEEDINGS

### 1. *Discovery*

The parties are directed to begin voluntary informal discovery immediately on the Asiatic Clam and Old River Control Structure contentions. Counsel for Intervenors is directed to report to the Board on or before November 1, 1983, whether formal discovery is necessary. If the Board determines based on the report that formal discovery on either contention is necessary, a schedule will be established promptly for completing it.

### 2. *Emergency Plans*

Pursuant to discussions at the prehearing conference, the parties are directed to meet and confer immediately on the emergency plan presently scheduled for issuance in December 1983. Counsel for Joint Intervenors is to notify the Board promptly when the emergency plan is received. The purpose of the conference among parties is to resolve any questions Joint Intervenors may have about the adequacy of the plan. The parties should confer as often as needed. Forty-five days after the plan is received by Joint Intervenors, counsel for Staff, on behalf of the parties, shall report the results of the conference and whether Joint Intervenors still find it necessary to file contentions concerning the plan in accordance with the stipulation reached at the prehearing conference. Should contentions be filed, a prehearing conference on their admissibility will be held promptly, a ruling issued, and a discovery schedule established.

## VII. CONCLUSION

Joint intervenors (LCL, LSE, and Ms. Rothschild) and the State of Louisiana are admitted to this proceeding as party intervenors, based on the admission of the contentions concerning Asiatic Clams and the Old River Control Structure.\*\* The Asiatic Clam contentions of Joint Intervenor and State are hereby consolidated and renumbered as Contention 1 and the Old River Control Structure contentions, as reworded, are consolidated and renumbered as Contention 2. Any additional contentions admitted will be numbered consecutively starting with Contention 3.

All other matters presented by the parties, but not addressed in this memorandum have been considered and found either to be without merit or such as not to affect the result reached herein.

### THE ATOMIC SAFETY AND LICENSING BOARD

B. Paul Cotter, Jr., Chairman  
ADMINISTRATIVE JUDGE

Richard F. Cole  
ADMINISTRATIVE JUDGE

Gustave A. Linenberger  
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,  
this 26th day of August 1983.

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\*\*Pursuant to 10 C.F.R. § 2.714a, this is an appealable order.

**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)**

**August 31, 1983**

The Licensing Board grants one motion to quash subpoenas, denies another motion to quash subpoenas and enters a protective order to govern the enforcement of the subpoenas.

**RULES OF PRACTICE: DISCOVERY; PRIVILEGE**

An attorney's representation, that all communications between the attorney and the party were for the purpose of receiving legal advice, is sufficient for an assertion of attorney-client privilege.

**RULES OF PRACTICE: DISCOVERY; PROTECTIVE ORDER**

A party's need for discovery outweighs any risk of harm from the potential release of information when the NRC Staff has indicated that no ongoing investigation will be jeopardized, when all identities and identifying information are excluded from discovery; and when all other information is discussed under the aegis of a protective order.



## **RULES OF PRACTICE: DISCOVERY; PRIVILEGE**

Even where a First Amendment or common law privilege is found applicable to a party (or nonparty) resisting discovery, that privilege is not absolute. A licensing board must balance the value of the information sought to be obtained with the harm caused by revealing the information.

### **MEMORANDUM AND ORDER (Ruling on Motions to Quash Subpoenas)**

#### **I. BACKGROUND**

On July 8, 1982, Consumers Power Co. (Applicant) requested this Licensing Board to issue deposition subpoenas to four Government Accountability Project (GAP) employees. These GAP employees had submitted affidavits to the NRC on behalf of whistleblowers, all but one of whom wished to remain anonymous. The contents of the affidavits apparently allege poor work quality and serious safety problems at the Applicant's Midland plant. By these depositions, the Applicant seeks to determine the substance of the allegations, but not the names of the individual alлегers or any identifying information about them. Attached to the proposed subpoenas is a schedule of documents requested from the GAP employees. We issued the subpoenas on July 8, 1982, but limited the scope of the questions asked of GAP and the documents which GAP had to supply to "only those relevant to matters already at issue (including admitted contentions) in the OL/OM proceedings." Memorandum dated July 8, 1982 (unpublished), at 2.

The Applicant, by agreement with the Staff, postponed serving and enforcing the subpoenas in order to allow the NRC investigatory staff an opportunity to conclude its investigation of the allegations prior to the initiation of discovery on these matters. However, in April 1983, the Applicant informed Region III Administrator James G. Keppler that it intended to begin discovery on the issues unless the NRC Staff raised any objection. Mr. Keppler responded that the NRC did not object to the initiation of discovery.<sup>1</sup> Thereupon, on April 6, 1983, Applicant

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<sup>1</sup> In response to our question to the Staff at oral argument on July 26, 1983, the Staff indicated on August 2, 1983 (at Tr. 19,976), that it had checked with the Office of Investigations (OI) and that that office also does not object.

informed the GAP employees by letter that it intended to enforce the subpoenas and proceed with the depositions.

On June 27, 1983, the GAP deponents filed a motion to quash the subpoenas. The Applicant and Staff filed responses in opposition to the motion to quash on July 11 and 18, 1983, respectively. The Staff sought imposition of a protective order, and the Applicant offered no objection. On July 20, 1983, Intervenors Barbara Stamiris and Mary Sinclair received from the Applicant a corrected copy of the list of requested documents.<sup>2</sup> This was the first time Intervenors had notice that documents concerning communications between themselves and GAP employees were requested. On July 26, 1983, these Intervenors then filed a motion to quash the subpoenas to the extent that they requested testimony or documents concerning such communications.

The Board heard oral argument on these motions on July 26, 1983. We address herein the arguments raised in the motions and at the oral argument; and, for reasons stated, we are granting Ms. Stamiris and Ms. Sinclair's motion and are denying the GAP deponents' motion. The subpoenas shall be enforced pursuant to the provisions of the attached protective order.

## **II. RULINGS ON MOTIONS TO QUASH SUBPONEAS**

### **A. Intervenors Mary Sinclair and Barbara Stamiris' Motion to Quash Subpoenas**

Intervenors Mary Sinclair and Barbara Stamiris move to quash the subpoenas insofar as they request testimony or documents concerning communications between themselves and GAP. In particular, they move that paragraph 3 at 2 of the "Schedule of Documents Requested" be stricken on the ground that the information is absolutely protected by the attorney-client privilege. That paragraph requests the following:

3. All communications between Barbara Stamiris or Mary Sinclair on [the] one hand and GAP, representatives of GAP, Billie P. Garde, Lewis Clark, Lucy Hallberg, or Thomas Devine on the other.

Counsel for Intervenors represents that Intervenors Barbara Stamiris and Mary Sinclair have consulted GAP for legal advice since March 1982 and that all communications were for the purpose of obtaining

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<sup>2</sup> When the deponents were first served with subpoenas in May 1983, an erroneous version of the document request was attached. The deponents were served with corrected versions on July 18, 1983.

legal advice (Intervenors' Motion at 3 and 5, Transcript at 19,121). Two of the GAP employees named in the subpoenas — Louis Clark and Thomas Devine — are attorneys at GAP. The other two individuals — Billie Garde and Lucy Hallberg — act as paralegals and investigators, under the supervision of GAP attorneys, providing legal services to individuals requesting such assistance.

Neither the Applicant nor Staff challenges the Intervenors' well-documented interpretation of the law governing the attorney-client privilege. Rather, the Applicant challenges the factual foundation underlying the assertion of the privilege.

The Applicant suggested at oral argument that interrogatories be submitted to the Intervenors for them to set forth their understanding of their relationship with GAP, dating back to the spring of 1982. In addition, the Applicant argued that the Intervenors should be required to submit an index of documents they are withholding on the grounds of attorney-client privilege, detailing the author, addressee, dates, and subject matter, so that the claims can be tested (Tr. 19,145).

Intervenors objected strongly to this proposed procedure, arguing that certification by the attorney to the facts necessary to assert the privilege is sufficient (Tr. 19,173). In support of this argument, Intervenors' counsel cited our ruling at hearing on June 29, 1983, where we accepted the word of Applicant's attorney concerning his assertion of the existence of an attorney-client privilege (Tr. 18,615).

We affirm here what we said then. We will accept the representations of attorneys before us. Counsel for Intervenors has stated that *all* communications between Intervenors Sinclair and Stamiris and GAP were for the purpose of receiving legal advice. We accept that representation. Therefore, we reject the requested discovery on this subject.

Moreover, we note that the Applicant's expressed purpose for the requested depositions and documents is "to discover the substantive content of the affidavits and to question the GAP representatives about the circumstances under which these affidavits were prepared." Applicant's counsel at Tr. 19,127-28. Counsel for Intervenors represented that neither Ms. Stamiris nor Ms. Sinclair has seen the affidavits and that neither has any information about their contents (Tr. 19,118). Therefore, neither testimony nor documents concerning communication between these Intervenors and GAP is relevant to Applicant's expressed purpose for the depositions and documents.

Accordingly, we are granting Intervenors Mary Sinclair and Barbara Stamiris' Motion to Quash Subpoenas. Paragraph 3 shall be stricken from the Applicant's document request and deponents shall not be

required to respond to any questions concerning communications between GAP and Intervenors Mary Sinclair and/or Barbara Stameris.

## **B. Deponents' Motion to Quash Subpoena**

Deponents Louis Clark, Thomas Devine, Billie P. Garde, and Lucy Hallberg move to quash the subpoena in its entirety, including the attached request for documents. In essence, the deponents argue that no information concerning the affidavits can be released without risking the disclosure of the identities of the confidential informants (Tr. at 19,109 and 19,113). In addition, the deponents state that compliance with the subpoena to any extent would threaten the institutional integrity of GAP by creating the appearance that GAP cannot maintain the confidences entrusted to it by whistleblowers. Motion at 12-13, Tr. at 19,098-99.

GAP is a non-profit organization that, among other activities, assists whistleblowers "who pursue illegal, wasteful, improper or negligent actions by government or corporate bodies." Affidavit of Louis Clark, paragraph 4. GAP also acts as a conduit of information from concerned citizens to government agencies. Motion at 6. The deponents suggest that the confidential sources of information will dry up if GAP discloses any information revealed to it in confidence. They argue that a First Amendment privilege should apply because disclosure of any of the subpoenaed information would "demolish the right of citizens acting through GAP to petition the government for redress of grievances." Motion at 6. As an alternative, deponents argue common law privilege applicable to certain confidential relationships and information, and finally estoppel, based on the Commission's assurance of confidentiality.

Both the Applicant and Staff argue that the deponents' motion is premised on the false notion that the Applicant is seeking to expose the identity of the confidential informants. Therefore, they do not address in their motions deponents' legal arguments concerning privilege and estoppel. For the same reason, we also find it unnecessary to reach the question of privilege. With respect to the estoppel argument, even the deponents admit that the Commission gave assurance to the informants of nondisclosure only as to their identities. Affidavit of Louis Clark, paragraphs 8 and 12.

We have, however, considered what seems to be the thrust of deponents' argument, that release of *any* of the information concerning the contents of the affidavits, regardless of what restrictions or protections may be imposed, will inevitably lead to the release of the

identities of the informants, or at least create the appearance that GAP cannot protect the confidentiality of its informants.

We find these fears to be unfounded for the following reasons:

1. The Applicant is not seeking and this Board is not ordering that the identity of any affiant or any identifying information regarding an affiant be disclosed. The Applicant has specifically stated in its Application for Deposition Subpoenas at paragraph 5 that "Applicant will not ask for the names of the affiants during the requested depositions." Applicant has requested the affidavits and statements at issue "with the affiant's name and any information which would disclose the affiant's identity deleted." Schedule of Documents Requested at 2.
2. The GAP deponents construed the subpoena as seeking information beyond the scope of admitted contentions — for example, the organization and financing of GAP and the means by which that organization obtains information (Tr. 19,079). The Applicant conceded that much of such information would likely not be relevant to admitted contentions or issues (Tr. 19,147). We reiterate what we stated in our July 9, 1982 Memorandum at 2, that the scope of the depositions and the documents which GAP must supply is *limited* to "those relevant to the matters already at issue in the OL/OM (including admitted contentions) proceedings." In that connection, the manner in which GAP generally obtains information would not be relevant; the manner in which it obtained particular information relevant to particular contentions or issues might be relevant.
3. In order to further allay the concern of GAP that confidential information could be disclosed or that the public might perceive that GAP cannot be entrusted with confidential information, we are also entering a protective order restricting disclosure of any information revealed in the depositions or document request to Applicant's *counsel*, NRC Staff, and Intervenors, except that information necessary to obtaining a ruling on the propriety of any disclosure may be revealed to this Board. The Applicant offered no objection to such an order, and the Staff affirmatively sought it.

Although deponents expressed apprehension concerning a possible breach of the protective order, they have presented no particular evidence that there is more of a risk of a violation in this case than in any other case. As the Appeal Board recently noted in *Commonwealth*

**Edison Co. (Byron Nuclear Power Station, Units 1 and 2), ALAB-735, 18 NRC 19, 25 (1983):**

Up to this point at least, licensing and appeal boards have acted on the assumption that protective orders will be obeyed. *Houston Lighting & Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-535, 9 NRC 377, 400 (1979). On that assumption, boards have permitted the disclosure to parties of a wide variety of sensitive information — including the details of plant security plans. See, e.g., *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-592, 11 NRC 744, 746, and ALAB-600, 12 NRC 3 (1980); *Consolidated Edison Co.* (Indian Point Station, Unit No. 2), ALAB-177, 7 AEC 153 (1974). But see *Houston Lighting & Power Co.* (South Texas Project, Units 1 and 2), ALAB-639, 13 NRC 469, 477 (majority), 484-85 (dissent) (1981). *To our knowledge, there has never been a breach of an NRC protective order that seriously threatened the confidentiality of the information revealed under the order.* [Emphasis supplied].

In that case, it was the NRC Staff that expressed concern about the effectiveness of protective orders to prevent disclosure of information that is the subject of ongoing investigations. The Appeal Board indicated that if the Staff had “an actual, as opposed to purely theoretical, risk of such a breach here, it had the obligation to document that basis” (*id.* at 25). In particular, the Appeal Board stated that the Staff would have to make “a concrete showing through appropriate affidavits rather than counsel’s rhetoric, of potential harm to the inspection and investigation functions relevant to this case” (*id.* at 26).

Since identities are not even being disclosed under the aegis of a protective order in this case, we find no risk of harm to GAP’s confidential informants or to GAP’s institutional integrity. In addition, the NRC Staff has indicated that no harm will ensue to the ongoing investigation from initiation of this discovery. On the other hand, we find that the Applicant does have a need to discover information relevant to the contentions and that it has been unable to obtain the information elsewhere.

We note that, even if we were to find that a First Amendment or common law privilege were applicable, as argued by GAP, that privilege would not be absolute. It would call for a balancing of the value of the information sought to be obtained with the harm caused by revealing the information.<sup>3</sup> Given the lack of harm which we find will result from revealing certain information subject to the protective order we are

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<sup>3</sup> See *Wright v. Jeep Corp.*, 547 F. Supp. 871 (E.D. Mich. 1982); *Gray v. Board of Higher Education, City of New York*, 92 F.R.D. 87 (S.D.N.Y. 1981); and *Richards of Rockford, Inc. v. Pacific Gas and Electric Co.*, 71 F.R.D. 388 (N.D. Cal. 1976).

imposing; we would not in any event quash the instant subpoenas on the basis of privilege.

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For the reasons stated, it is, this 31st day of August 1983,  
**ORDERED**

1. That the Motion of Mary Sinclair and Barbara Stamiris to quash certain aspects of the subpoenas on GAP deponents is *granted*.

2. That the GAP deponents' "Motion to Quash Subpoenas" is *denied*. The depositions and document requests shall be carried out in accordance with the terms of the attached protective order.

**FOR THE ATOMIC SAFETY AND  
LICENSING BOARD**

**Charles Bechhoefer, Chairman  
ADMINISTRATIVE JUDGE.**

Dated August 31, 1983.

### **PROTECTIVE ORDER**

It is ordered that the depositions and document requests encompassed by the Licensing Board's Memorandum and Order (Ruling on Motions to Quash Subpoenas) dated August 31, 1983, shall be subject to the following terms and conditions:

(1) At their respective depositions the GAP deponents who have been subpoenaed (Louis Clark, Thomas Devine, Billie Garde and Lucy Hallberg) (the "GAP Deponents") need not respond to any question which (a) seeks to learn the name of any individuals who have submitted affidavits to GAP pursuant to a promise of confidentiality ("the anonymous affiants") or (b) may reasonably be expected to result in the disclosure of the names of the anonymous affiants, or any of them ("identifying information").

(2) The GAP Deponents may delete, or cause to be deleted, from the documents requested in the Schedule of Documents attached to their respective Subpoenas, the names of the anonymous affiants and other identifying information.

(3) The Applicant, Staff and Deponents will attempt to resolve any differences they may have as to whether a particular question, if answered, or a portion of a document, if not deleted, would result in the disclosure of identifying information, and in the absence of such resolution the matter may be presented to the Board for resolution by motion, upon which the Board may enter such relief as it seems appropriate including, but not limited to, ordering the resumption of a deposition.

(4) All information elicited from the depositions and document requests shall be restricted to Applicant's counsel, NRC Staff and Intervenors, except that information necessary to obtaining a ruling on the propriety of any disclosure may be revealed to this Board.<sup>1</sup>

(5) In the event, through error or inadvertence, the name of an anonymous affiant, or identifying information, is disclosed during the course of a deposition of the GAP Deponents, upon request made on the record, by the GAP Deponent or counsel for the GAP Deponent, such name or identifying information shall be deleted from the transcript, and counsel for Applicant, the NRC Staff and Intervenors shall not disclose such name or identifying information to any other person except to this Board as may be necessary to obtain a ruling on the propriety of any disclosure. In no event, in the absence of a subsequent order by this Board shall counsel for Applicant disclose such name or identifying information to Applicant or to any employee of Applicant.

(6) This Order does not in any way determine whether the anonymous affiants have any right to non-disclosure of their identities, or any other question of fact or law in connection therewith, and is without prejudice to the rights of any party to this proceeding to obtain a ruling on such questions of fact and/or law from this Board. This Order

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<sup>1</sup> Applicant's counsel may come back before this Board and request permission to disclose information to Applicant if the counsel determines that the Applicant has a need to know it. See discussion at Tr. 19,135-36.



shall not in any way affect the burdens of proceeding or proof on such questions which would exist in the absence of this Order.

**FOR THE ATOMIC SAFETY AND  
LICENSING BOARD**

**Charles Bechhoefer, Chairman  
ADMINISTRATIVE JUDGE**

**Dated August 31, 1983.**



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

OFFICE OF INSPECTION AND ENFORCEMENT

Richard C. DeYoung, Director

In the Matter of

Docket Nos. 50-445  
50-446  
(10 C.F.R. § 2.206)

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

August 19, 1983

The Director of the Office of Inspection and Enforcement denies a petition pursuant to 10 C.F.R. § 2.206 which requested that the licensees produce certain design documents or, in the alternative, show cause why they should not be found in violation of NRC regulations if the documents are not in their possession.

**RULES OF PRACTICE: PETITIONS UNDER 10 C.F.R. § 2.206**

A petition is not properly brought under 10 C.F.R. § 2.206 which requests the Director to grant relief which is within the power of the presiding officer in an NRC adjudicatory proceeding to grant.

**10 C.F.R. PART 50, APPENDIX B: QUALITY ASSURANCE**

NRC regulations do not require licensees to maintain all quality assurance documentation pertaining to facility design within their immediate possession. Licensees may delegate the establishment and execution of its quality assurance program to contractors and other agents but the licensee retains responsibility for the quality assurance program.

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

On January 28, 1983 Mrs. Juanita Ellis, president of the Citizens Association for Sound Energy (CASE), Dallas, Texas, submitted a petition under 10 C.F.R. § 2.206 requesting that the Director of the Office of Inspection and Enforcement issue an order to show cause why the licensees, Texas Utilities Generating Co., *et al.*,<sup>1</sup> should not have to provide certain design information or, in the alternative, if the documents containing this information are not in the possession of the licensees, why their failure to possess these documents is not a violation of NRC regulations.

There is currently pending a proceeding before an Atomic Safety and Licensing Board for the purpose of determining whether operating licenses should be granted for the Comanche Peak facility. CASE has intervened in that proceeding, and CASE is challenging the adequacy of the design of pipe supports being used at Comanche Peak. As part of its "Twelfth Set of Interrogatories to Applicants and Requests to Produce" (Aug. 9, 1982), CASE requested the licensees to supply certain documents containing information about design of the pipe supports. The licensees replied to the interrogatories by stating that, with the exception of certain pertinent information contained in the PSE Design Manual, the licensees did not possess the requested documents.<sup>2</sup> Several months later, CASE filed its petition asking the NRC to require the licensees to make these documents available to it or, in the alternative, to find that the licensees are in violation of NRC regulations for not having the

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<sup>1</sup> In addition to the Texas Utilities Generating Co., the other co-licensees of the Comanche Peak facility are the Dallas Power & Light Co., the Texas Power & Light Co., the Texas Municipal Power Agency, the Brazos Electric Power Cooperative, Inc., and the Tex-La Electric Cooperative of Texas, Inc. The co-licensees hold the construction permits for the Comanche Peak Steam Electric Station and are applicants for operating licenses for the facility.

<sup>2</sup> See "Applicants' Responses to CASE's Twelfth and Thirteenth Sets of Interrogatories and Requests to Produce" (Aug. 23, 1982). Specifically, CASE requested the following documents pertaining to the design by ITT Grinnell and NPS Industries, Inc. (NPSI) of pipe supports (the numbers correspond to the requests in CASE's Twelfth Set of Interrogatories):

9. NPSI Design Criteria for pipe supports (the official one issued in May, 1981).
10. [A]ll documents . . . which were used to define the method used to determine the tensile force in the Richmond inserts.
12. [T]he current Grinnell Design Criteria for pipe supports at CPSES [Comanche Peak Steam Electric Station].
16. [A] copy of the Hilti allowables and the procedures for the analysis.
17. [A] copy of FUB II and the instructions of how to use the FUB II information . . . to determine the capacity of the Hilti bolt.

In answer to questions 9, 12, and 17 the licensees referred CASE directly to their contractors, ITT Grinnell and NPSI, saying that the licensees did not possess the cited documents. For questions 10 and 16, the licensees responded that, to the extent they had any of the information requested, it was contained in the PSE Design Manual, which was already available to CASE. Further information, they stated, would have to be obtained directly from NPSI or ITT Grinnell.

documents in their possession.<sup>3</sup> CASE's request that it be provided the NPSI and ITT Grinnell design documents is now apparently moot, as CASE has been provided an opportunity to inspect and copy relevant portions of these and other documents which CASE has sought as a result of further negotiations over discovery matters with the licensees.<sup>4</sup> However, in all events, CASE's request that the Director initiate a show-cause proceeding pursuant to 10 C.F.R. § 2.202 for the production of documents to CASE is not properly brought under 10 C.F.R. § 2.206.<sup>5</sup> CASE's request for production is essentially a motion to compel discovery of relevant documents to a party to an NRC adjudication. Such motions lie properly before the presiding officer or Board having jurisdiction over the proceeding. *See* 10 C.F.R. § 2.740(f). The NRC's adjudicatory boards are charged with regulating prehearing discovery and ensuring the parties' access to documents relevant to the issues set for hearing. In an analogous context, the Commission has cautioned that 10 C.F.R. § 2.206 should not be used as a means of circumventing a licensing board with jurisdiction to grant relief on a certain issue. *See Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-81-6, 13 NRC 443 (1981).

The question remains whether the licensees have violated NRC requirements by not having the identified documents within their possession. To put CASE's petition in context, it should be noted that information concerning the design of a nuclear facility can generally be divided into three categories. The first is that of design criteria or design allowables. This information defines minimum characteristics which gross elements of a power plant are to have. For example, a rod protruding from a wall may be required to carry a load of some specific amount. The load for this rod would be a design allowable, and part of the design criteria. The second category is the actual design of the facility. Again using the rod analogy, a complete design would specify not only the type

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<sup>3</sup> CASE makes note of the fact that it is challenging the adequacy of the pipe supports, but that CASE is not attempting to use its § 2.206 petition to pursue matters properly before the Licensing Board. Since the pipe supports issue is before the Licensing Board, it shall not be addressed in this decision. Section 2.206 is not a mechanism for sidestepping the jurisdiction of the Licensing Board or the Atomic Safety and Licensing Appeal Board. *See Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-81-6, 13 NRC 443 (1981).

<sup>4</sup> *See* Letters to Juanita Ellis from Nicholas S. Reynolds, Counsel for Applicants (March 29, 1983), from William A. Horin, Counsel for Applicants (April 27, 1983), from Herman W. D'Errico, Project Manager, NPS Industries, Inc. (May 4, 1983), from David D. McKenney, Vice President and General Counsel, ITT Grinnell Corp. (May 9, 1983); Letters to William A. Horin from Juanita Ellis (May 4 and June 8, 1983).

<sup>5</sup> The Director informed Mrs. Ellis of this view in a letter dated March 31, 1983, which was sent in response to her letter dated March 11, 1983. CASE filed a motion to compel discovery with the Licensing Board on March 23rd, and since that time CASE and the licensees have negotiated arrangements whereby CASE has been allowed access to the documents. *See supra* note 2.

of rod to be used, in terms of length, width, material and shape, but also how that rod would be attached to the wall, *e.g.*, how many bolts would be used, of what material these bolts would be, and in what configuration they would be. The third category of information includes the design procedures or other information concerning the manner in which the design is to be developed or implemented. This third category would include, for example, tables and charts specifying properties of various materials, and computer programs incorporating algorithms which are used to calculate the final design. The information which CASE seeks in its petition, and which the licensees stated they did not possess, falls generally into this third category.<sup>6</sup> The licensees referred CASE to ITT Grinnell and NPSI, the contractors which designed the pipe supports.

CASE believes that the licensees are required to maintain the documents in their possession at the Comanche Peak site. *See* Petition at 1. It should be noted that the documents have been at the site in the possession of the pipe support contractors at times in connection with the contractors' performance of their assigned design and construction activities. Because the documents are maintained under the control of the contractors, the licensees have indicated that they do not have them within their immediate possession.

CASE contends that the licensees have violated various provisions of 10 C.F.R. Part 50, Appendices A and B, if the ITT Grinnell and NPSI documents are not within the licensees' possession. These regulations require the establishment and implementation of a quality assurance program, including the creation and maintenance of appropriate documentation,<sup>7</sup> applicable to the design, construction, and operation of structures, systems and components important to safety. The licensee may delegate the work of establishing and executing the quality assurance program to contractors, consultants, or other agents, but the licensee retains responsibility for the establishment and execution of the quality assurance program. 10 C.F.R. Part 50, Appendix B, Criterion I. The regulations require licensees to be responsible for the records, to have access to them and to establish requirements for record retention, but the regulations do not require licensees to maintain within their immediate possession all documentation bearing on the design of safety-related features of a nuclear power plant. *See* 10 C.F.R. Part 50, Appendix B,

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<sup>6</sup> The information sought in interrogatories 9, 10, 12, 16, and 17 by CASE in its Twelfth Set of Interrogatories appears to have been primarily directed towards design procedures despite references made to design criteria. The design criteria referenced in these interrogatories were already available to CASE. *See supra* note 2.

<sup>7</sup> *See* 10 C.F.R. Part 50, Appendix A, Criterion I, and Appendix B, Criteria V, VI, & XVII.

Criterion XVII. The Commission's regulations contemplate that some records may not be at the site where the facility is being constructed or operated. Criterion VI of Appendix B provides that:

Measures shall be established to control the issuance of documents . . . which prescribe all activities affecting quality. These measures shall assure that documents . . . are distributed to and used at the location where the prescribed activity is performed.

The development of a design and the implementation of design procedures to create the design of safety-related equipment is often performed by contractors for persons who are licensed to construct a facility. The contractor may perform some of its functions at its own facilities as well as at the site of the nuclear project. Documentation related to the development of the design must be controlled and maintained by the contractor in accordance with the contractor's quality assurance program implemented to satisfy the licensee's obligations under 10 C.F.R. Part 50, Appendix B. The licensee's Preliminary Safety Analysis Report (PSAR) and Final Safety Analysis Report (FSAR) state that, under the quality assurance program for Comanche Peak, contractors and vendors are required to have quality assurance programs which meet Part 50. *See, e.g.*, PSAR §§ 17.0, 17.1.2.4; FSAR §§ 17.0, 17.1.1.5.

Quality assurance requirements concerning design implementation documentation for the pipe hangers and supports were set forth in Project Specification 2323-MS-46A, which was part of the contracts between the licensees and their contractors ITT Grinnell and NPSI. The project specification incorporates the American National Standards Institute (ANSI) Standard N45.2.9, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants." The ANSI standard provides that the implementation of the standard's requirements may be delegated to the organizations performing the work covered by these standards. The standard provides general requirements and guidelines for record retention. *See* ANSI Standard N45.2.9-1974, at 1. The staff has adopted the recommendations of the ANSI standard as a generally acceptable means of meeting the requirements for maintaining quality assurance documentation. *See* Regulatory Guide 1.88, "Collection, Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records" (Rev. 2, Oct. 1976). Consequently, the licensees are not required to themselves possess the NPSI and ITT Grinnell documents, although they retain the responsibility for ensuring that pertinent quality assurance documents related to the pipe supports are maintained.

The documents are available to the licensees and to the NRC for its inspection<sup>8</sup> in the offices of ITT Grinnell and NPSI. The documents have also been used and kept by ITT Grinnell and NPSI at the Comanche Peak site and at such times have been available to the licensees and the NRC.

In conclusion, the licensees have not violated the Commission's regulations although they do not themselves possess the ITT Grinnell and NPSI documents at issue. Accordingly, the petitioner's request for initiation of show cause proceedings is *denied*.

A copy of this decision will be filed with the Secretary of the Commission for the Commission's review in accordance with 10 C.F.R. § 2.206(c).

FOR THE NUCLEAR  
REGULATORY COMMISSION

Richard C. DeYoung, Director  
Office of Inspection and  
Enforcement

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

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<sup>8</sup> Although they may not possess certain of the ITT Grinnell and NPSI documents, the licensees aver that the documents are indeed available to them. See Letter to Stephen G. Burns, Office of the Executive Legal Director, NRC, from William A. Horin, Counsel for Licensees (June 28, 1983). The PSAR and FSAR state that the quality assurance program includes audits of vendors' and contractors' activities to ensure conformance to quality assurance requirements. See generally PSAR §§ 17.1.2, 17.1.2.4; FSAR §§ 17.1.1.5, 17.1.17, 17.1.18. NRC representatives have reviewed the contractors' documents as part of their inspection efforts. See, e.g., NRC Region IV Inspection Report Nos. 50-445/82-26, 50-446/82-14 (Feb. 15, 1983).



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. 50-289-SP**  
**(Restart)**

**METROPOLITAN EDISON COMPANY,**  
*et al.*

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

**September 8, 1983**

Upon review of the Appeal Board's decision in ALAB-698, 16 NRC 1290 (1982), addressing emergency preparedness at TMI-1, the Commission reverses a holding of the Appeal Board relating to the placement of responsibility for making protective action recommendations to the Commonwealth of Pennsylvania, and directs that the TMI-1 emergency plan provide that the responsibility for radiological assessment and the making of protective action recommendations be transferred from the Emergency Director in the control room to the Emergency Support Director in the Emergency Operations Facility (EOF) no later than one hour following the declaration of an emergency. With that change and subject to certain conditions, the Commission finds emergency planning for TMI-1 to be adequate.

## **EMERGENCY PLANNING: TECHNICAL SUPPORT CENTER, EMERGENCY OPERATIONS FACILITY**

NRC emergency planning regulations require licensees to establish an onsite technical support center (TSC) and a nearby Emergency Operations Facility (EOF) from which effective direction can be given during an emergency. 10 C.F.R. Part 50, Appendix E, § IV.E.8.

## **EMERGENCY PLANNING: TRANSFER OF FUNCTIONS TO EMERGENCY OPERATIONS FACILITY**

The responsibility for radiological assessment and the making of protective action recommendations is to be transferred from a senior official in the control room to a senior official in the Emergency Operations Facility no later than one hour following the declaration of a Site Area Emergency or General Emergency.

## **DECISION**

In ALAB-698, 16 NRC 1290 (1982), the Atomic Safety and Licensing Appeal Board ("Appeal Board") addressed emergency preparedness at Three Mile Island Unit 1 ("TMI-1"). It concluded that during the first four hours following the declaration of a Site Area Emergency or General Emergency ("emergency") the Licensee's Emergency Director, who would be in the control room, could have the responsibility for making protective action recommendations to the Commonwealth of Pennsylvania ("Commonwealth"). The Commission disagrees with that holding and directs that the TMI-1 emergency plan provide that the responsibility for radiological assessment and the making of protective action recommendations be transferred from the Emergency Director in the control room to the Emergency Support Director in the Emergency Operations Facility ("EOF") no later than one hour following the declaration of an emergency.

With the issuance of this Order, the Commission has determined that subject to the receipt of necessary certifications from the NRC staff that various conditions imposed by the Licensing Board and Appeal Board have been satisfied, emergency planning for TMI-1 is adequate.

## I. BACKGROUND

### A. Procedural History

Following the March 28, 1979 accident at Three Mile Island Unit 2, the Commission issued an Order which directed that its companion unit, TMI-1, remain in a shutdown condition until the Commission had completed public hearings on whether TMI-1 should be permitted to resume operation. CLI-79-8, 10 NRC 141 (1979). An Atomic Safety and Licensing Board ("Licensing Board") presided over extensive adjudicatory hearings. The Licensing Board issued three partial initial decisions which contained its findings and conclusions. In one of those decisions, it addressed the adequacy of emergency preparedness for TMI-1. LBP-81-59, 14 NRC 1211, 1455-1703 (1981). After hearing testimony from the Licensee (GPU Nuclear), the NRC staff and the Commonwealth, it addressed the issue before the Commission today. It rejected Licensee's proposal which would have permitted radiological assessment and protective action recommendations to be made from the control room during the first four hours following declaration of an emergency and instead ordered that this responsibility be transferred from the control room to the EOF, no later than one hour after the emergency declaration. See 14 NRC 1467-79. The Licensing Board reached this conclusion because it determined that the Licensee had not demonstrated the adequacy or workability of its plan. 14 NRC 1477, 1478.

The Licensee appealed that ruling. After receiving briefs from the parties and hearing oral argument, the Appeal Board overruled the Licensing Board, concluding that the Licensee's approach is more logical than that ordered by the Licensing Board and that it had the added advantage of being a central part of the Licensee's overall management philosophy. ALAB-698, 16 NRC 1290 (1982).<sup>1</sup> The Appeal Board, however, ordered the Licensee to make a concerted effort to have its Emergency Support Director at the site as early as possible. It required that the Licensee's emergency plan provide that the Emergency Support Director be notified upon declaration of any alert (which would generally precede any emergency declaration) and that he immediately begin preparations to arrive at the EOF as soon as practicable, but in no event later than four hours after declaration of an emergency. 16 NRC 1308. Judge Edles issued a separate opinion in which he tentatively endorsed the Licensee's

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<sup>1</sup> The Appeal Board decision focused on the making of protective action recommendations; it did not address radiological assessment. We are addressing the radiological assessment issue to avoid any confusion.

proposal, but concluded that based on the record before the Appeal Board, the Licensee had not proven that its plan is satisfactory. He believed that Licensee's plan was worthy of a test of its efficacy and reliability, but stated that such a test should be conducted prior to any restart of TMI-1.

The NRC staff filed a petition with the Commission requesting that the Commission review the Appeal Board's determination. In its response to the staff's petition the Licensee stated that it would abide by the Licensing Board's decision pending disposition of the Appeal Board decision by the Commission. On March 21, 1983, the Commission issued an Order taking review and requesting briefs from the NRC staff, the Commonwealth of Pennsylvania, and the Licensee, the only three parties that had participated in the litigation of the issue below. CLI-83-7, 17 NRC 336.

## **B. The Licensee's Proposed Plan**

Pursuant to the Commission's emergency planning regulations, 10 C.F.R. Part 50, Appendix E, the Licensee has constructed an EOF which will serve as the command center for the Licensee's management of offsite activities during an emergency and which will be directed by the Emergency Support Director. It is the principal location during an emergency for coordinating radiological and environmental assessment, for development of recommendations for public protective actions and the coordination of emergency response activities with federal, state and local agencies. The EOF is located about half a mile from TMI-1.

The Licensee has agreed to have six of its employees available to activate the EOF within one hour after an emergency declaration and to have all communications and data links operational within that time. However, because the making of protective action recommendations (such as whether to shelter or evacuate the local population) is so important and politically sensitive, the Licensee strongly prefers that the responsibility for making these recommendations be vested only in its most senior officials, none of which, according to its present plans, would be at the EOF within the first hour. The Licensee proposes that one of its senior corporate officials from its Parsippany, New Jersey headquarters serve as Emergency Support Director and make the protective action recommendations. It would take that official approximately four hours to reach the EOF following the emergency declaration. During the interim period before that official arrived at the EOF, the Emergency Director, who is the company's senior onsite official, would be stationed in the control room and would have the responsibility for making protective action recommendations.

## II. THE VIEWS OF THE PARTIES

The NRC staff disagrees with the Appeal Board because it believes that early transfer of functions to the Emergency Support Director in the EOF promotes the public health and safety. The staff emphasizes that one of the lessons learned from the accident at Three Mile Island Unit 2 is that, for effective emergency responses, a utility should neither place too many people in the control room, nor overburden control room personnel with too many functions, especially functions that could be performed from other locations. From this lesson staff draws the conclusion that emergency response functions such as radiological assessment, dose projection, the formulation of protective action recommendations and the communication of such recommendations and the bases for them to offsite authorities should be performed as early as possible from locations other than the control room. This permits those in the control room to concentrate on accident assessment, plant operational control and accident mitigation.

Staff also states that another important consideration is that personnel responsible for making protective action recommendations must have available to them up-to-date accurate information, especially during the early hours of an accident when the possibility for confusion is greatest. Although staff recognizes that in some instances the best information upon which to make protective action recommendations will come from the control room, the staff nonetheless believes protective action recommendations should be made from the EOF. The staff stresses that NUREG-0696,<sup>2</sup> which provides guidance to licensees on how they can adequately implement the Commission's emergency planning regulations, provides that EOFs are to contain equipment for the acquisition, display and evaluation of radiological and meteorological and plant system data required to project and evaluate the magnitude of actual or potential radioactive releases, to determine offsite dose projections and to formulate protective action recommendations. The guidelines also call for the provision of reliable voice communication systems between the EOF, the control room and the Technical Support Center.<sup>3</sup> In staff's view this should assure that timely and accurate information for formulating protective action recommendations in the early stages of the emergency would be available in the EOF as well as in the control room.

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<sup>2</sup> NUREG-0696, "Functional Criteria for Emergency Response Facilities, Final Report" (February 1981).

<sup>3</sup> *Id.* at 16-17, 20-23.

The staff also is dissatisfied with Licensee's plan because too many responsibilities are to be performed by the Emergency Director. Although the staff has concluded that Licensee will provide an ample number of emergency response personnel to operate the control room, the staff asserts that the Licensee's emergency plan lists fourteen separate actions for which the Emergency Director in the control room is responsible. Five of those duties are non-delegable, including the making of protective action recommendations. In addition, five persons report directly to the Emergency Director and he is responsible for overseeing that they carry out their responsibilities effectively. The staff concludes that if the Emergency Director spends most of his time formulating protective action recommendations, and informing offsite authority of the reasons underlying his recommendations, he will necessarily not be able to devote his attention to the performance and direction of other functions, including the critical functions of accident assessment, plant control and accident mitigation. In turn, to the extent that the Emergency Director devotes his time to the other functions, he will be unable to concentrate on formulating protective action recommendations.

Moreover, staff argues that there is no regulatory requirement that protective action recommendations be made by the most senior management official on site. The staff believes that there are numerous TMI-1 management officials, down to the level of shift foreman, who are fully trained and qualified to make protective action recommendations. One of these individuals could be designated to act as Emergency Support Director within one hour of the declaration of the emergency and could serve in that capacity until a more senior official arrived from Parsippany.

Finally, staff states that during the only major full-scale emergency exercise at the facility, the EOF was fully staffed, including the Emergency Support Director with protective action recommendation authority, within about one-half hour after declaration of a Site Area Emergency. That exercise demonstrated in its view the workability of the approach it recommends. The staff asserts that prior to the full-scale exercise there had been much earlier limited drills in which protective action recommendations were communicated from the Emergency Director in the control room to Commonwealth officials in Harrisburg. In those drills the staff identified problems with the communication of protective action recommendations and the bases therefore from the Emergency Director in the control room to Commonwealth officials. Thus, staff concludes that while the approach that it advocates has been fully tested and works, Licensee's proposal remains untested and unverified.

The Commonwealth also disagrees with the Appeal Board. Its primary concern is with the adequacy of information exchange and the interaction between Commonwealth and Licensee officials during the early stages of an accident. It emphasizes that the ultimate decision regarding protective actions is made by the Governor, based on recommendations received from his designated representative at the site. The Commonwealth stresses that the process of protective action decisionmaking is bidirectional and that in making its recommendation to the state, the Licensee will need information such as weather and road conditions as well as information regarding the specific technical status of the plant. The Commonwealth asserts that the EOF is the facility specifically designed for the exchange of information between the officials of the utility and the representative of the Commonwealth and where the implications of that information can be discussed. Accordingly, it believes Licensee's proposal would impede necessary exchanges of information.

The Commonwealth also agrees with the NRC staff that the Emergency Director in the control room should focus his efforts on responding to the accident from an engineering perspective, rather than concentrating on protective action recommendations.

Finally, the Commonwealth argues that Licensee's proposal has not been tested in any full-scale emergency exercise. The Commonwealth suggests that if the Commission approves Licensee's proposal, the Commission should adopt Judge Edles' recommendation and require the Licensee to test its plan prior to any restart of TMI-1.

The Licensee urges the Commission to affirm the Appeal Board decision. Licensee strongly believes that its protective action recommendations should be made by the most senior available company representative and rejects the NRC staff suggestion that more junior employees be stationed at the EOF and make the protective action recommendation. It states unequivocally that if the Commission reverses the Appeal Board and directs that protective action recommendations be made from the EOF during the early hours of an emergency, Licensee will comply by moving its most senior onsite representative out of the control room and into the EOF. Licensee states that the result will be that its most senior onsite representative will be in the EOF, rather than in the control room, where they believe he will be most useful.

The Licensee further asserts that there is no explicit regulatory requirement that protective action recommendations must be made from the EOF and therefore the staff position is premised on little more than "do it this way because we say so."

Licensee also at great length explains its proposed organization, and asserts that its on-shift staffing is one of the largest at any facility. Because of its staffing plan, the Licensee states that the Emergency Director would delegate his responsibilities to other officials, which would permit him to focus on formulating protective action recommendations.

With respect to whether information flow to the NRC, state and local officials would be more accurate and up-to-date from the EOF or the control room, the Licensee asserts that while there are sufficient data and communication links between the control room and the EOF, a substantial improvement in the reliability of information flow can be achieved if the individual making the protective action recommendations is in the control room during the early hours.

Licensee also disagrees with the staff's assertions that its proposed plan is untested. Licensee asserts that the drills that it conducted in 1980 established the viability of its proposal. Moreover, Licensee states that in 1983, following the issuance of ALAB-698, the Licensee has conducted additional drills which tested its plan. Three additional drills, including a full-scale annual exercise, will be conducted within the next six months, which Licensee argues will verify its conclusions that its plan is adequate.

The Licensee also attacks the position advocated by the Commonwealth. The Licensee notes that despite the Commonwealth's desire to have face-to-face discussions in the EOF between its representatives and the Emergency Support Director, the Commonwealth has been unwilling to commit itself to send its representative to the EOF within one hour after the declaration of a site emergency, to equip its engineer with a beeper so that he could be quickly contacted if necessary, or to man its end of the dedicated line from TMI to its Bureau of Radiation Protection on a 24-hour per day basis. Because the Commonwealth is unwilling to undertake these commitments, the Licensee believes that if Licensee moved its Emergency Support Director to the EOF within the early hours following an accident, there might be no state official present with whom to converse, defeating the purpose of the requirement that the staff and the Commonwealth seek to have imposed.

### III. ANALYSIS

There is no dispute between the parties regarding the functions that are to be performed from the EOF during an emergency; the controversy centers on how quickly that facility must be fully functional following the declaration of a site emergency. A discussion of this issue must



begin with an examination of the Commission's emergency planning regulations.

Those regulations, specifically 10 C.F.R. Part 50, Appendix E, § IV.E.8, require licensees to establish an onsite technical support center and a nearby EOF from which effective direction can be given during an emergency. Although these regulations clearly establish that certain emergency response functions are to be carried out from places other than the control room, the regulations do not address when these other facilities are to be activated, nor do they identify which emergency responses are to be carried out from these facilities.

In NUREG-0654 Rev. 1<sup>4</sup> and NUREG-0696 the Commission published guidance to licensees on how they could satisfy the requirements imposed by the regulations. NUREG-0654 Rev. 1 recommends that licensees:

- establish an Emergency Operations Facility from which evaluation and coordination of all licensee activities related to an emergency is to be carried out and from which the licensee shall provide information to Federal, State and local authorities responding to radiological emergencies in accordance with NUREG-0696, Revision 1.

NUREG-0654 at 52. NUREG-0696, *supra*, at 16 recommends that the EOF be used for: (1) management of the overall Licensee emergency response; (2) coordination of radiological and environmental assessment; (3) determination of recommended public protective actions; and (4) coordination of emergency response activities with Federal, State and local agencies.

That document also suggests that the EOF:

- be staffed to provide overall management of licensee resources and the continuous evaluation and coordination of licensee activities during and after an accident. Upon EOF activation, designated personnel shall report directly to the EOF to *achieve full functional operation within one hour*. A senior management person designated by the licensee shall be in charge of all licensee activities in the EOF. The EOF staff will include personnel to manage the licensee onsite and offsite radiological monitoring, to perform radiological evaluations, and to interface with offsite officials.

*Id.* at 19 (emphasis added).<sup>5</sup> The Licensee here proposes not to follow this guidance because under its proposal the EOF would not be fully functional within the first hour. It would not achieve this state until the Emergency Support Director arrived from Parsippany. The Licensee

<sup>4</sup> 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).

<sup>5</sup> The additional guidance subsequently provided by the Commission in NUREG-0737 Supplement No. 1, "Clarification of TMI Action Plan Requirements" (1982) is consistent with this approach.

argues that its proposal for satisfying NRC regulations nonetheless is equivalent to that suggested by the NRC in the NUREG documents and that under its plan the same degree of protection of the public health and safety would occur. We disagree.

Licensee's proposal does not adequately reflect one of the primary lessons learned from the Three Mile Island accident. Based on its review of the accident, the Commission strongly believes that those in the control room should be free to concentrate on accident assessment, plant control and accident mitigation and should not be responsible for carrying out other critical functions such as radiological assessment and making protective action recommendations. Moreover, as a general proposition, the fewer the individuals in the control room, the less likelihood for confusion and misunderstanding. The Commission mandated the establishment of EOFs specifically to achieve these objectives.

The GPU plan, as the staff observes, does not satisfy these objectives. The Emergency Director, who would be responsible for making the protective action recommendations in the early hours of an accident, also has other responsibilities, some of which he would not be able to delegate. Even if he were able to delegate those functions to concentrate on the protective action recommendations, this would mean that he might not necessarily have time to ensure that those individuals in the control room that are under his supervision are effectively carrying out their delegated responsibilities. The Commission does not believe that during the early hours of an accident the public health and safety is adequately protected when these dual, critical functions are vested in a single individual.

Furthermore, as the Commonwealth stresses, the EOF is the ideal place for face-to-face communications regarding protective action recommendations between federal, state and local officials, and the Licensee official charged with making the recommendations to the Commonwealth. The Commission does not believe, as Licensee suggests, that telephonic communications between the governmental officials in the EOF and the Licensee's decisionmaker in the control room provide an equivalent opportunity for an exchange of information. The Commission views the opportunity for face-to-face communications as the best means to exchange pertinent information between government officials and the Licensee and to formulate protective action recommendations, particularly when it is essential that there not be misunderstandings between those involved.

Although the Licensee asserts that they have no guarantee that Commonwealth officials will be at the EOF within one hour, the Commonwealth has pledged that its officials will arrive at the EOF at the earliest

possible moment. During the full-scale emergency drill that was conducted on June 2, 1981, the state's representative in fact arrived at the site within one-half hour after the declaration of an emergency.<sup>6</sup> Moreover, local and NRC officials would certainly be at the site within an hour so that there will be an opportunity for the early exchange of information and views.

The Commission has carefully considered whether its decision today places too heavy an emphasis on separation of functions and does not place enough on the critical need for those making protective action recommendations to have access to the most up-to-date and accurate information. The Commission believes that it has drawn the proper balance. The EOF at TMI-1 has adequate equipment for the acquisition, display and evaluation of the pertinent radiological, meteorological, and plant system data that must be taken into account in making protective action recommendations. Moreover, up-to-date information on matters such as weather and road conditions, which could play a significant role in protective action recommendations, may be best obtained in the EOF, rather than the control room, because that is where state, local and federal officials will congregate to exchange information. Those governmental officials will probably be the best source of information on these matters. Therefore, the Commission disagrees with the Licensee's arguments that during the early hours of an accident, the control room is the best source for the needed information and should be the place where protective action recommendations are made.

For these reasons the Commission has concluded that Licensee's plan, which fails to comport with Commission guidance, does not protect adequately the public health and safety. The Commission therefore has reversed the Appeal Board and mandates that as a condition of any restart, that Licensee's emergency plan provide for the transfer of the responsibility for radiological assessment and the making of protective action recommendations from the control room to the EOF no later than one hour after the declaration of a general site emergency.

The Commission also notes that to the best of its knowledge, no other utility is requesting authorization to make protective action recommendations from the control room during the early hours of an accident. Every other utility is transferring that function from the control room to the EOF within one hour after the declaration of a site emergency.

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<sup>6</sup> Commonwealth of Pennsylvania's Reply to Licensee's Brief in Support of Exceptions to the ASLB Partial Initial Decision on Emergency Planning Issues (Exception No. 3), May 10, 1982 at 14.

#### **IV. ADEQUACY OF EMERGENCY PLANNING AT TMI-1**

With the issuance of this Order, the Commission has completed its review of emergency planning at TMI-1. Earlier the Commission had elected not to take review of ALAB-697, the other Appeal Board decision on emergency planning. This Order concludes our review of ALAB-698. Accordingly, subject to receipt of necessary certifications by the NRC staff to the Commission that the various conditions imposed by the Licensing Board and the Appeal Board relating to emergency planning have been satisfied, the Commission has determined that emergency planning at TMI-1 is adequate for purposes of restarting the facility. Because other matters remain unresolved, this Order does not authorize restart.

Commissioner Gilinsky dissents in part from this decision. His separate views are attached.

Commissioner Roberts dissents from this decision.

It is so ORDERED.\*

For the Commission

(John C. Hoyle)  
for SAMUEL J. CHILK  
Secretary of the Commission

Dated at Washington, D.C.,  
this 8th day of September 1983.

#### **SEPARATE VIEWS OF COMMISSIONER GILINSKY ALAB-698, TMI-1 RESTART-EMERGENCY PLANNING**

I join in the Commission's decision only in so far as it requires General Public Utilities to transfer the responsibility for radiological assessment and for making protective action recommendations from the Emergency Director in the Three Mile Island Unit 1 control room to the Emergency Support Director in the Emergency Operations Facility no later than one hour after the declaration of a general site emergency.

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\*Commissioner Gilinsky was not present when this Order was affirmed, but had previously indicated that he dissented in part from this decision.

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. 50-443-OL**  
**50-444-OL**

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

**September 19, 1983**

The Commission decides against undertaking *sua sponte* review of the Appeal Board's decision in ALAB-734 denying an intervenor's petition for directed certification of a licensing board dismissal of one of its contentions. The Commission, however, takes the opportunity to reaffirm its statements in *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041 (1983), that the admissibility of a late-filed contention must be determined by balancing all five of the factors in 10 C.F.R. § 2.714(a).

**MEMORANDUM AND ORDER**

In ALAB-734, 18 NRC 11 (1983) the Atomic Safety and Licensing Appeal Board ("Appeal Board") denied a petition by the New England Coalition on Nuclear Pollution (NECNP) for directed certification of the Atomic Safety and Licensing Board's summary dismissal of NECNP's contention on the adequacy of the Applicant's Final Safety Evaluation

Report ("FSAR") relating to the quality assurance program for Seabrook.

We believe that the denial of directed certification does not warrant Commission review. However, portions of Part 5 of the Appeal Board's decision on the admissibility of late-filed contentions could be viewed as inconsistent with the Commission's decision in *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041 (1983).

The Commission therefore takes this opportunity to reaffirm its statements in *Catawba*, that the admissibility of a late-filed contention must be determined by a balancing of *all* five of the late intervention factors in 10 C.F.R. § 2.714(a). Those factors involve careful consideration of the contents of the contention and the circumstances under which the contention is offered. In particular, factor five, the factor of interest to the Appeal Board, is specific to the particular contention because it considers "the extent to which the petitioner's participation will broaden the issues or unduly delay the proceeding."

The Licensing Board must apply the five-factor test of 10 C.F.R. § 2.714(a), according to the Commission's guidance in *Catawba*. ALAB-734 should not be interpreted as circumscribing the application of or dictating the outcome as to any of the five factors of that test.

Commissioners Gilinsky and Asselstine dissent from this decision. Their separate views are attached.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK  
Secretary of the Commission

Dated at Washington, D.C.,  
this 19th day of September 1983.

#### **DISSENTING OPINION OF COMMISSIONER ASSELSTINE**

I do not believe that the Appeal Board's decision (ALAB-734, 18 NRC 11 (1983)) on the admissibility of late-filed contentions is in any way inconsistent with 10 C.F.R. § 2.714, and I do not believe that the Commission's order in this case is necessary or appropriate. I find the

Appeal Board's decision to be fully consistent with the factual representations made by counsel for the applicant and the staff before it. See ALAB-734 at 17.

I am also disturbed that a majority of the Commission has taken this opportunity to reaffirm the position taken in *Catawba*, CLI-83-19, 17 NRC 1041 (1983), that the admissibility of a late-filed contention must be determined by a balancing of all five of the late intervention factors in 10 C.F.R. § 2.714(a). In my view, the Commission's decision in *Catawba* was ill-considered and was, as a matter of policy, incorrect. Rather than affirming that decision, the Commission should be seeking the earliest opportunity to reverse its holding in *Catawba*.

I agreed in *Catawba* that section 189a of the Atomic Energy Act of 1954 does not *require* an Atomic Safety and Licensing Board to give controlling weight to the good cause factor in 10 C.F.R. § 2.714(a)(1)(i) in determining whether to admit a late-filed contention that could not be filed in a timely manner because the "institutional unavailability" of licensing-related documents precluded the timely formulation of that contention with the requisite specificity. Nevertheless, I continue to believe that the Appeal Board's three-part test for "good cause," and its decision to give controlling weight to that factor once that test is met, is a reasonable exercise of Commission discretion and represents sound public policy.

Under the Appeal Board's good cause test, a party seeking to raise a late-filed contention must establish that the contention (1) is wholly dependent upon the content of a particular document, (2) could not therefore be advanced with any degree of specificity (if at all) in advance of the public availability of that document, and (3) is tendered with the requisite degree of promptness once the document comes into existence and is accessible for public examination. Yet, under the Commission's *Catawba* holding, even if a party can meet this rather stringent test it would not be assured of the opportunity to obtain a hearing on the issue. Thus, for example, under the Commission's holding, members of the public could be foreclosed from raising significant issues derived directly from the staff's final environmental statement, or from offsite radiological emergency response plans if such issues might broaden or delay the proceeding. Such a result is manifestly unfair to the public participants in our proceedings. In establishing the procedures to govern NRC licensing hearings, the Commission has an obligation to assure a sensitive and fair balance between the need to assure a reasonable opportunity for public participation and the need for efficiency. The balance struck by the Commission's *Catawba* decision is neither fair nor sensitive. It is bad public policy and should be reversed as soon as possible.

**SEPARATE VIEWS OF COMMISSIONER GILINSKY,  
ALAB-734**

I agree with the views expressed by Commissioner Asselstine.



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. 50-320**

**GENERAL PUBLIC UTILITIES  
CORPORATION**

**(Three Mile Island Nuclear  
Station, Unit No. 2)**

**September 21, 1983**

The Commission denies a motion to quash subpoenas issued at the request of the NRC Office of Investigations (OIA) to a number of individuals, directing them to appear and give testimony in connection with OIA's investigation of certain allegations concerning falsification of reactor system leak rate data at TMI-2. The Commission, however, orders that the subpoenas be made returnable in the federal judicial district where each individual resides.

**NRC: AUTHORITY TO INVESTIGATE (SUBPOENA)**

Under section 161(c) of the Atomic Energy Act of 1954, 42 U.S.C. § 2201(c), the Commission is authorized to conduct such investigations as it may deem necessary or proper to assist it in exercising any authority provided in the Act and by subpoena to require any person to appear and testify, or to appear and produce documents, or both, at any designated place.

## **NRC: AUTHORITY TO INVESTIGATE**

The NRC's authority to conduct an investigation under the Atomic Energy Act does not cease upon referral of a matter to the Department of Justice.

## **NRC: AUTHORITY TO INVESTIGATE**

The NRC's pursuit of its own civil investigation for civil enforcement purposes will not necessarily hamper the role of the Grand Jury or broaden the Government's opportunities for criminal discovery, because the Grand Jury's subpoena powers are as great as, if not greater than, those of the NRC. See *SEC v. Dresser Industries, Inc.*, 628 F.2d 1368, 1378-79 (D.C. Cir. 1980) (en banc), cert. denied, 101 S.Ct. 529 (1980).

## **NRC: AUTHORITY TO INVESTIGATE**

To carry out its public health and safety mandate the NRC must be able to investigate matters expeditiously, regardless of whether there is a parallel criminal investigation underway into the same matter. See *Dresser, ibid.*

## **NRC: AUTHORITY TO INVESTIGATE**

Where an NRC investigation is being conducted for a lawful purpose and the information sought is relevant to the investigation, to stop such investigation at the threshold of inquiry because of a parallel Grand Jury investigation would render substantially impossible the agency's effective discharge of its duties of investigation. See *United States v. McGovern*, 87 F.R.D. 582 (1980); *United States v. McGovern*, 87 F.R.D. 584 (1980); *United States v. McGovern*, 87 F.R.D. 590 (1980).

## **NRC: AUTHORITY TO INVESTIGATE**

While ordinarily civil and criminal actions can proceed simultaneously, a court may in its discretion stay civil proceedings, postpone civil discovery or impose protective orders or conditions when required in the interests of justice; for example, where a party under indictment for a serious offense is required to defend a civil or administrative action involving the same matter. See *Dresser, supra*, 628 F.2d at 1375-76. Otherwise, "[t]he noncriminal proceeding, if not deferred, might undermine the party's Fifth Amendment privilege against self-incrimination, expand rights of criminal discovery beyond the limits of

Federal Rule of Criminal Procedure 16(b), expose the basis of the defense to the prosecution in advance of criminal trial, or otherwise prejudice the case." *Id.* at 1376 (footnote omitted).

## MEMORANDUM AND ORDER

On September 1, 1983, the NRC Regional Administrator, Region I, at the request of the NRC Office of Investigations, issued subpoenas to forty-seven individuals who had been working at the Three Mile Island, Unit 2 (TMI-2) nuclear facility prior to the accident at that facility on March 28, 1979. The subpoenas called upon each individual to appear and give testimony on specific dates from September 19 through October 4, 1983, concerning his/her knowledge of the facts surrounding the alleged falsification of reactor coolant system leak rate test data at TMI-2.

As explained in more detail below, the Commission has determined that the public health and safety require it to complete its investigation into those allegations without further delay. Since these individuals indicated through counsel that they would not voluntarily talk to NRC investigators concerning this matter, it was necessary to issue the subpoenas in order to determine the validity of those allegations, whether utility management is implicated by those allegations and whether further action is warranted.

The Commission now has before it a motion to quash the subpoenas on two grounds:<sup>1</sup> (1) that the Commission's referral of this matter to the Department of Justice in 1980 for possible criminal proceedings precludes the Commission from pursuing its own civil investigation during the pendency of the Grand Jury investigation currently under way in the Middle District of Pennsylvania; and (2) that some of the subpoenas are unreasonable in that they require persons residing outside of the Middle District of Pennsylvania to appear in that District. For the reasons discussed below, the Commission has decided to deny the motion to quash, but directs the Regional Administrator to make the subpoenas returnable in the federal judicial district where each individual resides.

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<sup>1</sup> Movant in the motion to quash indicated that two of the forty-seven individuals would comply with their subpoenas.

## I. BACKGROUND

In May 1979, Mr. Harold Hartman, a TMI-2 control room operator at the time of the accident at TMI-2 in March 1979, alleged that prior to the accident it was common practice for control room personnel to falsify the results of reactor coolant surveillance leak rate tests.<sup>2</sup> The NRC initiated an investigation into this matter in March 1980. Because of possible criminal implications of these allegations, the NRC initiated discussions with the Department of Justice about this matter while the NRC's investigation was still in progress. At the request of the Department of Justice, the NRC halted its investigation in May 1980. Since that time the Department of Justice has been investigating this matter via Federal Grand Jury proceedings in Harrisburg, Pennsylvania.

By letter of April 11, 1983, the Commission wrote the Attorney General to inquire about the status of the criminal investigation into Mr. Hartman's allegations. The Department of Justice responded that there was no bar to the NRC pursuing its own investigation, and by letter of May 27, 1983, the Commission notified the Department of Justice that it intended to pursue its own investigation.<sup>3</sup>

The Commission has determined that the public health and safety require that it pursue and complete its own investigation into this matter without waiting further for the Justice Department to complete the criminal investigation. The Commission believes these allegations are sufficiently serious that it must investigate them before they simply

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<sup>2</sup> Mr. Hartman's allegations on leak rate tests can be briefly summarized. The technical specifications in the operating license for TMI-2 establish a maximum rate of one gpm for unidentified leakage from the reactor coolant system. Tests to measure leakage must be taken at least once every 72 hours during operation, and the plant must be shut down if the leakage rate is exceeded and cannot be limited within 4 hours. Mr. Hartman alleges that for several months prior to the accident it was difficult to get a leak rate test within the allowable limits, and pursuant to direction from a shift supervisor and a shift foreman he and at least one other operator redid leakage tests until they obtained an acceptable leakage rate. This involved the addition of hydrogen or water to the system in small increments and without recording this action in the control room logs. Mr. Hartman also stated that he threw out bad test results, with the knowledge of supervisory personnel, and that he believed that personnel on other shifts and management were aware of his concerns.

Mr. Hartman also alleged that emergency feedwater pump test criteria were altered, and that the estimated control rod positions for attainment of criticality were re-calculated in order to meet procedural requirements.

<sup>3</sup> It appears that a misunderstanding may have emanated from the oral communications between the NRC and the Department of Justice concerning whether the Commission was advised at an earlier date that it could proceed with its investigation of the Hartman allegations. As a result, the Department of Justice believed that the NRC understood in October 1981 that there was no objection to its proceeding with its civil investigation. In contrast, the Commission believed that the Department of Justice wished the NRC to continue to delay proceeding with its civil investigation, and the Commission was aware through inquiries from late 1981 through early 1983 that the Department of Justice was continuing its investigation.

become too old to pursue in order to determine whether utility management is implicated by the allegations and whether further civil enforcement action is warranted. The Commission notes in this regard that the allegations relate to the ongoing enforcement proceeding involving Three Mile Island, Unit 1, which has kept that unit shut down since the accident at TMI-2. The Commission believes that relevant portions of the Hartman allegations must be resolved before that proceeding can be completed and a final decision made on whether Unit 1 should be restarted.<sup>4</sup>

Based on the Hartman allegations themselves and the NRC's earlier inquiry into this matter, the Commission has determined that all the individuals subpoenaed may have relevant information bearing on the validity of the Hartman allegations and can therefore contribute to establishing the relevance of these allegations to the proceeding underway and to whether further enforcement action is appropriate. These individuals were familiar with or responsible for conducting the leak rate tests prior to the accident, and could know or have information leading to a determination on whether or not the allegations are true. The NRC cannot conclude its inquiry into this matter without interviewing each of them.

## II. LEGAL ANALYSIS

### A. NRC's Authority to Conduct Investigation While Grand Jury Investigation Is Under Way

The subpoenas were issued pursuant to section 161(c) of the Atomic Energy Act of 1954, as amended, 42 U.S.C. § 2201(c).<sup>5</sup> Movant, citing *United States v. LaSalle National Bank*, 437 U.S. 298 (1978), argues that "[o]nce an agency has referred a matter to the Department of Justice, thus triggering the criminal process, the agency must cease use of its own investigative authority into the same matter." Motion to Quash at 4.<sup>6</sup> The Supreme Court in *LaSalle* held that the Internal Revenue Serv-

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<sup>4</sup> The Commission notes that the Appeal Board has reopened that proceeding because of the Hartman allegations. ALAB-738, 17 NRC 177 (1983).

<sup>5</sup> Section 161(c) provides that the Commission may "make such investigations . . . as the Commission may deem necessary or proper to assist it in exercising any authority provided in this Act . . . the Commission is authorized by subpoena to require any person to appear and testify, or to appear and produce documents, or both, at any designated place."

<sup>6</sup> Movant maintains that the Commission's awareness of this limit was apparent in *Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit No. 2)*, CLI-80-22, 11 NRC 724 (1980). The Commission in that case denied a motion to quash because the NRC's investigation involved a different matter than that before the Grand Jury. The Commission did not address the situation where the parallel investigations involved the same matter.

ice (IRS) could not use a civil tax-investigation summons once the IRS had recommended the case to the Department of Justice for criminal prosecution. The Court adopted this rule as a "prophylactic restraint" to prevent the broadening of the Justice Department's right of criminal litigation discovery and to prevent infringement on the role of the Grand Jury as a principal tool of criminal accusation.

The Court in *LaSalle* based its holding on the specific statutory scheme for the IRS. Under that scheme the IRS' civil authority in essence ceases upon referral of a case to the Justice Department.<sup>7</sup> Thus as a practical matter the IRS would have no authorized purpose for a civil summons after a criminal referral. See *SEC v. Dresser Industries, Inc.*, 628 F.2d 1368, 1378-79 (D.C. Cir. 1980) (en banc), cert. denied, 101 S. Ct. 529 (1980). The NRC's authority to conduct an investigation under the Atomic Energy Act does not cease upon referral of a matter to the Department of Justice, and the Commission therefore does not believe that the rationale of *LaSalle* applies to the statutory scheme for the NRC.

Movant argues, however, that both policy interests relied on by the Supreme Court in *LaSalle* apply here. Movant maintains that a resumption by the NRC of its investigation would hamper the role of the Grand Jury as a principal tool of criminal accusation, and that it would improperly broaden the Government's opportunities for criminal discovery.<sup>8</sup>

The Commission disagrees. The NRC's pursuit of its own civil investigation for civil enforcement purposes will not hamper the role of the Grand Jury. Nor will the NRC's civil investigation broaden the Government's opportunities for criminal discovery, because the Grand Jury's subpoena powers are as great as, if not greater than, those of the NRC.

The court in *SEC v. Dresser Industries, supra*, directly addressed these same arguments. In *Dresser*, the court upheld parallel civil and criminal investigations by the Securities & Exchange Commission (SEC) and Department of Justice, respectively, into the same matter. The *Dresser* court stated that the reasoning of *LaSalle* could not be extended to an

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<sup>7</sup> For instance, upon referral the IRS no longer has the authority to compromise even the civil aspects of a fraud case.

<sup>8</sup> Movant provides no support for these arguments beyond his assertion that the NRC has already provided the Justice Department with the information it developed during its earlier investigation into this matter. There is no bar to the NRC sharing information with the Justice Department, and doing so does not of itself amount to an improper influence on the Grand Jury. See *SEC v. Dresser, supra*, at 1383-87. For the NRC to brief the Department of Justice on the information in its possession is "in accordance with the Atomic Energy Act. 42 U.S.C. 2271." CLI-80-22, 11 NRC 724, 728 (1980). See also *United States v. Kordel*, 397 U.S. 1, 11-12 (1970) (rejecting argument that use of civil discovery to compel answers to interrogatories that could be used to build government's case in a parallel criminal proceeding required reversal of criminal convictions).

agency with a wide-ranging mandate to make investigations as necessary to protect the public from violations of the security laws.<sup>9</sup> The court explained that there is no call for a “prophylactic rule” in the case of an SEC investigation. Unlike the IRS, the SEC’s authority to issue subpoenas remains undiminished after commencement of Grand Jury proceedings, and neither of the policy interests discussed in *LaSalle* were relevant to the SEC investigation at issue in that case: (1) there was no chance of broadening the Justice Department’s right to criminal discovery because, until an indictment was returned, the Grand Jury had subpoena powers at least as broad as those of the SEC; and (2) any potential infringement upon the role of the Grand Jury was too speculative and remote “to justify so extreme an action as denying enforcement of this subpoena.”<sup>10</sup> *Dresser*, at 1384. This discussion in *Dresser* applies equally well here.

The court in *Dresser* further explained why fulfillment of the SEC’s responsibilities required that the SEC be able to pursue its investigation even if a criminal proceeding were under way:

Effective enforcement of the securities laws requires that the SEC and Justice be able to investigate possible violations simultaneously. . . . If the SEC suspects that a company has violated the securities laws, it must be able to respond quickly: it must be able to obtain relevant information concerning the alleged violation and to seek prompt judicial redress if necessary. Similarly, Justice must act quickly if it suspects that the laws have been broken. Grand jury investigations take time, as do criminal prosecutions. If Justice moves too slowly the statute of limitations may run, witnesses may die or move away, memories may fade, or enforcement resources may be diverted. . . .

\* \* \*

Unlike the IRS, which can postpone collection of taxes for the duration of parallel criminal proceedings without seriously injuring the public, the SEC must often act quickly, lest the false or incomplete statements of corporations mislead investors and infect the markets. Thus the Commission must be able to investigate possible securities infractions and undertake civil enforcement actions even after Justice has

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<sup>9</sup> The court stated that “the language of the securities laws and the nature of the SEC’s civil enforcement responsibilities require that the SEC retain full powers of investigation and civil enforcement action, even after Justice has begun a criminal investigation into the same alleged violations.” 628 F.2d at 1379.

<sup>10</sup> *Dresser* argued in this connection that enforcement of the SEC subpoena would undermine the secrecy of the Grand Jury, and that the SEC could infringe on the role of the Grand Jury by interpreting and selectively disclosing part of the subpoenaed information to the Grand Jury through the Justice Department. The court rejected both of these arguments, noting that the fact that a Grand Jury has subpoenaed documents does not insulate those documents from other investigations and that it would be inappropriate to presume that the SEC would try to prejudice the Grand Jury. The court also rejected the suggestion that the SEC be barred from providing the Justice Department with information it developed after criminal proceedings began.

begun a criminal investigation. For the SEC to stay its hand might well defeat its purpose.

*Id.* at 1377, 1380.

This rationale clearly applies to NRC investigations. To carry out its public health and safety mandate the NRC must be able to investigate matters expeditiously, regardless of whether there is a parallel criminal investigation underway into the same matter. The United States District Court for the Middle District of Pennsylvania, the only court explicitly to consider *LaSalle* as it relates to NRC subpoenas, in a series of three opinions upheld the authority of the NRC to conduct an investigation even though there was also a Grand Jury investigation underway at the same time.<sup>11</sup>

The court in its first opinion found that the parallel investigations by the NRC and the Grand Jury were not impermissible, observing that there was “no inherent intertwining of functions between the Grand Jury and NRC as one finds with investigations with the Internal Revenue Service and the Department of Justice.” 87 F.R.D. at 584. The court concluded that “[w]here an investigation is being conducted for a lawful purpose and the information sought is relevant to the investigation, to stop such investigation at the threshold of inquiry would render substantially impossible an agency’s effective discharge of the duties of investigation.” *Id.*

The court in its second opinion, citing *NLRB v. Interstate Dress Carriers*, 610 F.2d 99 (3d Cir. 1979), reiterated that there was nothing inherently improper about parallel civil and criminal proceedings. The court, quoting *LaSalle*, 437 U.S. at 316, found no evidence that the NRC was not “honestly pursuing the goals of [its statute].” 87 F.R.D. at 588. The court also noted that the NRC and the Grand Jury in that case were investigating different matters, but even if they were “conducting investigations concerning the same matters . . . it would be of little or no consequence. . . .” *Id.* at 588.

In its third decision, the district court held that there had been no showing that the subpoenas were intended “solely to serve improper purposes.” 87 F.R.D. at 591. The court upheld issuance of the subpoenas and commented as follows:

Petitioner is burdened with the responsibility of establishing sound policy and procedures for the nuclear power industry and for the enforcement of those policies and procedures. . . . To deny petitioner the opportunity to gather relevant information

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<sup>11</sup> *United States v. McGovern*, 87 F.R.D. 582 (1980); *United States v. McGovern*, 87 F.R.D. 584 (1980); *United States v. McGovern*, 87 F.R.D. 590 (1980).



for these undeniably proper purposes would be to thwart its effort to better execute its responsibilities. . . . In addition, there is a large and very real public interest in having an expeditious and comprehensive investigation of the Three Mile Island incident, with the expectation that precautions may be taken to prevent a reoccurrence or diminish its seriousness. To allow respondents to unjustifiably delay the NRC investigation works a cognizable prejudice on that public interest.

87 F.R.D. at 593.

The Commission agrees with the rationale of *Dresser* and the *McGovern* cases. If the Commission's congressionally mandated authority to investigate matters touching the public health and safety is to be effectively blocked every time a Grand Jury is convened on the same matter, the Commission will be unduly hampered in carrying out its mandate to protect the public health and safety. As stated by the Supreme Court, "[i]t would stultify enforcement of federal law to require a governmental agency . . . invariably to choose either to forgo recommendation of a criminal prosecution once it seeks civil relief, or to defer civil proceedings pending the ultimate outcome of a criminal trial." *United States v. Kordell*, 397 U.S. 1, 11 (1970) (footnote omitted). The Commission therefore concludes that the existence of a criminal investigation does not preclude the NRC from conducting its own civil investigation into the matter.

#### **B. Whether There Are Special Circumstances in This Case Which Justify Quashing the Subpoenas**

The Commission believes that it is clear from the above discussion that the NRC has the legal authority to conduct a civil investigation at the same time that a Grand Jury is conducting a criminal investigation. This does not end the inquiry, however. The Commission must also address whether there are any special circumstances in this particular case such that proceeding with parallel investigations would demonstrably prejudice substantial rights of the investigated parties.

The court in *SEC v. Dresser Industries, Inc.*, *supra*, explained that while ordinarily civil and criminal actions can proceed simultaneously, a court may in its discretion stay civil proceedings, postpone civil discovery or impose protective orders or conditions when required in the interests of justice. The court noted that the strongest case for taking such action, "[o]ther than where there is specific evidence of agency bad faith or malicious governmental tactics . . . is where a party under indictment for a serious offense is required to defend a civil or administrative action involving the same matter." 628 F.2d at 1375-76. The court explained that in that type of case

[t]he noncriminal proceeding, if not deferred, might undermine the party's Fifth Amendment privilege against self-incrimination, expand rights of criminal discovery beyond the limits of Federal Rule of Criminal Procedure 16(b), expose the basis of the defense to the prosecution in advance of criminal trial, or otherwise prejudice the case.

*Id.* at 1376 (footnote omitted). The court, noting that it might defer non-criminal proceedings in such circumstances if such delay "would not seriously injure the public interest," found the case before it to be "a far weaker one for staying the administrative investigation." *Id.* The court noted that no indictment had been returned, no Fifth Amendment privilege was threatened, Rule 16(b) had not come into effect, and the SEC subpoena did not require any revelation of the basis for any defense. The court therefore declined to stay the civil proceedings.

The Commission believes that the present case, like *Dresser*, presents a weak case for staying the administrative investigation. No indictment has been returned, no Fifth Amendment privilege is threatened, Rule 16(b) has not come into effect, and the NRC subpoenas do not require the revelation of the basis for any defense.

Regardless of these conditions, moreover, the Commission believes that its public health and safety mandate under the Atomic Energy Act requires that it pursue its own civil investigation into this matter without further delay. It is now well over four years since Mr. Hartman first made these allegations, and over three years since the NRC stopped its own investigation in deference to the Grand Jury's inquiry. The Commission believes that these allegations are serious enough that it must determine their validity, whether utility management is implicated by the allegations and whether they warrant further enforcement action. The Commission notes in this regard that Three Mile Island, Unit 1 has been shut down since the accident at Unit 2 while the NRC conducted a full adjudicatory proceeding on whether Unit 1 could be operated safely and should be allowed to resume operation. The Licensing Board in that proceeding found in favor of restart, but noted that its decision was subject to the Hartman allegations. *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), LBP-81-32, 14 NRC 381, 557. The Appeal Board has recently reopened the proceeding on the Hartman allegations, noting as follows:

One Grand Jury has expired without action, and another is still sitting, with no prospect of imminent decision. In short, by next year we may be exactly where we are today — "square one." . . . [T]oo much valuable time has been wasted. Evidence and witnesses' memories are getting stale. . . . It simply is time to move forward on

the Hartman allegations, as our independent responsibility to protect the public health and safety under the Atomic Energy Act requires.

*Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-738, 17 NRC 177, 190, 191 (1983) (footnote omitted).

The recollections of the individuals may be fading with the passage of time, and delaying the NRC's investigation any longer could seriously prejudice the NRC's ability to resolve this matter. The Commission believes that it must act now to resolve this matter, and that the only way to resolve it is to interview all those who may have knowledge concerning Mr. Hartman's allegations. The individuals subpoenaed include the shift supervisors, senior reactor operators, reactor operators and others who might be familiar with leak rate testing at TMI-2 prior to the accident. Unless and until the NRC interviews each of these individuals, it will be unable to resolve this matter.<sup>12</sup> The Commission has therefore decided to deny the motions to quash.

### **III. REASONABLENESS OF SUBPOENAS FOR THOSE RESIDING OUTSIDE OF THE MIDDLE DISTRICT OF PENNSYLVANIA**

The Commission agrees with movant under the particular circumstances of this case that it would be more reasonable to have the subpoenas for individuals residing outside the Middle District of Pennsylvania made returnable for the federal district in which each individual resides.

The Commission therefore directs the Regional Administrator, Region I, to revise the subpoenas for those individuals residing outside the Middle District of Pennsylvania to make them returnable in the District where each individual resides. The Regional Administrator is also

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<sup>12</sup> The Commission notes that even interviewing the 47 individuals will not conclude the investigation into this matter. There are other individuals, including those in management, who will also have to be interviewed. It is necessary to interview these 47 individuals first in order to lay the groundwork for the later interviews.

directed to set forth new times for the return of those subpoenas whose date has expired while the motion to quash was pending.

It is so ORDERED.\*

For the Commission

JOHN C. HOYLE  
Acting Secretary of the  
Commission

Dated at Washington, D.C.,  
this 21st day of September 1983.

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\*Commissioner Gilinsky was not present when this order was voted on.

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. 50-289**  
**(Restart)**

**METROPOLITAN EDISON COMPANY,**  
*et al.*  
**(Three Mile Island Nuclear**  
**Station, Unit No. 1)**

**September 21, 1983**

The Commission denies for failure to meet the requirements for late intervention the motion of a legal foundation for leave to intervene under 10 C.F.R. § 2.714 for the avowed purpose of seeking the disqualification of a Commissioner or, alternatively, for leave to make a limited appearance under 10 C.F.R. § 2.715. In view of the Commission's denial of party status to the legal foundation, the Commission summarily dismisses a second motion of the foundation calling for disqualification of the Commissioner from the proceeding.

**RULES OF PRACTICE: UNTIMELY INTERVENTION**  
**PETITIONS**

A petition for leave to intervene which is untimely will not be entertained by the Commission unless a balancing of the factors set forth in 10 C.F.R. § 2.714(a)(1) supports late intervention. These factors are:

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

*Nuclear Fuel Services, Inc.* (West Valley Reprocessing Plant), CLI-75-4, 1 NRC 273 (1975).

### **RULES OF PRACTICE: UNTIMELY INTERVENTION PETITIONS**

In ruling on a petition for leave to intervene that is untimely, the Commission must consider, in addition to the factors set forth in 10 C.F.R. § 2.714(a)(1), the following factors set forth in 10 C.F.R. § 2.714(d):

- (1) The nature of the petitioner's right under the Act to be made a party to the proceeding.
- (2) The nature and extent of the petitioner's property, financial, or other interest in the proceeding.
- (3) The possible effect of any order which may be entered in the proceeding on the petitioner's interest.

### **RULES OF PRACTICE: PETITIONS TO INTERVENE**

A petition for leave to intervene must, *inter alia*, set forth with particularity the interest of the petitioner in the proceeding, how that interest may be affected by the results of the proceeding, including the reasons why petitioner should be permitted to intervene, and the specific aspect of the subject matter of the proceeding as to which petitioner wishes to intervene. 10 C.F.R. § 2.714(a)(2).

### **RULES OF PRACTICE: PETITIONS TO INTERVENE**

The burden to satisfy intervention requirements is on the petitioner. 10 C.F.R. § 2.732.

## **RULES OF PRACTICE: STANDING TO INTERVENE**

Judicial concepts of standing will be applied in determining whether a petitioner has sufficient interest in a proceeding to be entitled to intervene as a matter of right under section 189 of the Atomic Energy Act of 1954. *Portland General Electric Co.* (Pebble Springs Nuclear Plant, Units 1 and 2), CLI-76-27, 4 NRC 610 (1976).

## **RULES OF PRACTICE: STANDING TO INTERVENE**

Judicial concepts of standing require a showing that (a) the action sought in a proceeding will cause "injury in fact," and (b) the injury is arguably within the "zone of interests" protected by the statutes governing the proceeding. *Ibid.*

## **RULES OF PRACTICE: STANDING TO INTERVENE**

Assertions of broad public interest in (a) regulatory matters, (b) the administrative process, and (c) the development of economical energy resources do not establish the particularized interest necessary for participation by an individual or group in NRC adjudicatory processes. *Cf., e.g., Sierra Club v. Morton*, 405 U.S. 727 (1972).

## **RULES OF PRACTICE: STANDING TO INTERVENE**

Economic interest as a ratepayer does not confer standing in NRC licensing proceedings. *Pebble Springs, supra*, at 614. *See also, Northern States Power Co.* (Tyrone Energy Park, Unit 1), CLI-80-36, 12 NRC 523 (1980) (separate views of Chairman Ahearne and Commissioner Hendrie).

## **RULES OF PRACTICE: STANDING TO INTERVENE**

In Commission practice, a "generalized grievance" shared in substantially equal measure by all or a large class of citizens will not result in a distinct and palpable harm sufficient to support standing. *Transnuclear Inc.*, CLI-77-24, 6 NRC 525, 531 (1977), *citing Warth v. Seldin*, 422 U.S. 490 at 499 (1975).

## **RULES OF PRACTICE: DISCRETIONARY INTERVENTION**

Where a petitioner does not satisfy the judicial standards for standing, intervention could still be allowed as a matter of discretion. A petitioner

seeking such intervention, however, should address the factors set out in *Pebble Springs, supra*, at 614-17.

## **RULES OF PRACTICE: LIMITED APPEARANCE STATEMENTS**

Pursuant to 10 C.F.R. § 2.715(a), limited appearance statements may be permitted at the discretion of the presiding officer, but the person admitted may not otherwise participate in the proceeding.

## **MEMORANDUM AND ORDER**

### **I. INTRODUCTION**

On August 17, 1983, the Washington Legal Foundation (WLF) filed two separate motions with the Commission in this restart proceeding.<sup>1</sup> In the first motion, WLF moved for leave to intervene under 10 C.F.R. § 2.714 or, in the alternative, moved to make a limited appearance under 10 C.F.R. § 2.715. WLF's asserted reason for submitting the first motion is to obtain status to file its second motion, which seeks the disqualification of Commissioner Gilinsky from further participation in this proceeding. For the reasons set forth below, we deny the 10 C.F.R. § 2.714 petition for leave to intervene, and refuse WLF permission to make a limited appearance. These actions with respect to the first motion are dispositive of the second motion to disqualify Commissioner Gilinsky because WLF must become a party to this proceeding in order to have its disqualification motion entertained. Thus, the disqualification motion is summarily dismissed.

### **II. DISCUSSION**

#### **A. Petition for Leave to Intervene**

WLF has sought leave to intervene pursuant to the requirements of 10 C.F.R. § 2.714 in order to become a party so that it can file its

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<sup>1</sup> The Commission is currently undertaking a review of the issues listed in the Commission Orders of July 2, 1979 (unpublished) and August 9, 1979 (CLI-79-8, 10 NRC 141) which directed that TMI-1 remain shut down until further order. Those issues and other concerns raised with respect to TMI-1 need to be adequately resolved before we will lift the immediate effectiveness of the shutdown Orders and allow TMI-1 to restart.



disqualification motion. Without question, the petition for leave to intervene is untimely,<sup>2</sup> and therefore it will not be entertained by the Commission unless a balancing of the factors set forth in 10 C.F.R. § 2.714(a)(1) supports late intervention.<sup>3</sup> *Nuclear Fuel Services, Inc.* (West Valley Reprocessing Plant), CLI-75-4, 1 NRC 273 (1975). In addition to justifying its untimeliness, the petition must also set forth with particularity the interest of the petitioner in the proceeding, how that interest may be affected by the results of the proceeding, including the reasons why petitioner should be permitted to intervene, and the specific aspect of the subject matter of the proceeding as to which petitioner wishes to intervene. 10 C.F.R. § 2.714(a)(2). The burden is on the petitioner to satisfy these requirements. 10 C.F.R. § 2.732.

### 1. *Untimeliness*

WLF's sole apparent justification for its late intervention petition is that the acts and conduct of Commissioner Gilinsky which serve as the basis for the disqualification motion did not occur until recently — on or about June 22, 1983. While recent events may be a key factor in establishing “good cause” for late intervention, they do not relieve WLF of the obligation to address the other factors. WLF has not done so. Since the petition is some four years late and petitioner is represented by counsel, the absence of discussion of the other factors is not some minor defect in pleading that can be overlooked.

It is important to note that the other four factors to be considered and weighed in late intervention are predicated on the petitioner having a cognizable interest in the proceeding which would justify participation by the late intervenor. This matter is addressed below.

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<sup>2</sup> The August 9, 1979 Order established September 4, 1979 as the filing date for petitions to intervene.

<sup>3</sup> These factors are:

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

In addition, the Commission must consider the following factors set forth in 10 C.F.R. § 2.714(d) in ruling on a petition for leave to intervene:

- (1) The nature of the petitioner's right under the Act to be made a party to the proceeding.
- (2) The nature and extent of the petitioner's property, financial, or other interest in the proceeding.
- (3) The possible effect of any order which may be entered in the proceeding on the petitioner's interest.

## 2. Interest

We have long held that judicial concepts of standing will be applied in determining whether a petitioner has sufficient interest in a proceeding to be entitled to intervene as a matter of right under section 189 of the Atomic Energy Act of 1954. *Portland General Electric Co.* (Pebble Springs Nuclear Plant, Units 1 and 2), CLI-76-27, 4 NRC 610 (1976). These concepts require a showing that (a) the action will cause "injury in fact," and (b) the injury is arguably within the "zone of interests" protected by the statutes governing the proceeding.

WLF has asserted that it is a non-profit, public interest law firm with over 85,000 members nationwide, including members in Pennsylvania and the TMI area, which engages in litigation and the administrative process in matters affecting the broad public interest. It commits a substantial portion of its resources to regulatory matters in which it attempts to reduce regulatory excess, increase regulation, efficiency, and ensure the integrity of the administrative process. Its interests lie in the development of economical energy resources, including nuclear, which have the effect of strengthening the economy and increasing the standard of living. WLF's particular interest in this proceeding is the disqualification of Commissioner Gilinsky from continued participation in the TMI-1 restart deliberative process so that his complained of conduct will not destroy the integrity of the administrative process.

These assertions of broad public interest in (a) regulatory matters, (b) the administrative process, and (c) the development of economical energy resources do not establish the particularized interest necessary for participation by an individual or group in agency adjudicatory processes. *Cf., e.g., Sierra Club v. Morton*, 405 U.S. 727 (1972).<sup>4</sup> Although the Commission, like other federal agencies, has an obligation to further the general interests in good government and the economical use of resources which have been espoused by the petitioner, this agency's specific mandate is to protect the public health and safety under the Atomic Energy Act and to consider and weigh environmental matters under the National Environmental Policy Act (NEPA) in our licensing and regulatory actions. The broad public interests outlined above, however noteworthy, do not qualify WLF for intervention in our proceedings.

WLF must particularize a specific injury that it or its members would or might sustain as a result of our actions on TMI-1 restart. It has been

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<sup>4</sup> Nor does economic interest as a ratepayer confer standing. *Pebble Springs, supra*, at 614. See also, *Northern States Power Co.* (Tyrone Energy Park, Unit 1), CLI-80-36, 12 NRC 523 (1980) (separate views of Chairman Ahearne and Commissioner Hendrie).

established in Commission practice that a "generalized grievance" shared in substantially equal measure by all or a large class of citizens will not result in a distinct and palpable harm sufficient to support standing. *Transnuclear Inc.*, CLI-77-24, 6 NRC 525, 531 (1977), citing *Warth v. Seldin*, 422 U.S. 490 at 499 (1975). WLF's asserted harm — that Commissioner Gilinsky's continued participation may adversely affect the integrity of the administrative process — is not a specific injury to WLF which would flow from our actions with respect to TMI-1 restart. At most, the asserted harm is a "generalized grievance" shared by all persons with a stake in the integrity of our licensing and decisionmaking process. Moreover, the possibility of injury is remote (approval for restart may or may not be granted notwithstanding the actions of Commissioner Gilinsky). The asserted harm, therefore, is insufficient to show that the petitioners will be adversely affected by the outcome of the proceeding. In sum, WLF's assertions of interests and injury are insufficient to confer standing and, hence, to justify intervention as a matter of right.

### **3. Discretionary Intervention**

Even if a petitioner does not satisfy the judicial standards for standing, intervention could still be allowed as a matter of discretion. *Pebble Springs, supra*, at 614-17. We do not exercise our discretion to grant intervention in the circumstances of this case, particularly since the petitioner does not address the factors which might argue for or against discretionary intervention under *Pebble Springs, supra*. Given the lateness of the petition and advanced stage of the proceeding, and the fact that the admitted parties in the case share the same generalized interests asserted by WLF and have the same or greater resources and expertise to raise and litigate the issue, we would require an especially strong showing by WLF that discretionary intervention is warranted. No such showing is made here.

### **B. Limited Appearance**

WLF seeks, in the alternative if its intervention petition is denied, to make a limited appearance "for the purposes of filing the [disqualification] motion. . . ." Pursuant to 10 C.F.R. § 2.715(a), limited appearance statements may be permitted at the discretion of the presiding officer, but the appearer "may not otherwise participate in the proceeding." Accordingly, even if the statement is permitted, WLF is not accorded party status which would enable it to file or pursue a

disqualification motion. Since this is at odds with the sole purpose of wanting to make a limited appearance, there is nothing to be gained by allowing the appearance. In short, WLF must become a party to a proceeding in order to file a disqualification motion and, having failed in its attempt to intervene, no further consideration on this motion is warranted by the Commission.

### III. CONCLUSION

For the reasons set forth above, WLF's petition for leave to intervene and its request to make a limited appearance are denied. These actions necessitate a summary dismissal of WLF's disqualification motion.

Commissioner Gilinsky did not participate in this decision.

For the Commission

(John C. Hoyle)  
for SAMUEL J. CHILK  
Secretary of the Commission

Dated at Washington, D.C.,  
this 21st day of September 1983.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

**Thomas S. Moore, Chairman**  
**Dr. W. Reed Johnson**  
**Dr. Reginald L. Gotchy**

In the Matter of

Docket Nos. 50-266-OLA  
50-301-OLA

**WISCONSIN ELECTRIC POWER  
COMPANY**

(Point Beach Nuclear Plant,  
Units 1 and 2)

September 7, 1983

The Appeal Board affirms the Licensing Board's authorization of a license amendment that allows the applicant to repair degraded steam generator tubes by sleeving.

**RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES**

The Commission's Rules of Practice governing appellate briefs are not mere niceties, rather, they were drafted to insure that the arguments and positions of all parties would be spread fully upon the record in order to permit fair rebuttal by those holding opposing views and to facilitate our ultimate evaluation of the competing contentions. Disregard of the Rules frustrates those salutary purposes and burdens rather than assists the adjudicator's task. *Pennsylvania Power and Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-693, 16 NRC 952, 955 (1982), quoting *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-270, 1 NRC 473, 476 (1975).

## **RULES OF PRACTICE: BRIEFS**

At a minimum, briefs must identify the particular exceptions addressed and the precise portions of the record relied upon in support of the assertion of error. 10 C.F.R. § 2.762(a); *Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Unit 1), ALAB-696, 16 NRC 1245, 1255 (1982); *Public Service Electric and Gas Co.* (Salem Nuclear Generating Station, Unit 1), ALAB-650, 14 NRC 43, 49-50 (1981), *aff'd sub nom. Township of Lower Alloways Creek v. Public Service Electric and Gas Co.*, 687 F.2d 732 (3d Cir. 1982).

## **LICENSING BOARDS: JURISDICTION (LICENSE AMENDMENT PROCEEDINGS)**

In a license amendment proceeding, a licensing board has only limited jurisdiction: it may admit a party's issues for hearing only insofar as those issues are within the scope of matters outlined in the Commission's notice of hearing on the licensing action. *Portland General Electric Co.* (Trojan Nuclear Plant), ALAB-534, 9 NRC 287, 289 n.6 (1979); *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-316, 3 NRC 167, 170-71 (1976). *See Commonwealth Edison Co.* (Zion Station, Units 1 and 2), ALAB-616, 12 NRC 419, 426 (1980).

## **APPEAL BOARD: SCOPE OF REVIEW (SUA SPONTE)**

The appeal board's practice is to review, *sua sponte*, "any final disposition of a licensing proceeding that either was or had to be founded upon substantive determinations of significant safety or environmental issues." *Sacramento Municipal Utility District* (Rancho Seco Nuclear Generating Station), ALAB-655, 14 NRC 799, 803 (1981), quoting *Washington Public Power Supply System* (WPPSS Nuclear Project No. 2), ALAB-571, 10 NRC 687, 692 (1979).

## **TECHNICAL ISSUES DISCUSSED**

- Steam generator tube repair by sleeving;
- Eddy current testing of steam generator tubes;
- Steam generator tube failure (single and multiple);
- Leak-before-break phenomenon in steam generator tube cracking.

## APPEARANCES

**Peter Anderson**, Madison, Wisconsin, for the intervenor, Wisconsin's Environmental Decade.

**Bruce W. Churchill and Delissa A. Ridgway**, Washington, D.C., for the applicant, Wisconsin Electric Power Company.

**Richard G. Bachmann** for the Nuclear Regulatory Commission staff.

## DECISION

We have before us the appeal of intervenor, Wisconsin's Environmental Decade (Decade), from the Licensing Board's February 4, 1983 initial decision. *See* LBP-83-4, 17 NRC 109. In that decision the Board authorized the issuance of a license amendment for the Point Beach Nuclear Plant that allows the applicant to repair degraded steam generator tubes by sleeving them. Under the plant's existing technical specifications such tubes would have to be plugged and removed from service. For the reasons discussed below, we affirm.

### I.

The applicant filed its license amendment request on July 2, 1981. Decade petitioned to intervene and requested a hearing on the amendment application.<sup>1</sup> The questions raised with regard to the sleeving repair proposal were determined by, in essence, a summary disposition proceeding on Decade's contentions.<sup>2</sup> In LBP-82-88, 16 NRC 1335 (1982), the Board granted summary disposition of all but one of the contentions and ordered a hearing on the issue of whether eddy current test-

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<sup>1</sup> The history of this proceeding is discussed in greater detail in ALAB-719, 17 NRC 387, 389-91 & n.4 (1983) and ALAB-696, 16 NRC 1245, 1250-54 (1982).

<sup>2</sup> The Board ordered Decade to file a "Motion for Litigable Issues," in which Decade was required to come forward with evidence indicating the existence of genuine issues of fact concerning the sleeving program. The applicant and the staff responded with motions for summary disposition of the issues raised in Decade's filing. The Board's intent was that this procedure parallel the summary disposition mechanism provided in 10 C.F.R. § 2.749 in all respects except that the *intervenor* was required to demonstrate, *ab initio*, the existence of actual disputed issues. *See* LBP-82-88, 16 NRC 1335, 1339 (1982); LBP-82-10, 15 NRC 341, 344-45 (1982); Tr. 890-92, 1192-93. *See also* Tr. 867-68, 882. Our admonition in ALAB-696, *supra*, 16 NRC at 1262 (handed down the same day as LBP-82-88) applies here as well: "In the future . . . procedures such as those employed by the Licensing Board should be avoided."

ing can adequately detect corrosion in sleeved steam generator tubes. *Id.* at 1337, 1350. In addition, the Board asked the parties to address contingently the safety implications of sleeving should eddy current testing prove inadequate for detecting corrosion and cracking in sleeved tubes. *Id.* at 1338; LBP-83-4, *supra*, 17 NRC at 113 n.8. After a hearing, the Board authorized the license amendment permitting the applicant to undertake sleeving at Point Beach. The Board found eddy current testing adequate for detecting flaws in sleeved tubes that might lead to rupture under normal operating or accident conditions. It went on to find that sleeved tubes are not only "safer than other unsleeved tubes," but also "safe . . . without reference to whether they are safer than unsleeved tubes." LBP-83-4, *supra*, 17 NRC at 111.<sup>3</sup> This appeal followed.

## II.

As best we can determine from its brief, Decade appears to raise two issues on appeal.<sup>4</sup> The first issue relates to its Exception C.1. In its brief (at 3), Decade asserts that the Board should not have dismissed the contention it proposed concerning the effects of steam generator tube fail-

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<sup>3</sup> The applicant recently completed sleeving repairs in Unit 2 pursuant to the Board's authorization. As we noted in our prior decisions, the applicant now intends to *replace* both steam generators in Unit 1 and thus does not plan further sleeving in that unit. The applicant still seeks authorization to repair Unit 1, however, so that it retains the option of making further sleeving repairs before replacing the steam generators if that should become necessary. See ALAB-719, *supra*, 17 NRC at 389 n.4; ALAB-696, *supra*, 16 NRC at 1251 n.5.

<sup>4</sup> This is the fourth time in as many appellate decisions that we have had occasion to comment on Decade's failure to conform its appellate filings to the Commission's Rules of Practice. See ALAB-719, *supra*, 17 NRC at 395; ALAB-696, *supra*, 16 NRC at 1254-55; ALAB-666, 15 NRC 277, 278 (1982). We have said before that those Rules are not mere niceties; rather,

[t]hey were drafted to insure that . . . the arguments and positions of all parties — applicants, staff and intervenors — would be spread fully upon the record in order to permit fair rebuttal by those holding opposing views and to facilitate our ultimate evaluation of the competing contentions. Disregard of the Rules frustrates those salutary purposes and burdens rather than assists the adjudicator's task.

*Pennsylvania Power and Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-693, 16 NRC 952, 955 (1982), quoting *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-270, 1 NRC 473, 476 (1975). Thus, at a minimum, briefs must identify the particular exceptions addressed and the precise portions of the record relied upon in support of the assertion of error. 10 C.F.R. § 2.762(a); ALAB-696, *supra*, 16 NRC at 1255; *Public Service Electric and Gas Co.* (Salem Nuclear Generating Station, Unit 1), ALAB-650, 14 NRC 43, 49-50, *aff'd sub nom. Township of Lower Alloways Creek v. Public Service Electric and Gas Co.*, 687 F.2d 732 (3d Cir. 1982). Because Decade's brief fails in this regard, we cannot accurately discern which of its exceptions, if any, it pursues in its brief. Accordingly, Decade must "bear full responsibility for any possible misapprehension of its position caused by the inadequacies of its brief." ALAB-666, *supra*, 15 NRC at 278.

It should also be evident to Decade that it cannot preserve its unbriefed exceptions merely by stating its lack of intent to waive them. Decade Brief at 1. See ALAB-696, *supra*, 16 NRC at 1255 and cases cited. See also ALAB-719, *supra*, 17 NRC at 395.



ures during accident and normal operating conditions.<sup>5</sup> In LBP-82-88, *supra*, the Board ruled that, absent a showing that sleeving would lead to tube failures, the issue of the consequences of steam generator tube failure was not relevant to this amendment proceeding and thus the contention should be dismissed. 16 NRC at 1342. We agree.

In a license amendment proceeding, a licensing board has only limited jurisdiction. The board may admit a party's issues for hearing only insofar as those issues are within the scope of matters outlined in the Commission's notice of hearing on the licensing action. *Portland General Electric Co.* (Trojan Nuclear Plant), ALAB-534, 9 NRC 287, 289 n.6 (1979); *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-316, 3 NRC 167, 170-71 (1976). See *Commonwealth Edison Co.* (Zion Station, Units 1 and 2), ALAB-616, 12 NRC 419, 426 (1980).<sup>6</sup> Here, the notice of hearing stated the proceeding would concern the repair of steam generator tubes by sleeving and the operation of the Point Beach plant with sleeved tubes. See 46 Fed. Reg. 40,359 (1981). See generally ALAB-696, *supra*, 16 NRC at 1250. Thus, Decade had to put forth a cognizable claim that some element of the sleeving process gives rise to an enhanced likelihood of tube rupture and the allegedly concomitant consequences.<sup>7</sup> As the Licensing Board stated:

This is not an application to build or operate a nuclear power reactor. In an amendment proceeding, the relationship of steam generators to the remainder of the plant is not germane. In this case, applicant already has an operating license, granted after the safety of its reactor was considered. . . . The test of relevance [therefore] . . . is to ask whether an issue is relevant to "how the *sleeving* program would cause problems" or whether it reflects "unfavorably on the safety of *sleeving*."

LBP-82-88, *supra*, 16 NRC at 1342 (citation omitted; emphasis in original). Decade was aware it had to make this showing (see Tr. 1204-05), yet it failed to provide any link demonstrating that sleeving may lead, or be related, to tube failures. Indeed, only on brief does

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<sup>5</sup> That contention stated that degradation of as few as one to ten steam generator tubes in a pressurized water reactor, such as Point Beach, could induce essentially uncoolable conditions during a loss of coolant accident.

<sup>6</sup> The Board, of course, has authority to raise, *sua sponte*, relevant health and safety matters other than those contained in an intervenor's contentions. In this instance, the Board explicitly decided not to investigate additional issues. See LBP-83-4, *supra*, 17 NRC at 122 & n.60. LBP-83-4, *supra*, 17 NRC at 122 & n.60.

<sup>7</sup> The Licensing Board fully reviewed the evidence that supports its conclusion that tubes sleeved with heat treated Inconel 600 are less susceptible to corrosive attack than the original steam generator tubes at Point Beach. LBP-83-4, *supra*, 17 NRC at 119-23, 127. The Board also notes that the sleeve will, in effect, partially insulate the surrounding tube, thus reducing the potential for corrosion and the resultant exposure of the sleeve to the secondary system water. *Id.* at 120-21.

Decade mention, without elaboration, that it is concerned with the consequences of "sleeve induced" tube failure. Decade Brief at 3.

Decade's second argument apparently relates to its Exception D.1. Decade claims the Board erred in not establishing "the degree of assurance [necessary] to anticipate steam generator tube failures that is required in order to protect the public safety before it proceeded to determine whether the level of assurance shown was adequate." Decade Exceptions at 2. In essence, Decade believes the Board first had to ascertain the probability and consequences of steam generator tube failures in order to conclude that Point Beach could operate safely with sleeved tubes. Decade Brief at 8. Absent this information, Decade argues, the Licensing Board could not conclude that Point Beach may operate safely after sleeving. In this regard, Decade points out that the Commission has not fully investigated the safety consequences of steam generator tube failures, in particular those occurring during a loss of coolant accident. *Id.* at 7-11.<sup>8</sup>

Decade's argument fails. In evaluating the efficacy of eddy current testing to detect flaws in sleeved tubes and in reaching its ultimate conclusion whether the amendment should issue, the Board could apply only existing safety standards. *See Nader v. NRC*, 513 F.2d 1045, 1052-54 (D.C. Cir. 1975); *Nader v. Ray*, 363 F. Supp. 946, 954 (D.D.C. 1973). Consideration of the probability and magnitude of steam generator tube failures is not required by the Commission's existing regulations. Nor were such general issues encompassed within the scope of this license amendment proceeding. Absent a demonstration that sleeving would contribute to steam generator tube failure, the Licensing Board did not have to consider the probabilities and consequences of tube failures before considering whether sleeving of Point Beach steam generators would be inimical to the public health and safety. But, in any event, the Board did consider the safety aspects of sleeving — including the failure of eddy current testing to detect flaws in sleeved tubes — before authorizing issuance of the license amendment. *See LBP-83-4, supra*, 17 NRC at 117-28.

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<sup>8</sup> Decade is correct that the agency has not yet studied the consequences of multiple steam generator tube failures. Indeed, the agency has extant a long standing commitment to study these issues. *See, e.g., Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-343, 4 NRC 169, 171 (1976); NUREG-0410, "NRC Program for the Resolution of Generic Issues Related to Nuclear Power Plants," Appendix F, Technical Activity No. A-3 (1978). We note that in the staff's February 1982 "Steam Generator Status Report," attached to SECY-82-72, "Overall Steam Generator Program" (Feb. 18, 1982), the staff acknowledges (at 2) that the multiple tube failure problem has not yet been rigorously studied, but states (at 6-7) that many steam generator issues are resolved in a draft report (NUREG-0844). To our knowledge this document has not yet been published in either final or draft form.

### III.

Independent of the issues raised by Decade's appeal, we have examined the Licensing Board's initial decision and the underlying record pursuant to our long standing practice to review, *sua sponte*, "any final disposition of a licensing proceeding that either was or had to be founded upon substantive determinations of significant safety or environmental issues." *Sacramento Municipal Utility District* (Rancho Seco Nuclear Generating Station), ALAB-655, 14 NRC 799, 803 (1981), quoting *Washington Public Power Supply System* (WPPSS Nuclear Project No. 2), ALAB-571, 10 NRC 687, 692 (1979). Our review of the record below on the substantive safety issues has disclosed no error requiring corrective action. Indeed, with one minor exception noted below (*see* note 9, *infra*), we generally agree with the Licensing Board's conclusions regarding the acceptability of sleeving as a repair technique for steam generator tubes at Point Beach.<sup>9</sup> An additional matter, however, merits our attention.

As we discussed earlier, the Licensing Board took evidence on the safety implications of sleeving so that the record would nevertheless be complete in the event it found eddy current testing inadequate to detect flaws in sleeved tubes. The Board then made findings on the safety of sleeved tubes even though this contingency did not arise. We have evaluated the complete record and believe that a brief discussion of the basis for the Board's safety finding may help answer Decade's apparent concern that sleeving will cause multiple tube failures.

Before a steam generator tube composed of Inconel 600 (a tough, ductile material) can be weakened by corrosion cracking to the point that it would rupture during an accident, the crack must attain a certain critical length: Fletcher, fol. Tr. 1422, at 7-8; Appl. Exh. I (WCAP-9960 Rev. 1) at 6.121-122, 6.126. This fact bears upon the safety of steam

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<sup>9</sup> There is one aspect of the Licensing Board's analysis that we do not endorse. The Board concluded there was no genuine issue concerning eddy current testing of the upper joint between the sleeve and its surrounding tube. LBP-83-4, *supra*, 17 NRC at 121; LBP-82-88, *supra*, 16 NRC at 1348. Consequently, when it ordered the applicant and the staff to address the question of the safety implications of sleeving in the event the Board might find eddy current testing inadequate for detecting flaws in sleeved tubes, no evidence was presented regarding the efficacy of eddy current testing in this portion of the sleeve. Decade appears to take exception to the Board's handling of this point, but did not brief the issue and we therefore do not consider it before us on Decade's appeal. On *sua sponte* review, however, we note that the ability to inspect the upper tube joint is a matter of importance. Such inspections are, in our opinion, required by General Design Criterion 32, 10 C.F.R. Part 50, App. A. The ability to inspect this region is analogous to the ability to inspect the upper transition region in the replacement steam generators, a matter we addressed in our July 8, 1983 Memorandum and Order in Docket No. 50-266 OLA-2. Our previous inquiry regarding eddy current testing at the transition in the steam generator replacement proceeding, and our new inquiry here with respect to the ability to inspect the upper sleeve joint, are the subject of a companion memorandum and order issued with this decision.

generator operation in two ways. First, despite the limitations of the eddy current technique in detecting small tube flaws (*see* LBP-83-4, *supra*, 17 NRC at 111, 117-19; Tr. 1500-01, 1691-92, 1704), if a crack is of such size as to threaten the structural integrity of the tube, it is likely to be large enough to be detected in an eddy current examination. LBP-83-4, *supra*, 17 NRC at 117-22; Tr. 1846, 1848. Second, and perhaps of greater consequence in terms of the assurance of safety, before a tube crack reaches the size that it structurally weakens the tube, the crack likely would penetrate the tube wall, causing primary-to-secondary leakage. Fletcher, fol. Tr. 1422, at 7-9; Tr. 1747-49.<sup>10</sup> Because the radioactivity present in primary system water provides a sensitive means of detecting such leakage into the nonradioactive secondary system water, there is a mechanism to provide a timely warning of the serious degradation of even a single tube. *See* LBP-83-4, *supra*, 17 NRC at 124. Thus, there seems to be a progressively decreasing likelihood that, through corrosion cracking, one or more tubes could be weakened to the point that they could fail under accident conditions without this situation being heralded by detectable leakage.

We recognize the evidence just outlined does not constitute the equivalent of a rigorous, quantitative determination of the likelihood and consequences of multiple tube failures. Nevertheless, we believe that the record in this proceeding supports the current staff requirement that only single, random tube failures be analyzed.

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The decision of the Licensing Board authorizing the grant of the license amendment (LBP-83-4, 17 NRC 109) is *affirmed*.

It is so ORDERED.

FOR THE APPEAL BOARD

Barbara A. Tompkins  
Secretary to the  
Appeal Board

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<sup>10</sup> This is the so called "leak-before-break" phenomenon. The history of steam generator tube failures reflects over 200 instances of tube leakage. Murphy, fol. Tr. 1828, at 10; Tr. 1783 (Fletcher). In contrast, there have been only four cases of catastrophic tube failure-rupture, and the circumstances surrounding each of these are distinguishable from the type of corrosive attack and cracking that may be expected at Point Beach. Tr. 1596, 1775-81 (Fletcher); Marsh, fol. Tr. 1822, at 3.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

## ATOMIC SAFETY AND LICENSING APPEAL BOARD

## Administrative Judges:

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

In the Matter of

Docket No. STN 50-483-OL

UNION ELECTRIC COMPANY  
(Callaway Plant, Unit 1)

September 14, 1983

The Appeal Board affirms the Licensing Board's partial initial decision, LBP-82-109, 16 NRC 1826 (1982), addressed to quality assurance and quality control contentions, in which the Licensing Board found that there had been no general breakdown in quality assurance procedures, that the various identified construction defects had been remedied and that there was reasonable assurance that the Callaway plant could be operated safely.

## ATOMIC ENERGY ACT: SAFETY FINDINGS

Neither the Atomic Energy Act of 1954, as amended, nor the Commission's implementing regulations mandate a demonstration of error-free construction. 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. 42 U.S.C. §§ 2133(d), 2232(a); 10 C.F.R. § 50.57(a)(3)(i). See *Power Reactor Development Co. v. International Union*, 367 U.S. 396, 407 (1961); *Maine Yankee Atomic Power Co. (Maine Yankee Atomic Power Station)*, ALAB-161, 6 AEC 1003, 1004 (1973), *aff'd sub nom. Citizens for Safe Power, Inc. v. NRC*, 524 F.2d 1291 (D.C. Cir. 1975).

## **RULES OF PRACTICE: BRIEFS**

A brief that merely indicates reliance on previously filed proposed findings, without meaningful argument addressing a licensing board's disposition of issues, is of little value in appellate review. *Public Service Electric and Gas Co.* (Salem Nuclear Generating Station, Unit 1), ALAB-650, 14 NRC 43, 50 (1981), *aff'd sub nom. Township of Lower Alloways Creek v. Public Service Electric and Gas Co.*, 687 F.2d 732 (3d Cir. 1982).

## **RULES OF PRACTICE: OFFICIAL NOTICE**

The use of officially noticeable material is unobjectionable in proper circumstances. 10 C.F.R. § 2.743(i). *See, e.g., Armed Forces Radiobiology Research Institute* (Cobalt-60 Storage Facility), ALAB-682, 16 NRC 150, 154 n.3 (1982). Interested parties, however "must have an effective chance to respond to crucial facts." *Carson Products Co. v. Califano*, 594 F.2d 453, 459 (5th Cir. 1979). *See also* Administrative Procedure Act, § 7(d), 5 U.S.C. § 556(e).

## **PLANT DESIGN: CODE REQUIREMENTS (STATUS)**

American Welding Society (AWS) Code requirements simply constitute conservative guidelines, with exceptions permitted.

## **LICENSING BOARDS: RESOLUTION OF ISSUES**

A decisionmaking body must confront the facts and legal arguments presented by the parties and articulate the reasons for its conclusions on disputed issues, *i.e.*, take "a 'hard look' at the salient problems." *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-422, 6 NRC 33, 41 (1977), *aff'd*, CLI-78-1, 7 NRC 1 (1978), *aff'd sub nom. New England Coalition on Nuclear Pollution v. NRC*, 582 F.2d 87 (1st Cir. 1978); *Greater Boston Television Corp. v. FCC*, 444 F.2d 841, 851 (D.C. Cir. 1970), *cert. denied*, 403 U.S. 923 (1971).

## **LICENSING BOARDS: RESOLUTION OF ISSUES**

A licensing board decision need not refer individually to every proposed finding as long as it sufficiently informs a party of the disposition of its contentions. *Seabrook, supra*, 6 NRC at 41.

## **TECHNICAL ISSUES DISCUSSED**

Quality assurance program for construction;  
Honeycombing of the reactor building base mat;  
Sonicoscopic examination of the base mat;  
Embedded plates (embeds);  
Adequacy of welding (manual and machine) of studs to embeds;  
Welding in accordance with applicable codes;  
SA-358 Piping: American Society of Mechanical Engineers (ASME) material specification for a type of welded stainless steel pipe greater than eight inches in diameter (Weld defect and its repair and testing);  
SA-312 Piping: ASME specification for both seamless and welded stainless steel pipe (Hydrostatic testing, Leak before break, Design hoop stress, ASME Code requirements);  
Centerline lack-of-penetration (CLP): longitudinal pipe welding defect (Ultrasonic examination, Effect on pipe strength, Effect of arc misalignment);  
Welding deficiencies in piping subassemblies.

## **APPEARANCES**

**Kenneth M. Chackes**, St. Louis, Missouri, for the joint intervenors Coalition for the Environment, St. Louis Region; Missourians for Safe Energy; and the Crawdad Alliance.

**Thomas A. Baxter**, Washington, D.C. (with whom **Richard E. Galen**, Washington, D.C., was on the brief), for the applicant Union Electric Company.

**Robert G. Perlis** for the Nuclear Regulatory Commission staff.

## **DECISION**

### **I. INTRODUCTION**

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

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. 42 U.S.C. §§ 2133(d), 2232(a); 10 C.F.R. § 50.57(a)(3)(i).<sup>1</sup> 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.

It is in this context that we turn to the appeal now before us in the operating license proceeding involving the Union Electric Company's Callaway nuclear facility located in Missouri. That appeal, taken by three organizations that intervened jointly in the proceeding,<sup>2</sup> is from a partial initial decision of the Licensing Board rendered on December 13, 1982. See LBP-82-109, 16 NRC 1826. In that decision, the Board addressed exclusively the contentions of the Intervenor<sup>3</sup>s directed to quality assurance and quality control<sup>4</sup> in the course of Callaway construction.

Specifically, the decision deals with the Intervenor<sup>3</sup>s' assertion that there have been numerous deficiencies in carrying out the quality assurance program — deficiencies attributed to the utility applicant and, as well, the principal architect-engineer (the Bechtel Power Corporation); the construction contractor (the Daniel International

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<sup>1</sup> See *Power Reactor Dev. Co. v. Int'l Union*, 367 U.S. 396, 407 (1961); *Maine Yankee Atomic Power Co. (Maine Yankee Atomic Power Station)*, ALAB-161, 6 AEC 1003, 1004 (1973), *aff'd sub nom. Citizens for Safe Power, Inc. v. NRC*, 524 F.2d 1291 (D.C. Cir. 1975).

<sup>2</sup> Coalition for the Environment, St. Louis Region; Missourians for Safe Energy; and the Crawdad Alliance (hereafter referred to collectively as "Intervenor<sup>3</sup>s").

<sup>3</sup> The term "quality assurance" includes quality control. See 10 C.F.R. Part 50, Appendix B *Introduction*. Henceforth in this opinion, the term "quality assurance" will be employed to embrace quality control.

<sup>4</sup> The Licensing Board still has before it the issue of offsite emergency planning.



Corporation); and certain suppliers of safety-related components and materials.<sup>5</sup> According to the Intervenor, these deficiencies reflect a pervasive breakdown in quality assurance procedures such that the safety of the plant can not be guaranteed; for this reason, Intervenor maintained the plant should not be licensed for operation.<sup>6</sup> On the basis of the evidentiary record developed on these claims, the Licensing Board found, to the contrary, that there had been no general breakdown in quality assurance procedures, that the various identified construction defects had been remedied, and that there was reasonable assurance that the Callaway plant could be operated safely.

On their appeal, the Intervenor renew the arguments advanced by them below: they continue to insist that genuine safety problems remain unresolved and that the construction deficiencies that were uncovered demonstrate the overall unreliability of the Callaway quality assurance program. For the reasons set forth below, we disagree and affirm the Licensing Board's ultimate determination on the quality assurance issue.

## II. SPECIFIC SAFETY ISSUES<sup>7</sup>

### A. Honeycombing

The "base mat" is a reinforced concrete slab that serves as the foundation for the reactor building. Concrete for the base mat was

<sup>5</sup> Union Electric is a member of the SNUPPS (Standardized Nuclear Power Plant System) organization made up of several utilities pursuing a standard design for their plants. Bechtel is the lead architect-engineer for all SNUPPS projects. Daniel was engaged by Union Electric to construct the Callaway facility.

<sup>6</sup> The opening paragraph of the Intervenor's quality assurance contention reads: Surveillance and inspection functions of Applicant Union Electric Company, and others, including Bechtel Power Corp. (lead architect/engineer), Daniel International Corp. (construction contractor) and Code Authorized Nuclear Inspectors, failed to ensure the quality of safety-related material, structures, systems and components through all phases of their fabrication, construction, testing and inspection contrary to the quality assurance criteria of 10 C.F.R. Part 50 Appendix B. Many vendor-supplied components were on the construction site and were approved for installation before code-defined deficiencies and nonconformances were identified. During construction deficiencies and nonconformances were accepted against code requirements. Without effective surveillance and inspection by the Applicant, and others, of material suppliers, component vendors, and construction contractors, all safety-related material, structures, systems, and components must be considered of questionable integrity. Because effective surveillance and inspection were not performed, the safe operation of the Callaway Plant is in jeopardy and should not be licensed.

<sup>7</sup> The applicant and the NRC staff contend, as a preliminary matter, that the Intervenor's brief fails to meet the requirements of 10 C.F.R. § 2.762. See Applicant's Brief (Apr. 6, 1983) at 10-12; Staff Brief (Apr. 18, 1983) at 6-8. Many of the arguments in the Intervenor's brief are advanced in a cursory and imprecise fashion, necessitating reference to the proposed findings of fact and conclusions of law filed with the Licensing Board for amplification. Our willingness throughout this opinion to infer appellate

*(Continued)*

placed during a continuous pour lasting more than 60 hours, from April 6-9, 1977. When the pour was completed, voids or air pockets in the concrete characterized as "honeycombing" (and resembling popcorn in appearance) were discovered.<sup>8</sup> Repairs were undertaken and tests of the repaired concrete were made. Among other things, Bechtel hired Wiss, Janney, Elster and Associates (WJE) to conduct a sonicographic examination of the base mat. Basically, such testing measures the velocity of a sound pulse through the base mat. The presence of voids in the concrete is detected by a substantial reduction in velocity.

The Licensing Board examined the evidence pertaining to the causes of the honeycombing, the repairs undertaken, and the follow-up testing, and found that there is reasonable assurance that no defects important to safety now exist.<sup>9</sup> Nevertheless, it noted two quality assurance deficiencies: first, the applicant failed to provide specifications for the testing of dry pack,<sup>10</sup> a deficiency the Board believed to be harmless and which is not raised on appeal; second, the applicant failed to prepare proper documentation of the pour, a deficiency the Board found to be more serious.<sup>11</sup> Despite these deficiencies, the Board determined that the overall quality assurance program functioned as designed, that deficiencies were promptly discovered and repairs made, and that proper tests were undertaken.<sup>12</sup> The Board concluded, in sum, that the imperfections occurred despite reasonable steps to prevent them, and that proper procedures were established for testing and repair.

The Intervenor's dispute the Board's conclusions in three respects.

1. First, they challenge as unreliable the sonicographic evaluation that was done following discovery of the imperfections. The Licensing Board specifically reviewed this challenge and rejected it.<sup>13</sup> In their brief to us, the Intervenor's charged that the Licensing Board erred when it declined to adopt their arguments regarding the effect of the steel plates embedded in the concrete on the reliability of the sonicographic

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arguments based on the proposed findings should not be taken as an indication of our acceptance of the practice of relying on the proposed findings in a brief. As we have noted, a brief that merely indicates reliance on previously filed proposed findings, without meaningful argument addressing the Licensing Board's disposition of issues, is of little value in appellate review. *Public Service Electric and Gas Co. (Salem Nuclear Generating Station, Unit 1)*, ALAB-650, 14 NRC 43, 50 (1981), *aff'd sub nom. Township of Lower Alloways Creek v. Public Service Electric and Gas Co.*, 687 F.2d 732 (3d Cir. 1982). The proposed findings and conclusions presented to the Licensing Board appear to be thorough and thoughtful. We would have been materially assisted if a similar effort had gone into the appellate analysis of the Licensing Board's decision.

<sup>8</sup> LBP-82-109, *supra*, 16 NRC at 1845.

<sup>9</sup> *Id.* at 1846-47.

<sup>10</sup> A putty-like mixture of cement and sand. Meyers, *et al.*, fol. Tr. 227 at 20.

<sup>11</sup> 16 NRC at 1848-50.

<sup>12</sup> *Id.* at 1870-73.

<sup>13</sup> *Id.* at 1848, 1873.

technique.<sup>14</sup> At oral argument, however, they claimed more generally that sonoscopic testing is a totally unreliable procedure.<sup>15</sup>

We find no basis for overturning the Board's technical determinations. Turning first to the arguments raised in the brief, we believe, contrary to the Intervenor's assertion, that the Board was correct in observing that "the interface between steel and concrete often results in a degraded signal or complete obstruction of the signal."<sup>16</sup> Applicant's witness Pfeifer testified that signal loss does occur from either the steel-concrete separation (*i.e.*, a tiny air space between the plate and the concrete that results from normal concrete shrinkage as it dries) or a rough surface on top of a slab. It is also clear that WJE anticipated this phenomenon and accounted for it by supplementing vertical shots around the steel plates with angle shots across the same area of the base mat but away from the immediate vicinity of the plate. Mr. Pfeifer testified that in most cases the unsuccessful vertical shots "could be transformed into successful shots by a slight movement of one of the transducers," demonstrating that the signal loss was from the separation between steel and concrete rather than a void in the concrete itself.<sup>17</sup> In short, we disagree with the criticism of the Board's technical determination regarding the effect of the steel on the sonoscopic testing.

We also believe that the general reliability of sonoscopic testing for revealing honeycombing in large blocks of concrete has not been undermined. The applicant's witness testified that such testing is a recognized technique that WJE has employed for more than 15 years.<sup>18</sup> Although the Intervenor's disagree with his assessment, they did not introduce evidence on the subject or cross-examine the witness (who is an expert on sonoscopic testing and testified about the examination done at the Callaway plant). They chose, instead, to present to the Licensing Board a posthearing hypothetical argument designed to undermine the validity of the testing technique. The argument relied on commonly accepted scientific material contained in a chemistry and physics handbook of which they asked the Board to take official notice.<sup>19</sup> In our view, the Intervenor's were obligated to do more than merely raise

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<sup>14</sup> Intervenor's Brief (Mar. 2, 1983) at 13-14.

<sup>15</sup> App. Tr. 31-33.

<sup>16</sup> 16 NRC at 1848.

<sup>17</sup> Meyers, *et al.*, fol. Tr. 227, at 26-27. *See also id.* at 24-26; Tr. 306-09, 312-14.

<sup>18</sup> Meyers, *et al.*, fol. Tr. 227, at 24. The staff's testimony is generally in accord. *See Varela*, fol. Tr. 396, at 5.

<sup>19</sup> *See* Intervenor's Proposed Findings of Fact and Conclusions of Law (Mar. 1, 1982) at 93-94 & n.49.

scientific objections in their proposed findings by reliance on officially noticeable information.<sup>20</sup>

The use of officially noticeable material is unobjectionable in proper circumstances.<sup>21</sup> Interested parties, however "must have an effective chance to respond to crucial facts." *Carson Products Co. v. Califano*, 594 F.2d 453, 459 (5th Cir. 1979). See also Administrative Procedure Act, § 7(d), 5 U.S.C. § 556(e). Where, as here, the question presented is the scientific reliability of a technique employed by an expert witness, the failure to present an analytical disagreement to that witness for consideration compromises the ability of the witness (and the party presenting him or her) to controvert the matter in question. The timely introduction of evidence or pertinent cross-examination at the hearing would plainly have resulted in a more meaningful opportunity to address the Intervenor's arguments and, hence, a definitive exploration of the scientific question at issue.<sup>22</sup>

2. Second, the Intervenor's argue that the safety of the entire base mat has not been demonstrated because there is no information available concerning the condition of the concrete in areas not accessible to inspection. They claim, in this connection, that the lack of adequate documentation for the concrete pour makes it impossible to extrapolate about the quality of the mat in those inaccessible areas.

We are satisfied that the integrity of the entire base mat has been established. WJE actually tested about 25 percent of the "tendon gallery." The gallery is located around the circumference of the base mat and directly below it, but makes up only 19 percent of the overall base mat.<sup>23</sup> The Intervenor's claim that there is no evidence to demonstrate the absence of honeycombing in other areas of the base mat. While they are correct that there has been no testing of those areas of the base mat that are inaccessible, such lack does not weaken the

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<sup>20</sup> Counsel for Intervenor's conceded at oral argument that, although the applicant's expert on the sonoscopic procedure testified at the hearing, the technical arguments later presented to the Licensing Board in the proposed findings had not been presented to the witness. App. Tr. 77.

<sup>21</sup> 10 C.F.R. § 2.743(i). See, e.g., *Armed Forces Radiobiology Research Inst. (Cobalt-60 Storage Facility)*, ALAB-682, 16 NRC 150, 154 n.3 (1982).

<sup>22</sup> At oral argument, for example, counsel for the Intervenor's indicated his "understanding" that the use of sonoscopic testing is limited to structures thinner than ten-foot thick concrete filled with steel. App. Tr. 33. As we apprehend this argument, any substantial reduction in transmission velocity (which would indicate a void in the concrete) might be offset by an increase in velocity as the sound wave passed through the neighboring steel. But the velocity in air (*i.e.*, through a void) is substantially less than that through either steel or concrete. See *CRC Handbook of Chemistry and Physics* (63d ed. 1982-83) at E-44. Therefore, such voids should still be detectable. Moreover, as we read the record, the use of angle shots to supplement vertical shots largely avoids this problem. This is precisely the type of matter, however, that should have been raised earlier and more explicitly with the witness.

<sup>23</sup> The tendon gallery provides access for installation and surveillance of vertical stressing tendons. Each tendon is anchored to two steel trumplates located on opposite sides of the base mat, directly above the tendon gallery. Meyers, *et al.*, fol. Tr. 227, at 10-11, 14; Varela, fol. Tr. 396, at 2-3.

validity of the Board's finding concerning the integrity of the entire base mat.

First of all, the Board found that the areas actually tested were the most likely candidates for honeycombing.<sup>24</sup> This finding is unchallenged by the Intervenors. Furthermore, the tendon gallery is the portion of the base mat subjected to the most severe stress. In addition, following the repair work, the tendons that are anchored to the trumplates located in the base mat were placed under tension. Such "post-tensioning" imposed the most severe loads that will ever be imposed on the base mat. All the tendons anchored in the base mat were tensioned without any evidence of distress in the concrete.<sup>25</sup> Finally, and most important, the Board found that honeycombing in parts other than the tendon gallery, even if it existed, would not affect the overall safety of the reactor building.<sup>26</sup> The Intervenors do not dispute that finding.

3. Finally, the Intervenors assert that the admitted deficiencies in documentation call into question both the quality of the base mat and the applicant's overall quality assurance procedures. The Licensing Board found to the contrary.<sup>27</sup> We agree with the Board. As discussed above, there is ample evidence apart from the documentation to support the Board's conclusion that the concrete of the base mat is structurally sound. To be sure, the staff concluded that each quality control inspector who monitored various shifts — not merely the quality control inspector present at the termination of the pour — should have signed a report. While the Licensing Board properly criticized the applicant's procedures, it explicitly declined to find that this deficiency illustrated a general breakdown in quality assurance procedures.<sup>28</sup> We see no basis on which to reverse the Board's decision in this respect either.<sup>29</sup>

## **B. Embedded Plates**

Embedded plates, or embeds, are flat, rectangular steel plates that are set in concrete to serve as supports for piping; electrical conduits and cable trays; heating, ventilation and air conditioning (HVAC) components; and structural steel framing. Embeds are made by welding (either by machine or by hand) steel studs to one side of the plate,

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<sup>24</sup> 16 NRC at 1846-47.

<sup>25</sup> *Id.* at 1872.

<sup>26</sup> *Id.* at 1846-47.

<sup>27</sup> *Id.* at 1848-50.

<sup>28</sup> *Id.* at 1850.

<sup>29</sup> The Intervenors also allege that training of personnel was inadequate, but do not support their allegation. See Intervenors' Brief at 12-13. We find no evidence of faulty training.

placing the studs so the plate will be flush with the concrete when poured and the studs will be fixed in the concrete.<sup>30</sup> All the embeds were made by the Cives Steel Company.

On June 9, 1977, during the course of plant construction, an NRC inspector identified machine-welded embedded plates with incomplete circumferential stud welds that he believed had not been properly bend-tested as required by American Welding Society (AWS) codes. By that time, 430 safety-related plates had already been embedded in concrete. Of these plates, 204 were machine-welded; 226 were manually welded.<sup>31</sup> As a result, Daniel issued stop work orders on any further work associated with these plates. Separate investigations of both machine-welded and manually-welded plates were begun by Cives and Daniel.

The Cives investigation, initiated at Bechtel's direction, involved a reinspection of all machine- and manually-welded embeds that were onsite but had not yet been installed.<sup>32</sup> The inspection revealed that manual welds failed to meet AWS specifications in four areas: insufficient weld (leg) size; unequal leg size; unacceptable profile (convexity); and excessive undercut. To determine whether the manually-welded plates installed prior to the discovery of the defect were nevertheless safe, Bechtel performed an engineering analysis based on preliminary information provided by Cives. The Bechtel analysis assumed a 1/8 inch undersize in all welds for the total 360° perimeter of the anchor rods and with both weld legs considered undersized, and a 1/16 inch undercut around the full perimeter of the rods. Based on these assumptions, Bechtel calculated a reduced design capacity for all the installed manually-welded plates. No plate was found to be subject to a load greater than its reduced design capacity.<sup>33</sup> The Bechtel analysis was reviewed and accepted by the NRC staff.<sup>34</sup>

The separate Daniel inspection resulted in a 610-page written report. The report indicated substantial weld defects and the existence of some

<sup>30</sup> Schnell, *et al.*, fol. Tr. 501, at 10-11.

<sup>31</sup> *Id.* at 28-29. A total of 481 embeds were originally identified in July 1977 as supporting safety-related systems. Various design modifications have reduced the number of machine-welded embeds supporting safety-related systems from 255 to 204. The precise location of, and the actual loads on, each embed is known.

<sup>32</sup> The Intervenor initially challenged the safety of both the machine-welded and manually-welded embeds. Their discussion of machine-welded embeds, however, was confined to one sentence in the brief, and counsel conceded at oral argument that they were no longer pressing their claim regarding machine-welded embeds. See Intervenor's Brief at 12; App. Tr. 13-14. We affirm the Licensing Board's findings in connection with machine-welded embeds and limit our textual discussion to the manually-welded embeds.

<sup>33</sup> See Schnell, *et al.*, fol. Tr. 501, at 35-39. Two other weld deficiencies found by Cives (unequal weld legs and unacceptable weld profile) were determined by Bechtel not to affect the capacity of the embeds. The Intervenor does not appear to challenge this Bechtel determination.

<sup>34</sup> See Staff Ex. 6 at 7-8.

weld undersizes in excess of the 1/8 inch found by Cives and assumed by Bechtel in its engineering analysis. Because the Daniel inspection information had not been brought to the attention of Bechtel personnel at the time of the earlier analysis, Bechtel and Daniel initiated a review to determine if the Daniel and Cives data could be reconciled.<sup>35</sup> That reconciliation effort resulted in a staff conclusion that the Bechtel analysis remained valid.<sup>36</sup> The Licensing Board reviewed the evidence and concluded that the embeds installed before discovery of the defect were safe. In this connection, the Board apparently accepted the Bechtel conclusion that the Daniel data were unreliable.<sup>37</sup>

The Board was nonetheless plainly concerned about the overall handling of the embeds problem by the applicant, Bechtel, and the NRC staff, and reviewed the matter to determine whether the applicant's quality assurance program functioned effectively.<sup>38</sup> As we shall discuss later, the Board was extremely skeptical of Bechtel's assertion that it was unaware of the Daniel investigation or findings at the time it undertook its own engineering analysis. Despite what the Board characterized as "a serious disregard by the Applicant and its major contractors for quality assurance considerations in the handling of certain aspects of the manual welded embed plate problem,"<sup>39</sup> it found, overall, that the applicant's effort to correct deficiencies was consistent with proper quality assurance.

The Intervenors challenge the safety of the manually-welded embeds. In particular, they complain that no testing was done of the embeds actually installed. Moreover, although they do not appear to challenge Bechtel's engineering methodology *per se*, they contend that, in light of the discrepancies between the Cives and Daniel investigations, there is insufficient evidence to support the factual assumptions underlying the Bechtel analysis. They also urge us to reject the Board's conclusion that quality assurance procedures were adequate. They point to the numerous criticisms of the quality assurance program discussed by the Licensing Board and claim that the program is demonstrably poor. They argue, finally, that the Board improperly rejected their argument that

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<sup>35</sup> See 16 NRC at 1839.

<sup>36</sup> See Staff Ex. 6 at 8-10.

<sup>37</sup> See 16 NRC at 1841, where the Board refers to the "inconsistent reporting of weld deficiencies by Daniel inspectors" and the apparent resolution of the data inconsistency after three years. More importantly, however, the Board found that the embeds are safe even if the weld deficiencies are greater than the 1/8 inch assumed in the Bechtel analysis. *Id.* at 1843-44.

<sup>38</sup> *Id.* at 1841-43. See also *id.* at 1836-37.

<sup>39</sup> *Id.* at 1843.

the applicant deviated from applicable code requirements in connection with the welding of the embeds.

We believe the Board's view that the embeds are safe is supported by the record. To begin with, although the Intervenors are correct that no testing of the installed embeds was conducted, the staff did undertake a visual inspection of the installed plates. The plates used to support the structural steel framing were loaded by the floor slab dead loads and exhibited no sign of distress.<sup>40</sup>

Second, the Board expressly evaluated the Intervenors' claim that the installed embeds may contain defects exceeding those found by Cives and utilized in the Bechtel analysis. In its evaluation, the Board relied in part on the assessment of the applicant's expert consultant, Dr. John W. Fisher, who testified that the embeds could safely carry their design loads even assuming that the worst weld deficiencies revealed by the Daniel inspection extended around the circumference of the rods.<sup>41</sup> The Intervenors argue that Dr. Fisher had inadequate information on which to base his judgment about the capacity of the embeds.<sup>42</sup> We disagree. Dr. Fisher testified that neither the load-carrying capacity of the embeds nor their required margins of safety would be adversely affected even if the information contained in the Daniel data package was assumed. Dr. Fisher was plainly acquainted with the code requirements and the load-carrying design requirements established by Bechtel for the embeds.<sup>43</sup> It does appear, as the Intervenors point out, that Dr. Fisher could not identify whether tensile or shear force would be exerted on individual plates at the Callaway plant. However, he did identify the difference in the welding code requirements for plates having primarily tensile forces as compared to plates with predominately shear loads.<sup>44</sup> Thus, he had sufficient information on which to conclude that all plates meet necessary code and design requirements.

Third, the Board relied on the Bechtel analysis in support of its judgment that the installed plates are safe. The applicant's witnesses testified that the original design capacity of all the manually-welded plates included a minimum safety factor of 2.0 against the yield limit state of the plate and the tensile capacity of the anchor rods. As the testimony showed, the reduced design capacity yielded a minimum

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<sup>40</sup> Staff Ex. 6 at 5.

<sup>41</sup> 16 NRC at 1843-44, 1869.

<sup>42</sup> Intervenors' Brief at 11; App. Tr. 20-21.

<sup>43</sup> See Schnell, *et al.*, fol. Tr. 501, at 13, 19, 39, 46; Tr. 742-48, 1134-36.

<sup>44</sup> See Tr. 991, 1050-51.



safety factor of at least 1.92, providing a substantial margin for error even if the Daniel data are assumed to be correct.<sup>45</sup>

Moreover, as the Board noted, bend and tension tests were performed on several plates previously rejected, with no signs of cracking or weld failure.<sup>46</sup> The plates actually installed at Callaway were made by the same company, in the same time period, and with the same procedures as those subject to inspection and testing.<sup>47</sup> It is not unreasonable for the Licensing Board to have inferred that they are representative of the plates actually installed. The Intervenors argue that these tests did not take into account multiple defects and were not performed on plates as bad as the worst cases reported by Daniel or assumed in the Bechtel analysis. The plates tested were representative of the plates fabricated by Cives, however, and the welds chosen were the worst available.<sup>48</sup> While we might agree with the Intervenors that the tests, standing alone, do not demonstrate empirically that the installed embeds are safe, the test results are fully consistent with the overall conclusion reached by the Licensing Board on the basis of the total record.<sup>49</sup>

The Intervenors contend, finally, that the embedded plates are in violation of Commission regulations and applicable code requirements. There is no dispute that, during construction, Bechtel received staff approval of certain variances from the code requirements. But the Intervenors maintained at oral argument that Criterion IX of Appendix B to 10 C.F.R. Part 50 requires that welding be accomplished in accordance with applicable codes and that such codes, therefore, constitute minimum requirements from which no deviations are permitted.<sup>50</sup>

The Board found that the code requirements simply constitute conservative guidelines, with exceptions permitted, and that Bechtel properly received approval for the exceptions.<sup>51</sup> We believe the record

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<sup>45</sup> Schnell, *et al.*, fol. Tr. 501, at 34-38. See also 16 NRC at 1837. As noted above, however, the Board appears to have accepted the staff's conclusion that the Daniel data are unreliable. Such conclusion has support in the record. See, e.g., Staff Ex. 6 at 8-9; Intervenors' Ex. 14 at 2; Tr. 1356-58.

<sup>46</sup> 16 NRC at 1869-70.

<sup>47</sup> Schnell, *et al.*, fol. Tr. 501, at 20-21.

<sup>48</sup> We note, in addition, that the Bechtel analysis assumed multiple defects. See Tr. 724, 792, 1242. Further, welding code revisions in the future will permit weldments to be 25 percent smaller than those required at Callaway. 16 NRC at 1869.

<sup>49</sup> Our conclusion is not undermined by the apparent lack of written "documentation" of the results of the Cives inspection. As the applicant pointed out, a letter from the Cives project manager to Bechtel summarizing the results of its discussions with Bechtel about its inspection and repairs was prepared. See Board Ex. 1, Enclosure 2. The Licensing Board found that Bechtel relied on information communicated orally. 16 NRC at 1836. What seems clear is that Cives and Bechtel personnel reviewed the results of the Cives inspection. See p. 368, *infra*.

<sup>50</sup> App. Tr. 10.

<sup>51</sup> 16 NRC at 1840.

supports the Board's conclusion. In fact, the Intervenor's recognized in their proposed findings that a relaxation of AWS Code requirements is permitted in proper circumstances, choosing to argue to the Board only that the relaxation of the code requirements in this case had not been sufficiently justified.<sup>52</sup> The exceptions to the code were reviewed and approved by the NRC staff, which characterized them as "minor in nature" and "not affect[ing] the basic weld design or the capacity of the connection."<sup>53</sup> Although the Intervenor's challenged that conclusion, they did not present any contrary evidence.<sup>54</sup> In such circumstances, we have no basis for upsetting the Licensing Board's determination that the embeds comply with Commission regulations and applicable code requirements.

These conclusions regarding the safety of the embedded plates also lead us to affirm the Licensing Board's determination that there was no significant failure of the applicant's quality assurance program. It does not appear, upon analysis, that the defects in the embeds are serious. Once discovered, these defects were carefully examined and necessary repairs made on uninstalled plates. Appropriate testing was conducted to determine the safety of the plates already installed before discovery of the defects, and we are satisfied that the safety of the plant has not been compromised. While, as the Licensing Board suggested, the quality assurance program may not have been perfect, none of the deficiencies causes us to doubt its overall reliability.

### C. SA-358 Piping

SA-358 is a material specification established by the American Society of Mechanical Engineers (ASME) for a type of welded stainless steel pipe which is widely used for pipe sizes greater than eight inches in diameter.<sup>55</sup> Intervenor's Subcontention II.A.I concerns the implications of a weld defect found by a Daniel pipefitter in a single piece of SA-358 piping. The Intervenor's assert that the pipe in question was manufactured without adequate control and documentation of welding activities, that the nonconformance was not "dispositioned" in accordance with proper procedures, and that only information from a confidential source and media and citizen involvement triggered a staff evaluation of the defective part and the applicant's quality assurance

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<sup>52</sup> Intervenor's Proposed Findings at 33.

<sup>53</sup> Gallagher, fol. Tr. 1261, at 5; Tr. 1292. See also Staff Ex. 6 at 7-9.

<sup>54</sup> See 16 NRC at 1840.

<sup>55</sup> *Id.* at 1854.

program. They also argue that the evidence fails to establish the safety of the SA-358 pipe in question and demonstrates, instead, that the applicant's quality assurance program to identify and to disposition nonconformances properly is faulty.<sup>56</sup> The Licensing Board rejected these assertions. The Board found that the weld irregularity was relatively minor, that it was identified and properly reworked by Daniel, and that the pipe is now free from defects.<sup>57</sup>

We find no reason to question the Licensing Board's determination that the SA-358 piping is adequate. The evidence shows that the "defect" in the pipe was a 1/16 inch *excess* weld height (*i.e.*, beyond that permitted by the ASME Code), which does not affect the weld quality or pipe strength.<sup>58</sup> Visual inspection, liquid penetrant examinations, an ultrasonic test, and a radiography examination performed after grinding down the excess weld material did not disclose any remaining weld defects.<sup>59</sup> The Board found that there were no cracks or fissures in the weld and that the pipe was adequate with respect to quality and wall thickness.<sup>60</sup> We are satisfied that the Board's finding is supported by the record.<sup>61</sup> We note, in addition, that required preoperational hydrostatic tests of the emergency core cooling system will be performed at a pressure 25 percent above the pipe design pressure.<sup>62</sup> These tests will provide even further assurance that no undetected weld defects are present in that system.

The Intervenors claim that the defect uncovered in the SA-358 pipe demonstrates that the quality assurance procedures are inadequate. Such claim seems to rest largely on two factors: first, a Daniel pipefitter, rather than the manufacturer or the vendor that assembled the pipe into a pipe spool after receiving it at the plant site, originally identified the defect; second, procedures for disposition of nonconformance reports (NCRs) were supposedly not followed because the report was

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<sup>56</sup> Intervenors' Brief at 14.

<sup>57</sup> 16 NRC at 1854-57, 1878-79.

<sup>58</sup> Stuchfield and Laux, fol. Tr. 1537, at 7-16.

<sup>59</sup> *Id.* at 17.

<sup>60</sup> 16 NRC at 1855, 1856.

<sup>61</sup> The Intervenors claim that the Board failed to respond to arguments regarding the possibility that the defective weld condition may have resulted from "drop-thru" or "melt-thru." Intervenors' Brief at 15. We disagree. The Board specifically noted that drop-thru and melt-thru are visible conditions and neither visible inspection nor other inspection techniques indicated the presence of either condition. 16 NRC at 1856, 1879.

<sup>62</sup> Stuchfield and Laux, fol. Tr. 1537, at 18.

dispositioned by an inspector rather than the project discipline engineer.<sup>63</sup>

In the first place, all project personnel, including craft personnel such as the pipefitter, are part of the overall quality assurance infrastructure.<sup>64</sup> While we do not excuse the failure of the manufacturer or the vendor to detect the defect while the product was in either's possession, the discovery by the pipefitter demonstrates that the quality assurance program contains enough redundancy to minimize the risk that a defective pipe will actually be installed.

Second, the unrefuted testimony shows that proper dispositioning procedures were followed. The applicant's testimony indicates that a defect may be reported in an NCR by either quality control or engineering personnel.<sup>65</sup> Thus, the fact that the NCR was in this instance initiated by a quality control inspector instead of a discipline engineer is of no significance. Furthermore, while the Intervenor appears to be correct that Bechtel initially dispositioned the NCR erroneously, Daniel correctly accepted the responsibility to correct the defects.<sup>66</sup>

The Licensing Board concluded that the record regarding SA-358 piping does not reveal a breakdown in the applicant's quality assurance program.<sup>67</sup> In this connection, however, the Licensing Board did not explicitly discuss the allegation that the staff would not have been aware of the defect in the pipe in the absence of an anonymous report. While it is correct that the staff did investigate the SA-358 pipe in question as a result of an anonymous allegation, the defect had been discovered and corrected by Daniel before the staff became involved. Moreover, the staff investigations found no safety implications in any of the pipe defects or the subsequent repairs.<sup>68</sup>

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<sup>63</sup> The Intervenor's brief does not clearly set out their argument regarding procedures. As far as we can tell from the proposed findings presented to the Licensing Board, the Intervenor claims that the applicants failed to satisfy Criterion XV of 10 C.F.R. Part 50, Appendix B, which provides, *inter alia*: "Non-conforming items shall be reviewed and accepted, rejected, repaired or reworked in accordance with documented procedures."

<sup>64</sup> Stuchfield and Laux, fol. Tr. 1537, at 6.

<sup>65</sup> *Ibid.*

<sup>66</sup> Overlap is not listed as a basis for rejection of the pipe under ASME Code and thus need not have been dispositioned as an NCR. See 16 NRC at 1855-56.

<sup>67</sup> *Id.* at 1856-57.

<sup>68</sup> See Staff Brief at 26-27; Applicant's Brief at 35; Staff Ex. 7.

#### D. SA-312 Piping

SA-312 is an ASME specification for both seamless and welded stainless steel pipe. In welded pipe, the longitudinal seam is welded; for double-welded pipe the weld is made from both the inside and outside surfaces. If the welds from the inside and outside do not meet, a condition called "centerline lack-of-penetration" (CLP) results.

SA-312 pipe has been used for over 20 years in both nuclear and non-nuclear facilities. There have been no known failures of SA-312 pipe in nuclear facilities.<sup>69</sup> The SA-312 pipe at Callaway was manufactured by the Youngstown Welding and Engineering Company. While Callaway was under construction, longitudinal weld defects were discovered in SA-312 pipe supplied by Youngstown for use in construction at two other nuclear power plants. Documentation provided with the pipe indicated that Youngstown had performed the ASME required ultrasonic examination of the pipe but that the defects had not been uncovered by such examination.

In light of the subsequent discovery of the defects, Bechtel began a detailed test program of SA-312 piping. The Bechtel program was designed to assess both the ability of ultrasonic examination to detect CLP and the effect of CLP on double-welded SA-312 pipe. Because Bechtel was using SA-312 pipe manufactured by Youngstown in constructing several nuclear power plants, the test program was generic; no tests appear to have been conducted on pipe actually installed or on-hand at Callaway. The Bechtel investigation concluded that (i) ultrasonic examination cannot reliably detect CLP in double-welded SA-312 pipe, (ii) the maximum amount of CLP in the SA-312 piping produced by Youngstown was 26 percent, and (iii) SA-312 pipe will function as intended with an adequate margin of safety even with significant amounts of CLP.

A critical part of the Bechtel analysis was a hydrostatic burst test conducted on three pieces of SA-312 pipe. One of those pieces had been routinely manufactured by Youngstown and contained 15 percent CLP. The other two were specially manufactured for the test to contain CLP of 40 percent and 55 percent. The lowest pressure at which any pipe burst was 3000 pounds per square inch. This value is well in excess of the ASME Code-required hydrostatic test pressure of 882 pounds per square inch for the pipe in question and is higher than the design pressure for the SA-312 pipe used at Callaway.<sup>70</sup> In addition to the test

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<sup>69</sup> Rutherford, fol. Tr. 1898, at 3.

<sup>70</sup> 16 NRC at 1859, 1881. See Meyers, *et al.*, fol. Tr. 1773, at 27-28. In reviewing the record in this case, we discovered that Applicant's Exhibit 10, Enclosure 4, page 4, indicated that some SA-312 piping

(Continued)

program, two engineering analyses were performed. These analyses indicated that, because of the ductile nature of the material from which it is made, a pipe would be likely to leak long before it would fracture. Presumably, the leak would be detected before the pipe actually failed.

In view of its conclusion that standard ultrasonic testing required by the ASME Code could not reliably uncover CLP, Bechtel recommended that further examination of SA-312 piping depend on the extent of the stresses under which the piping would be placed. The NRC staff adopted this recommendation. In I&E Bulletin 79-03A (April 1980), the staff deleted the requirement for ultrasonic testing and required, instead, that a determination be made as to whether SA-312 pipe would be subjected to design hoop stresses greater than 85 percent of the allowable design stress set forth in the ASME Code.<sup>71</sup> Any piping system subjected to stresses above 85 percent was to be identified and further testing conducted. No further action was required for piping systems with design hoop stresses less than 85 percent. The Licensing Board reviewed the various tests and analyses conducted on the SA-312 piping and concluded that the pipe used at Callaway will provide reasonable assurance of adequate safety.<sup>72</sup>

With some exceptions discussed below, the Intervenor do not expressly attack the form or scope of the Bechtel investigation on which the Board chiefly relied. For example, they do not challenge the results of the burst tests. Rather, they claim that the extent of the defects in the SA-312 piping installed at Callaway is unknown because no tests were conducted in connection with that particular piping. In this regard, they contend that there is no evidence to support the conclusion that CLP in the pipes at Callaway does not exceed 26 percent. They also criticize the results of the fracture analysis and maintain that the acceptance of the pipe was inconsistent with applicable code requirements. Except in one respect, we believe the Board's findings and conclusion are sound.

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will be subjected to a design pressure of 2485 pounds per square inch, which would be well in excess of ASME Code requirements for SA-312 pipe. We issued an order on August 15, 1983 (unpublished) requesting comments on this discovery. In its response, the applicant pointed out that the pipe in question is actually SA-358 pipe, not SA-312 pipe, and thus was incorrectly included in the exhibit. See Applicant's Response to Appeal Board Order of August 15, 1983 (August 22, 1983) at 1. The staff is in agreement with the applicant's presentation. It goes on to point out that, following issuance of our order, the NRC resident inspector at Callaway examined the actual piece of pipe we identified, and confirmed that it is SA-358 pipe and has more than the required wall thickness to meet the design pressure shown in Applicant's Exhibit 10. See NRC Staff Response to Appeal Board Order of August 15, 1983 (Aug. 31, 1983) at 3-4. The staff's prompt and thorough attention to this matter is commendable. On the strength of the staff's efforts, we are now satisfied that our earlier concerns have been fully resolved.

<sup>71</sup> Hoop stresses are the tangential stresses resulting from internal fluid pressures. See, for example, *Standard Handbook of Engineering Calculations* (McGraw-Hill Book Co. 1972) at 1-31.

<sup>72</sup> 16 NRC at 1857-62.

Bechtel examined 71 cross-sections of longitudinal welds in over 500 feet of SA-312 pipe made by Youngstown. In no case did CLP exceed 26 percent. It is undisputed that, as the Board observed, the Callaway piping was made by the same process, on the same machines, by the same personnel, and within the same time period as the pipe actually tested by Bechtel.<sup>73</sup> This being so, it was reasonable to conclude that the former would exhibit the same type and extent of defect as the latter.

The Board noted, in addition, that the pipes used in the test had to be specially manufactured beyond the welding parameters actually used by the manufacturer in order to produce test samples with greater than 26 percent CLP. The Board believed that such evidence buttressed its conclusion that CLP was not likely to exceed 26 percent.<sup>74</sup> The Intervenor's claim, however, that the Bechtel information does not properly take into account the possibility that arc misalignment can affect the magnitude of CLP.

Although the Board recognized (and we think it is clear) that arc misalignment could affect CLP,<sup>75</sup> it did not explicitly address the Intervenor's claim. It also appears from the record that arc misalignment was not one of the parameters controlled during the Bechtel analysis, so that the precise effect of arc misalignment on CLP has not been calculated.<sup>76</sup> Thus, the Intervenor is correct that Bechtel's conclusion that welding parameters outside the range actually employed would be necessary to produce CLP greater than 26 percent is flawed. At the same time, however, there is no affirmative evidence that arc misalignment would increase CLP above the 26 percent reflected in the Bechtel analysis. On the contrary, the 500 feet of pipe metallographically examined for CLP in detail in 71 cross-sections includes some measure of arc misalignment.<sup>77</sup> Given the margin of safety demonstrated by the burst tests and other analyses, and the inference that the Board reasonably drew that the defect in the pipe at Callaway would approximate that found in the pipe actually tested, we do not believe that arc misalignment would be sufficient to increase CLP to a point that would call into question the safety of the pipe.

Additional evidence supports the Board's finding that the pipe is not likely to fracture. As noted above, two engineering analyses of SA-312 pipe with CLP indicated that a pipe would be likely to leak long before it

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<sup>73</sup> *Id.* at 1859.

<sup>74</sup> *Id.* at 1859-60.

<sup>75</sup> *Id.* at 1858.

<sup>76</sup> See Tr. 1814.

<sup>77</sup> See Tr. 1811-16, 1882.

would fracture. In fact, CLP on the order of 85 percent would be necessary even before a pipe would leak under the stresses designed to be placed upon it at Callaway. Thus, complete failure of the pipe is not likely.<sup>78</sup>

Moreover, the Board noted that the applicant's consultant believed that CLP should be considered more from a fatigue standpoint than from a fracture standpoint.<sup>79</sup> According to that consultant, ASME Code safety factors would not be reduced even if the highest hoop stress values, the worst CLP conditions, and the maximum anticipated lifetime stress cycles were assumed.<sup>80</sup> The Intervenor do not challenge the applicant's assertions regarding the fatigue analysis. Rather, they argue that the impossibility of a break is based on what they characterize as "the absurd conclusion that the amount of CLP in the weld would have to exceed the wall thickness of the pipe."<sup>81</sup> Such conclusion, they contend, is tantamount to a finding that a totally unwelded pipe would be acceptable.<sup>82</sup> Although the Licensing Board's analysis is not a model of clarity, we believe it is designed to demonstrate simply that, because of the ductile nature of the steel, CLP is highly unlikely to cause the pipe to fracture catastrophically. Rather, if any failure occurs, it will show up first as a leak. As a consequence, we believe the fracture analysis supports the Licensing Board's conclusion that the pipe is safe.

Lastly, the Intervenor maintain that the evaluation and acceptance of the SA-312 pipe were inconsistent with applicable code requirements.<sup>83</sup> We disagree. The ASME Code applicable to SA-312 piping generally requires welded pipe to undergo certain nondestructive testing. The Code nonetheless permits the use of so-called "efficiency factors" in circumstances where nondestructive testing is not performed.<sup>84</sup> Because such testing proved incapable of detecting CLP, Bechtel recommended reliance on the efficiency factor approach, and the staff agreed. Under the Code, SA-312 piping may be used without further testing where the design stresses are no greater than 85 percent of that ordinarily

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<sup>78</sup> 16 NRC at 1860.

<sup>79</sup> *Ibid.*

<sup>80</sup> Meyers, *et al.*, fol. Tr. 1773, at 34. *See id.* at 31-33.

<sup>81</sup> Intervenor's Brief at 17.

<sup>82</sup> *Id.* at 16-17.

<sup>83</sup> *Id.* at 15, 17; App. Tr. 9-11.

<sup>84</sup> Efficiency factors provide design engineers with a mechanism for utilizing reduced design stresses where an examination has not been performed. For SA-312 pipe, an efficiency factor of 0.85 is authorized, *i.e.*, the pipe may be used even if not examined as long as the design stress is no greater than 85 percent of that ordinarily permitted by the Code. *See Meyers, et al.*, fol. Tr. 1773, at 36-38.



authorized.<sup>85</sup> The testimony reveals that none of the SA-312 piping at Callaway will experience stresses greater than 63 percent of the Code-allowed stresses.<sup>86</sup> Thus, contrary to the Intervenor's assertion, the SA-312 pipe is being used at Callaway in conformity with ASME Code requirements.

### E. Piping Subassemblies

Intervenor's Subcontention II.B concerns welding deficiencies in piping subassemblies. This contention arises out of a discovery of deficiencies in preassembled piping formations manufactured by Gulf & Western (G&W) for the Wolf Creek nuclear power plant. Because G&W also supplied subassemblies at Callaway, information regarding the deficiencies was transmitted to Union Electric, which undertook an audit of G&W subassemblies at Callaway. The audit showed numerous noncompliances with Bechtel specifications and ASME requirements. Necessary repairs were made.<sup>87</sup>

The Licensing Board concluded that the piping subassemblies are now safe,<sup>88</sup> and the Intervenor does not challenge the conclusion that the repair efforts and the NRC staff review now provide adequate assurance that the piping subassemblies in their present condition will not affect the safe operation of the plant. They claim, instead, that the Board erred in totally ignoring evidence of quality assurance breakdowns and violations of quality assurance regulations.<sup>89</sup>

The Intervenor is correct that the Licensing Board only briefly recited the essentially uncontested evidence regarding the discovery of the defects and their repair and found, in a conclusory fashion, that the admitted deficiencies do not call into question the applicant's overall quality assurance program. Nevertheless, it seems clear from the Board's opinion that, upon discovery of the defects, the applicant took all necessary steps to ensure that the subassemblies were reworked properly and that they were safe. It is reasonable to infer that the Board was satisfied with the applicant's efforts. In any event, we have reviewed the matter and concur in the Board's judgment that the overall effectiveness of the quality assurance program has not been called into question.

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<sup>85</sup> Where design stresses are greater than 85 percent, further testing is mandated. The staff required the use of "etch" testing in such circumstances. It should be noted that the 100 percent allowable stress has a significant margin of safety incorporated into it so that the 100 percent level can ordinarily be used for design purposes. See Tr. 1864, 1879-80.

<sup>86</sup> Meyers, *et al.*, fol. Tr. 1773, at 38.

<sup>87</sup> See 16 NRC at 1862-64.

<sup>88</sup> *Id.* at 1864.

<sup>89</sup> Intervenor's Brief at 17-18.

We have no doubt that there were lapses in quality control in the manufacture and inspection of the preassembled piping formations and the quality review by Bechtel. As far as we can tell, however, G&W was, quite simply, an unsatisfactory supplier of piping formations, and Bechtel's quality control representative at the G&W plant failed to fulfill his responsibilities properly. Although Daniel personnel may not have been required to reinspect the subassemblies when they arrived at the plant, such reinspection would likely have alerted the applicant to the presence of the deficiencies before it received the information from personnel at the Wolf Creek plant. Nonetheless, the defects were discovered by Daniel personnel at Wolf Creek and information promptly transmitted to the appropriate personnel at Callaway. It also appears (and the Interveners do not seriously allege the contrary) that Bechtel and the applicant took all necessary steps to correct quality assurance deficiencies as soon as they were uncovered and to ensure that all subassemblies are safe. Thus, while it is plain that there was a quality assurance lapse insofar as piping subassemblies are concerned, we agree with the Licensing Board that the failure was an isolated one, was promptly remedied, and does not call into question the integrity of the overall quality assurance program.

### III. OTHER ISSUES

Apart from their challenge to the Board's disposition of the five discrete safety issues just discussed, the Interveners attack the Board's result in three additional respects. First, they claim that the Board completely ignored evidence concerning the effect of the firing of a Daniel employee on the willingness of other workers to report safety deficiencies.<sup>90</sup> Second, they assert that the Board generally ignored their detailed and lengthy proposed findings of fact and conclusions of law in reaching its decision.<sup>91</sup> Third, they argue that the Board expressly disregarded the lack of candor by the applicant and Bechtel, including material misrepresentations of fact made both to the staff during the course of its investigations and to the Board in connection with the proceeding.<sup>92</sup> For reasons set out below, we find none of these claims provides a basis for reversing the Board's result.

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<sup>90</sup> *Id.* at 3.

<sup>91</sup> *Id.* at 4.

<sup>92</sup> *Id.* at 2-3.

## A. Ramifications of the Employee Dismissal

William Smart was an ironworker hired by Daniel for the Callaway project. A number of times while working there, Mr. Smart reported to NRC inspectors what he considered safety-related deficiencies in Daniel's work. On March 21, 1978, Daniel fired him. The company alleged that the firing was for insubordination, *i.e.*, disobeying a direct order from his foreman. Mr. Smart had his union initiate grievance proceedings with the company and the grievance was eventually referred to binding arbitration. The arbitrator issued a decision in November 1978, finding that the company had not established that Mr. Smart had been discharged for disobeying an order. The arbitrator ordered his reinstatement.<sup>93</sup>

According to the Intervenors, the evidence suggests that, as a result of Mr. Smart's dismissal, other construction workers have been unwilling to come forward with evidence of nonconformances.<sup>94</sup> Because the Smart incident was not the subject of a discrete contention, the Licensing Board did not expressly address this allegation as part of its initial decision.<sup>95</sup> Toward the end of the hearing, however, in connection with the introduction of various exhibits, the Board Chairman observed that "we have found no ties to Mr. Smart's firing and discharge with the issues [raised by] the [c]ontentions that are now before us."<sup>96</sup> Neither in its brief to us nor in its proposed findings of fact and conclusions of law do the Intervenors refer to evidence sufficient to undermine that observation.

We have no doubt that the firing of a whistleblower can have an effect on the willingness of other employees to bring safety deficiencies to the attention of the authorities. Indeed, when Mr. Smart's discharge was before us at an earlier stage of this proceeding, we commented:

Common sense tells us that a retaliatory discharge of an employee for "whistleblowing" is likely to discourage others from coming forward with information about apparent safety discrepancies.<sup>97</sup>

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<sup>93</sup> We first encountered the issue of Mr. Smart's firing in a somewhat different context. See *Union Electric Co.* (Callaway Plant, Units 1 and 2), ALAB-527, 9 NRC 126 (1979).

<sup>94</sup> Intervenors' Brief at 2.

<sup>95</sup> The Intervenors did not specifically allege the Smart incident as part of Contention 1 and the Licensing Board did not treat the matter as a separate issue. The Board did, however, admit some evidence concerning the Smart incident during the course of the hearing in connection with the litigation of specific subcontentions.

<sup>96</sup> Tr. 2002.

<sup>97</sup> *Callaway*, ALAB-529, *supra*, 9 NRC at 134.

But, even assuming that Mr. Smart was fired for whistleblowing (an accusation that has never been definitively resolved), there is insufficient evidence in this record to demonstrate that a reluctance to report safety violations or deficiencies is a serious or pervasive problem at Callaway.

In response to a letter from Mr. Smart, the NRC's Region III undertook an investigation of his firing. Among the matters specifically reviewed was the effect of the firing on other employees. A random sample of 25 workers was taken to determine whether the firing of Mr. Smart had the purported "chilling effect" on the workers' willingness to come forward to the NRC with safety-related allegations.<sup>98</sup> The Intervenor note that the investigatory staff did not make a definitive finding regarding a possible "chilling effect" of Mr. Smart's case on other workers.<sup>99</sup> We think it fair to say that the report reveals that some workers are reluctant to come forward in view of the Smart incident but that a majority of them have not been intimidated. Indeed, as we noted earlier, it was a Daniel pipefitter working at Callaway who, in April 1979, some time after the Smart incident, discovered and reported the defect in the SA-358 piping. Similarly, Daniel welding personnel at the Wolf Creek plant in March 1979 uncovered the potential deficiencies in the piping subassemblies.<sup>100</sup> Such evidence as is available, therefore, suggests that the Smart incident has not had a pervasive chilling effect on the willingness of employees to raise possible safety issues.

## **B. Alleged Failure to Address Intervenors' Arguments**

The Intervenors claim that the Licensing Board failed generally to address their proposed findings and conclusions. The Intervenors charge that their input was not only rejected, but that "in many cases it is barely discernible from the decision that the Intervenors appeared at all."<sup>101</sup> In reviewing board decisions, we adhere to the fundamental principle that a decisionmaking body must confront the facts and legal arguments presented by the parties and articulate the reasons for its conclusions on disputed issues.<sup>102</sup> To use an often quoted standard, the deci-

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<sup>98</sup> Intervenors' Ex. 74 at 5, 16-17.

<sup>99</sup> Intervenors' Brief at 8.

<sup>100</sup> 16 NRC at 1863.

<sup>101</sup> Intervenors' Brief at 4.

<sup>102</sup> *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-422, 6 NRC 33, 41 (1977), *aff'd*, CLI-78-1, 7 NRC 1 (1978), *aff'd sub nom. New England Coalition on Nuclear Pollution v. NRC*, 582 F.2d 87 (1st Cir. 1978).

sionmaking body must take "a 'hard look' at the salient problems."<sup>103</sup> A licensing board decision, however, need not refer individually to every proposed finding as long as it sufficiently informs a party of the disposition of its contentions.<sup>104</sup> We believe that the Board's decision meets that standard.

Because the Intervenor did not present direct testimony, the Board cannot be charged with having ignored the views of competent intervenor witnesses. Rather, the Intervenor's claim must be that the Board either made findings in disregard of evidence brought out on cross-examination or drew incorrect inferences from the evidence. In considering the issues on review, we have necessarily examined each of the specific claims regarding the Board's failure to address matters purportedly presented to it by the Intervenor. In each instance, we have sustained the Board's result. While we have found it necessary at times to go beyond the Board's findings in order to consider and resolve the Intervenor's claims fully, we are satisfied that the Board took a careful look at the contested issues and did not generally ignore the Intervenor's proposed findings and conclusions.

### C. Specific Allegations of Lack of Candor

The Intervenor charges that the Board ignored serious doubts about the truthfulness of significant testimony offered by the applicant and Bechtel in reaching its ultimate conclusions.<sup>105</sup> In particular, they allege four instances of misrepresentation to the NRC staff and the Board, all with respect to the manually-welded embeds: (a) statements by the applicant and Bechtel that they had no knowledge for several months of the Daniel inspection of the embeds; (b) statements by the applicant and Bechtel that they had documentation regarding the Cives inspection of the worst welds uncovered; (c) statements by the applicant that the tests of the embeds conducted at Lehigh University's Fritz Laboratory under the supervision of the applicant's experts Drs. Fisher and Slutter<sup>106</sup> were performed on "worst case" welds; and (d) a statement that the reduced embed capacity exceeded the design load in every case. They claim that the Board agreed with their appraisal regarding at least the

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<sup>103</sup> *Greater Boston Television Corp. v. FCC*, 444 F.2d 841, 851 (D.C. Cir. 1970), cert. denied, 403 U.S. 923 (1971).

<sup>104</sup> *Seabrook*, supra, 6 NRC at 41.

<sup>105</sup> *Intervenor's Brief* at 3.

<sup>106</sup> See Tr. fol. 501 at 45.

first three items but nevertheless overlooked the implications of such misrepresentations.<sup>107</sup>

We are satisfied that the Board properly took into account the allegations of lack of candor, including the charges of misrepresentation, in reaching its conclusions. The Intervenor's objection, in our view, comes down to a disagreement with the Board over the weight to accord the charges. Upon review, we are unprepared to substitute our judgment for that of the Board on the weight to be given these matters.<sup>108</sup>

1. As discussed earlier in our opinion, Cives and Daniel undertook independent inspections of the manually-welded embeds following the discovery of certain defects. It is disputed in the record whether Bechtel knew of the Daniel conclusions and data when it put together its report to the NRC. Bechtel claimed that it had no knowledge of the conflicting Daniel information.<sup>109</sup> Testimony from Daniel witnesses tended to support the Bechtel claim.<sup>110</sup> The Intervenor's argue that such claim is untrue.<sup>111</sup> The Board did infer from the record, as the Intervenor's charge, that Bechtel must have known of the Daniel inspection despite their testimony.<sup>112</sup> Nonetheless, the Board found it unnecessary to rule definitively on whether Bechtel had misrepresented the extent of its knowledge because it found that Bechtel should have known of the Daniel investigation and conclusions even if it did not.

We can add little to the Board's appraisal. Although we have not attempted to resolve the evidentiary dispute ourselves, we are convinced that the Board was properly alert to the matter and that its ultimate decision was made in the face of a healthy skepticism about the Bechtel testimony.

2. The Intervenor's allege that the applicant misrepresented the facts when it asserted that it had "documentation" that the deficiencies in the manually-welded embeds were no more than 1/8 inch undersize. They

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<sup>107</sup> App. Tr. 28-30, 75.

<sup>108</sup> The applicant and the staff insist, as a threshold matter, that these instances of misrepresentation were improperly raised for the first time at oral argument before us. App. Tr. 44-45 (applicant), 55 (staff). We agree that the Intervenor's brief merely raises general accusations of misrepresentation without pointing to the specific instances discussed at oral argument. See Intervenor's Brief at 2-3. But the Intervenor's did alert the Licensing Board and other parties to the subject matter of the allegations in their proposed findings (see Intervenor's Proposed Findings at 1-2), and both the applicant and the Board dealt with the accusations. See Applicant's Reply to the Proposed Findings of Fact and Conclusions of Law Filed by Other Parties (Apr. 5, 1982) at 25-26, 31-32; 16 NRC at 1836-41. Moreover, the allegations of misrepresentation are cited on appeal in combination with the assertion that the Board failed to give proper weight even to its own misgivings surrounding the truthfulness of applicant's testimony. As a result, we have decided not to separate the charges of misrepresentation from the other matters concerning the candor of the applicant's presentation.

<sup>109</sup> See Tr. 796-97.

<sup>110</sup> See Tr. 1376-87.

<sup>111</sup> App. Tr. 28.

<sup>112</sup> 16 NRC at 1838, 1868.

contend that the Board endorsed their allegation. In fact, the applicant did receive a communication from Cives outlining the results of its inspection.<sup>113</sup> The Board took note of the communication but concluded that it did not constitute “‘documentation’ as that term is normally understood.”<sup>114</sup> The Board did not characterize the applicant’s assertion as a misrepresentation, however, and it is plain that the Board fully considered the matter in reaching its final determination.

3. At the request of the NRC staff, the applicant’s consultants at Lehigh University conducted bend and tension tests on 12 manually-welded embeds. The applicant’s witnesses explained that the 12 plates selected for testing “included rods having welds with the most apparent visual deviations,” and characterized these plates as the “visually ‘worst case’ nonconforming anchor rod welds.”<sup>115</sup> In their proposed findings, the Intervenor’s claimed that the applicant’s representation that tests were performed on plates “representative of the ‘worst case’ conditions . . . is not true.”<sup>116</sup> They did not maintain that the welds tested were not the “worst” from those visually inspected from among the 45 plates earlier rejected by Daniel but not repaired. Rather, their argument was that the rods chosen were not as bad as the “worst case” found by the Daniel inspectors and assumed in the Bechtel engineering analysis.<sup>117</sup> The applicant conceded the Intervenor’s argument; indeed, it claimed that such information demonstrated the conservatism of the Bechtel analysis. Applicant urged further that “[t]he plates were representative of the Cives produced manually-welded plates and the welds chosen were clearly the worst available.”<sup>118</sup> The Licensing Board found simply that the plates selected “contained the worst available welds.”<sup>119</sup> We cannot find either that there was misrepresentation regarding the applicant’s presentation of information or that the Licensing Board misunderstood the Intervenor’s argument.

4. In its proposed findings, the applicant indicated that “[i]n all cases the recalculated load carrying capacity [of the manually-welded embeds] still exceeded the maximum intended design load.”<sup>120</sup> In their proposed findings, the Intervenor’s pointed out that four plates will actually bear loads that are equal to the calculated reduced load capacity of the plate,

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<sup>113</sup> Board Ex. 1, Enclosure 2.

<sup>114</sup> 16 NRC at 1837.

<sup>115</sup> See Schnell, *et al.*, fol. Tr. 501, at 45.

<sup>116</sup> Intervenor’s Proposed Findings at 2.

<sup>117</sup> *Id.* at 34.

<sup>118</sup> Applicant’s Reply Findings at 32 (footnote omitted).

<sup>119</sup> 16 NRC at 1841.

<sup>120</sup> See Applicant’s Proposed Findings of Fact and Conclusions of Law (Feb. 1, 1982) at 49.

and argued that the applicant and Bechtel had misrepresented its results.<sup>121</sup> In its reply findings, the applicant conceded that its earlier findings had included an "overstatement" regarding the load carrying capacity.<sup>122</sup> The Licensing Board explicitly noted both the original error and the Intervenors' charge of misrepresentation but was apparently unconcerned about the allegation, turning, instead, to the substantive undergirding of the Intervenors' argument.<sup>123</sup> We find no fault in the Board's apparent decision to assign little if any weight to the original error.

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The Licensing Board's partial initial decision is *affirmed*.  
It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

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<sup>121</sup> See Intervenors' Proposed Findings at 23 n.17.

<sup>122</sup> See Applicant's Reply Findings at 27 n.26. On brief to us, the applicant characterizes its proposed findings as "an unintentional overstatement." Applicant's Brief (Apr. 6, 1983) at 15 n.11.

<sup>123</sup> See 16 NRC at 1837.



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

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

**In the Matter of**

**Docket Nos. 50-338-OLA-1  
50-339-OLA-1**

**VIRGINIA ELECTRIC AND  
POWER COMPANY  
(North Anna Power Station,  
Units 1 and 2)**

**September 15, 1983**

The Appeal Board denies the applicant's motion for directed certification of an interlocutory ruling of the Licensing Board directing exploration of the health and safety aspects of spent fuel transportation at a license amendment hearing. The applicant seeks an amendment to its operating licenses for the North Anna facility which would authorize it to store there spent fuel from another of its facilities.

**RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES**

Opposition to a directed certification petition should include some discussion of the petitioner's claim of licensing board error. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-734, 18 NRC 11, 14 n.4 (1983).

## **RULES OF PRACTICE: INTERLOCUTORY APPEALS (DIRECTED CERTIFICATION)**

The mere fact that legal error may have occurred in an interlocutory licensing board ruling does not *per se* justify directed certification. See *Seabrook*, ALAB-734, *supra*, 18 NRC at 15, citing *Houston Lighting & Power Co.* (Allens Creek Nuclear Generating Station, Unit No. 1), ALAB-635, 13 NRC 309, 310-11 (1981); 10 C.F.R. 2.730(f).

## **RULES OF PRACTICE: INTERLOCUTORY APPEALS (REFERRAL OF RULING)**

Although generally precluding interlocutory appeals, Section 2.730(f) of 10 C.F.R. does allow a licensing board to refer a ruling to an appeal board. The appeal board need not, however, accept the referral. In deciding whether to do so, the appeal board applies essentially the same test as it utilizes in acting upon directed certification requests filed under Section 2.718(i). See *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460, 464 (1982), *vacated in part on other grounds*, CLI-83-19, 17 NRC 1041 (1983), and cases there cited.

## **NUCLEAR REGULATORY COMMISSION: POLICY STATEMENT ON CONDUCT OF LICENSING PROCEEDINGS (CERTIFICATION OR REFERRAL)**

The Commission's 1981 *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 456, does not call for a marked relaxation of the *Marble Hill* standard; rather, it simply exhorts the licensing boards to put before the appeal board legal or policy questions that, in their judgment, are "significant" and require prompt appellate resolution.

## **RULES OF PRACTICE: INTERLOCUTORY APPEALS**

The fact that the error of a licensing board may lead to delay and increased expense is not a controlling consideration in favor of interlocutory review. *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-675, 15 NRC 1105, 1113-14 (1982), citing *Pennsylvania Power & Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-641, 13 NRC 550, 552 (1981). See also *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-737, 18 NRC 168, 176 n.12 (1983).

## APPEARANCES

**Michael W. Maupin, James N. Christman and Marcia R. Gelman,** Richmond, Virginia, for the applicant, Virginia Electric and Power Company.

**James B. Dougherty,** Washington, D.C., for the intervenor, Concerned Citizens of Louisa County.

**J. Marshall Coleman, Christopher H. Buckley, Jr., Cynthia A. Lewis, Robert Brager, Virginia S. Albrecht,** Washington, D.C., and **Richard W. Arnold, Jr.,** Louisa, Virginia, for the intervenors, County of Louisa, Virginia and the Board of Supervisors of the County of Louisa, Virginia.

**Henry J. McGurren** for the Nuclear Regulatory Commission staff.

## MEMORANDUM AND ORDER

This proceeding is pending before the Licensing Board on the application of the Virginia Electric and Power Company (VEPCO) for an amendment to the operating licenses for its North Anna facility. The amendment would authorize the receipt and storage at that facility of 500 spent fuel assemblies originating at VEPCO's Surry nuclear facility.<sup>1</sup> We are now asked by VEPCO to review on directed certification an interlocutory ruling contained in an unpublished memorandum issued by the Board below on June 10, 1983.<sup>2</sup> Responses to VEPCO's motion have been filed by the NRC staff and intervenors Concerned Citizens of Louisa County (Citizens) and Louisa County, Virginia and its Board of Supervisors (County). Each of these parties urges that the criteria for

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<sup>1</sup> The North Anna facility is located in Louisa County, Virginia, forty miles northwest of Richmond. The Surry facility is located in Surry County, Virginia, seventeen miles northwest of Newport News. The distance between the two facilities is approximately 100 miles.

<sup>2</sup> Also pending below is a companion proceeding on VEPCO's application for an amendment to the North Anna operating licenses that would authorize the expansion of that facility's spent fuel pool capacity through the installation and use of neutron-absorbing racks in the pool.

<sup>3</sup> VEPCO did not file its request until August 5, 1983. Although the Commission's Rules of Practice do not impose a specific time limit upon motions seeking our resort to the discretionary directed certification authority conferred by 10 C.F.R. 2.718(i), it seems to us that VEPCO might have acted here with somewhat greater dispatch. We have not, however, taken that consideration into account in passing upon the request.

directed certification have not been satisfied.<sup>3</sup> For the reasons set forth in this opinion, we agree.

A. At its February 16, 1983 special prehearing conference, memorialized in an unpublished order entered two days later, the Licensing Board directed the parties to brief, *inter alia*, the question whether it could consider the health and safety impacts of the transshipment of spent fuel between Surry and North Anna. What had prompted this direction was the insistence of both VEPCO and the staff that several County contentions concerned with that subject were inadmissible as beyond the scope of the proceeding.

Following receipt of the briefs of the parties, the Licensing Board issued its June 10 memorandum. Accepting the position of the County, the Board answered in the affirmative the question it had posed.

B. Before us, VEPCO argues that the Licensing Board should have concluded that the notice of hearing in this proceeding did not authorize it, explicitly or implicitly, to explore the health and safety aspects of spent fuel transportation. VEPCO acknowledges that the fact that an interlocutory licensing board ruling may be wrong does not *per se* justify directed certification.<sup>4</sup> It nevertheless maintains that we should intercede here on the strength of the following direction in the Commission's 1981 *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 456:

If a significant legal or policy question is presented on which Commission guidance is needed, a board should promptly refer or certify the matter to the Atomic Safety and Licensing Appeal Board or the Commission.

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<sup>3</sup> Just recently, we noted our "general expectation" that oppositions to directed certification petitions "will include some discussion of the petitioner's claim of Licensing Board error." *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-734, 18 NRC 11, 14 n.4 (1983). Because that opinion does not as yet appear in the NRC reports, we do not hold the parties (other than the NRC staff, which routinely received copies of it at time of issuance) accountable for its content. It nevertheless should be noted that both the County and the staff (but not Citizens) addressed the merits of the Licensing Board ruling under attack. The County asserts that the ruling was correct; for its part, the staff agrees with VEPCO that the Licensing Board erred. As will be seen, given the basis of our disposition of the directed certification motion, we have found it unnecessary to pass upon these competing claims.

<sup>4</sup> We emphasized this point anew in *Seabrook*, ALAB-734, *supra* note 3, 18 NRC at 15,  *citing Houston Lighting & Power Co.* (Allens Creek Nuclear Generating Station, Unit No. 1), ALAB-635, 13 NRC 309, 310-11 (1981).

We are also told by VEPCO that, even in the absence of the Statement of Policy, review at this time of the challenged ruling below would be in order. This is because, according to VEPCO, the ruling defining the scope of the proceeding to encompass the spent fuel transshipment "affect[s] the basic structure of the proceeding in a pervasive or unusual manner"; as such, it meets one of the alternative criteria for directed certification set forth in *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-405, 5 NRC 1190, 1192 (1977).<sup>5</sup>

1. We do not believe that the Policy Statement upon which VEPCO relies serves as a proper basis for our involvement in the proceeding at this juncture. In issuing the Policy Statement, the Commission was aware of the broad proscription against interlocutory appeals found in 10 C.F.R. 2.730(f). And it can also be presumed to have been aware of this Board's consistent view (exemplified by *Marble Hill, supra*) that the discretionary review of interlocutory Licensing Board rulings authorized by 10 C.F.R. 2.730(f) and 2.718(i) should be undertaken only in the most compelling circumstances.<sup>6</sup> As we read it, the Policy Statement does not, either explicitly or by necessary implication, call for a marked relaxation of the *Marble Hill* standard. Rather, in terms, it simply exhorts the licensing boards to put before us legal or policy questions that, in their judgment, are "significant" and require prompt appellate resolution.

VEPCO points out that the pertinent portion of the Policy Statement was specifically invoked by a licensing board in the proceeding involving the operating license application for the Catawba nuclear facility. Taking note of the Statement, the Licensing Board there referred to us several rulings associated with its conditional admission to the proceeding of a number of intervenor contentions that the Board had found to lack the specificity required by 10 C.F.R. 2.714(b). We accepted the referral on a limited basis. More particularly, we undertook to decide two questions having "generic implications": (1) whether the Rules of Practice sanction the conditional admission of contentions that fall short of meeting the Section 2.714(b) specificity requirements; and (2) if not, how should a licensing board approach late-filed contentions that could not

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<sup>5</sup> VEPCO does not seek to invoke the other *Marble Hill* test; i.e., it does not assert that the challenged ruling threatens it with "immediate and serious irreparable impact which, as a practical matter, could not be alleviated by a later appeal." 5 NRC at 1192.

<sup>6</sup> Although precluding interlocutory appeals (other than those permitted by 10 C.F.R. 2.714a governing appellate review of orders on intervention petitions), Section 2.730(f) does allow a licensing board to refer a ruling to us. We need not, however, accept the referral. And, in deciding whether to do so, we apply essentially the same test as is utilized in acting upon directed certification requests filed under Section 2.718(i). See *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460, 464 (1982), vacated in part on other grounds, CLI-83-19, 17 NRC 1041 (1983), and cases there cited.

have been earlier submitted with the requisite specificity. ALAB-687, *supra* note 6, 16 NRC at 465 *et seq.*

At the same time, we explicitly noted our disinclination to go beyond those questions and to examine each of the contentions in issue for the purpose of making individual determinations on their admissibility. As we explained:

A ruling that does no more than admit a contention to a proceeding — whether absolutely or conditionally — has a low potential for meeting [the interlocutory review] standard. To be sure, interlocutory review of such a ruling might obviate litigation of the contention and, consequently, accelerate the progress of the hearing. This same consideration is present, however, whenever contentions are admitted over objection; thus, it cannot be said that the avoidance of *unusual* delay is involved. *Cleveland Electric Illuminating Co., et al.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-675, 15 NRC 1105, 1113-14 (1982).

*Id.* at 464 (footnote omitted).

Contrary to VEPCO's insistence, our action in *Catawba* does not materially assist its cause here. For present purposes, we may assume arguendo that it is not of crucial significance that, unlike the situation in *Catawba*, the Licensing Board in this proceeding neither was requested to refer its interlocutory ruling to us nor perceived reason to do so *sua sponte*.<sup>7</sup> Such an assumption is possible because, in any event, VEPCO has not established to our satisfaction that the ruling has anything approaching the recurring importance that we found to inhere in the generic *Catawba* rulings we reviewed in ALAB-687.

In virtually every operating license proceeding, the time provided by the Rules of Practice for the submission of contentions will expire prior to the public availability of at least some of the documents pertinent to a grant, denial, or conditioning of the sought license. For this reason, licensing boards are regularly confronted with the question of whether and when to accept contentions that could not be satisfactorily framed without prior access to those documents. Thus, the rulings on which referral was accepted in *Catawba* were of patent, immediate, and large significance to the administration of not merely that specific proceeding

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<sup>7</sup> We note, in passing, that, given its stress upon the Policy Statement in its papers to us, the failure of VEPCO to have asked the Licensing Board to refer the ruling is difficult to understand. For, whether or not applicable to Appeal Board consideration of a directed certification motion, it is manifest that the invoked portion of the Policy Statement is, at minimum, principally addressed to the tribunal before which the proceeding is pending (here, the Licensing Board). This being so, VEPCO should have sought a Licensing Board referral if it then believed, as it now maintains, that the Policy Statement dictated interlocutory appellate review. Inasmuch as it waited almost two months before filing the directed certification motion, VEPCO can scarcely claim that time did not permit taking that step.

but, as well, the numerous other operating license proceedings then under way or at the threshold of commencement.

The same cannot be said of the interlocutory ruling at hand. VEPCO points to three other proceedings involving proposals to receive and store at one nuclear facility spent fuel that was generated at another facility. Directed Certification Motion (August 5, 1983) at 12. One of them was concluded some time ago. See *Duke Power Co.* (Amendment to Materials License SNM-1773 — Transportation of Spent Fuel from Oconee Nuclear Station for Storage at McGuire Nuclear Station), ALAB-651, 14 NRC 307 (1981). Although the remaining two proceedings apparently are still in progress before the Licensing Board, VEPCO has left us entirely in the dark respecting why the progress of either of them will be furthered by our grant of directed certification here. *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), Docket Nos. 50-413, 50-414; *Carolina Power and Light Co.* (Shearon Harris Nuclear Power Plant, Units 1 and 2), Docket Nos. 50-400, 50-401.<sup>8</sup>

Moreover, it is at best a matter of conjecture how many additional storage proposals of this stripe will receive adjudicatory consideration in the near future. VEPCO notes that, although Section 302(a)(5)(b) of the Nuclear Policy Act of 1982, Pub. L. No. 97-425, 96 Stat. 2201, 2258, "requires that a federal repository for high-level radioactive wastes begin operation in 1998," the utilities must assume "the primary responsibility for coping with their own interim spent fuel storage needs between now and 1998." Directed Certification Motion at 12. But it does not perforce follow that many, if any, additional utilities will choose the same route as has VEPCO in dealing with the problem. Indeed, at least some utilities might find the "robbing Peter to pay Paul" feature of the VEPCO solution sufficiently unattractive that they would pursue such an approach only as a last resort.<sup>9</sup>

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<sup>8</sup> Indeed, according to VEPCO (Directed Certification Motion at 4), the Licensing Board ruled a year ago in both proceedings that it lacked the authority to entertain safety questions pertaining to the transportation of spent fuel between facilities. We have not undertaken to examine those rulings and their context to determine whether they conflict with that of the Licensing Board in this case. For, in the very first case concerned with directed certification, we emphasized that, "[a]bsent some special circumstance making immediate elimination of [a] decisional conflict imperative, the parties both can and should be left to the pursuit of those normal appellate remedies which become available to them once the initial decision (or some other appealable order) has been rendered." *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-271, 1 NRC 478, 485 (1975). Here, no such "special circumstance" is apparent.

<sup>9</sup> There is the further consideration that many utilities do not have facilities on more than one site and, thus, presumably do not have the transshipment option available to them.

In short, while the ruling under attack may be of importance to VEPCO in this particular proceeding,<sup>10</sup> it has not been shown to be of sufficient general significance to warrant our intercession now in fulfillment of the Commission's Policy Statement.

2. It is equally apparent to us that the *Marble Hill* criterion invoked by VEPCO is not met here. More specifically, we disagree with VEPCO that the ruling below necessarily will have a pervasive and unusual effect upon the basic structure of this proceeding. True enough, if VEPCO is right in its position on the merits of the controversy, the consequence may be that hearing time will be devoted to issues that should not be explored. But, to repeat our observation in *Catawba* (see p. 376, *supra*), the same can be said whenever a licensing board admits contentions that should have been held inadmissible for one reason or another. No matter what that reason might be, such Licensing Board error simply cannot be thought to alter the basic structure of the proceeding in a pervasive or unusual way.<sup>11</sup>

VEPCO suggests, however, that, in this instance, the result of the Licensing Board's ruling will be that "the great majority of the proceeding — perhaps the entire proceeding — will be directed at the health and safety aspects of transportation." Directed Certification Motion at 16. We have no way of assessing at this juncture whether that prediction has a substantial foundation and thus need not consider whether, if so, it might make a difference in our determination regarding the warrant for directed certification. In its June 10 memorandum, the Licensing Board also ruled (at 6) that, under the National Environmental Policy Act, 42 U.S.C. 4332, it has jurisdiction to look into those reasonably foreseeable *environmental* impacts of the transshipment that fairly arise from the proposals to *receive and store* the spent fuel assemblies at North Anna and to expand the spent fuel pool capacity at that facility. The Board went on to reserve judgment, pending issuance of the staff's environmental impact appraisal (EIA), respecting whether there are any such environmental impacts that had not been previously and adequately

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<sup>10</sup> Precisely how much importance remains to be seen. As the staff points out in its response to the motion (at 9), the Licensing Board has not as yet admitted *any* transportation contentions to the proceeding.

<sup>11</sup> "In sum, a licensing board may well be in error but, unless it is shown that the error *fundamentally alters the very shape of the ongoing adjudication*, appellate review must await the issuance of a 'final' licensing board decision." *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-675, 15 NRC 1105, 1113 (1982) (footnote omitted; emphasis supplied). In the same decision, we stressed that the fact that the error may lead to delay and increased expense is not a controlling consideration in favor of interlocutory review. *Id.* at 1113-14, *cltng Pennsylvania Power & Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-641, 13 NRC 550, 552 (1981). *See also Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-737, 18 NRC 168, 176 n.12 (1983).



considered. *Id.* at 6-7.<sup>12</sup> Once the EIA has issued, the Board continued, the County and Citizens “may assert in a timely manner new contentions founded upon information in that document.” *Id.* at 7. These Board rulings are not under attack and we see no reason to attempt to resolve the difference of opinion between VEPCO and Citizens on whether and how many *environmental transportation* contentions might be litigated. Rather, we agree with the staff that any such endeavor manifestly would be premature.

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The motion for directed certification is *denied*.  
It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

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<sup>12</sup> Although the Board noted its then understanding that the EIA would surface last month, we are now informed that issuance is still some time in the offing.

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 50-529**  
**STN 50-530**

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

**September 19, 1983**

The Appeal Board denies intervenor's petition for directed certification of the Licensing Board's rulings relating to the adequacy of the environmental impact statements for the Palo Verde facility and stay of those rulings.

**RULES OF PRACTICE: INTERLOCUTORY REVIEW**

Interlocutory appellate review of licensing board orders is disfavored and will be undertaken as a discretionary matter only in the most compelling circumstances. 10 C.F.R. 2.730(f); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-271, 1 NRC 478, 483-86 (1975); *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 REVIEW**

An appeal board will exercise its directed certification authority only upon a clear and convincing showing that the licensing board ruling under attack either: (1) threatens the party adversely affected by it with immediate and serious 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 unusual matter. *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-405, 5 NRC 1190, 1192 (1977).

## **NUCLEAR REGULATORY COMMISSION: POLICY STATEMENT ON CONDUCT OF LICENSING PROCEEDINGS**

The policy expressed by the Commission in its 1981 *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 456, to the effect that, a board should promptly refer or certify a significant legal or policy question to the Atomic Safety and Licensing Appeal Board or the Commission, was not intended to bring about a marked relaxation of the *Marble Hill* standard. *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), ALAB-741, 18 NRC 371, 375 (1983).

## **APPEARANCES**

**Kenneth Berlin**, Washington, D.C., for the intervenor, West Valley Agricultural Protection Council, Inc.

**Arthur C. Gehr**, **Warren E. Platt**, **Charles A. Bischoff** and **Vaughn A. Crawford**, Phoenix, Arizona, for the applicants, Arizona Public Service Company, *et al.*

**Lee Scott Dewey** for the Nuclear Regulatory Commission staff.

## **MEMORANDUM AND ORDER**

This operating license proceeding remains before the Licensing Board by reason of its grant of the late petition for leave to intervene of the West Valley Agricultural Protection Council, Inc. (West Valley). On the

strength of that grant, the Board reopened the evidentiary record for the purpose of considering the environmental issue raised by West Valley; — *viz.*, the asserted adverse impact that the salt deposition associated with the operation of the Palo Verde facility will have upon the productivity of nearby agricultural lands owned by West Valley members.<sup>1</sup>

On February 2, 1983, West Valley filed a motion below seeking, *inter alia*, (1) a declaration that the NRC staff's environmental impact statements for the Palo Verde facility did not address adequately the matter of salt deposition effects; and (2) a deferral of any hearings on those effects pending staff preparation of an adequate environmental analysis.<sup>2</sup> In a supplemental motion filed on May 6, West Valley renewed its assertions and prayer for relief.

In a July 11, 1983 memorandum and order, the Licensing Board denied both motions. It ruled that (1) "at this early stage of consideration of the salt deposition issue," it lacked the authority to direct the staff to prepare a new or supplemental environmental statement; (2) "as the record now stands, it has not been established that material information [bearing upon that issue] is lacking in the previously prepared environmental statement or that such a lack would cause a need for preparation and circulation of a supplemental environmental statement"; and (3) "even if there should be new information, a supplemental statement need not necessarily be prepared and circulated." On the last point, the Board noted that it is settled that a licensing board decision based upon the evidentiary record adduced in the proceeding may itself serve as a modification of the staff's Final Environmental Statement.<sup>3</sup>

On July 22, 1983, West Valley filed a motion with us for a stay of the July 11 order. In an unpublished order entered on August 12, we denied the motion as premature, without prejudice to its renewal should either (1) the Licensing Board refer the July 11 order to us under 10 C.F.R. 2.730(f); or (2) West Valley petition for directed certification of the order under 2.718(i).<sup>4</sup>

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<sup>1</sup> See LBP-82-117B, 16 NRC 2024 (1982). For reasons stated in that opinion, the Board confined the record reopening to Units 2 and 3 of the Palo Verde facility.

In a contemporaneously issued decision, the Licensing Board resolved in the applicants' favor all issues previously raised by another intervenor. Accordingly, the Board authorized the issuance of an operating license for Unit 1 alone. LBP-82-117A, 16 NRC 1964 (1982). We affirmed that decision in ALAB-713, 17 NRC 83 (1983).

<sup>2</sup> Although West Valley also sought a postponement of discovery, it was later agreed by all parties that discovery should commence immediately. Tr. 2891.

<sup>3</sup> LBP-83-36, 18 NRC 45, 47, 49-50.

<sup>4</sup> In a footnote to our order, we took pains to note that:

We need not and do not now decide, of course, whether any of the rulings contained in the July 11 order are fit subjects for interlocutory appellate review on referral or directed certification. That question will be confronted only if the Licensing Board chooses to refer the order or, absent such referral, West Valley seeks directed certification.

On August 17, 1983, the Licensing Board declined to refer its July 11 order. Thereafter, on August 27, West Valley moved for directed certification and thereby resurrected its request for stay relief. The motion is opposed by both the applicants and the staff. For the reasons that follow, we conclude that it lacks merit and, consequently, must be denied. The necessary consequence is that there is no warrant for the issuance of a stay.

1. This is the seventh motion for directed certification to come before us in recent months. In denying each of the previous six,<sup>5</sup> we found it necessary to reemphasize anew what we endeavored to stress in a long line of opinions stretching back to the first opinion on the standards for directed certification issued more than eight years ago: namely, that interlocutory appellate review of licensing board orders is disfavored<sup>6</sup> and will be undertaken as a discretionary matter only in the most compelling circumstances.<sup>7</sup> More specifically, in the exercise of our directed certification authority conferred by 10 C.F.R. 2.718(i), we will step into a proceeding still pending below only upon a clear and convincing showing that the licensing board ruling under attack either

- (1) threaten[s] the party adversely affected by it with immediate and serious irreparable impact which, as a practical matter, could not be alleviated by a later appeal or
- (2) affect[s] the basic structure of the proceeding in a pervasive or unusual manner.<sup>8</sup>

With a single exception, the recently rejected directed certification motions invoked either exclusively or principally the second of the *Marble Hill* criteria. Judging from the content of the papers filed with us, in most instances the movants seemingly were under the impression that any licensing board order that has some discernible bearing upon the future course of a proceeding perforce affects its "basic structure . . . in

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<sup>5</sup> *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-731, 17 NRC 1073 (1983); *id.*, ALAB-734, 18 NRC 11 (1983); *id.*, ALAB-737, 18 NRC 168 (1983) (two motions); *Commonwealth Edison Co.* (Byron Nuclear Power Station, Units 1 and 2), ALAB-735, 18 NRC 19 (1983); *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), ALAB-741, 18 NRC 371 (1983). The four *Seabrook* motions were filed by one or another of the intervenors in that proceeding; the *Byron* motion by the staff; and the *North Anna* motion by the applicant.

We have not included in the tabulation two recent attempts to take impermissible appeals from interlocutory orders. See *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-736, 18 NRC 165 (1983), and September 13, 1983 Memorandum and Order (unpublished).

<sup>6</sup> 10 C.F.R. 2.730(f) explicitly prohibits interlocutory appeals other than those permitted by 10 C.F.R. 2.714a governing appellate review of orders granting or denying intervention petitions.

<sup>7</sup> *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-271, 1 NRC 478, 483-86 (1975).

<sup>8</sup> *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-405, 5 NRC 1190, 1192 (1977).

a pervasive or unusual manner." Such an expansive reading of the criterion is manifestly far wide of the mark. Indeed, were it on target, there would be virtually nothing left of the general proscription against interlocutory appeals.

In short, the parties to our licensing proceedings might well exercise in the future a greater measure of circumspection insofar as requests for interlocutory appellate review are concerned. Understandably, parties and their counsel are displeased whenever a licensing board enters an interlocutory order that appears to affect their interests adversely and, in their judgment, is plainly wrong to boot. And, no doubt, such an order will be found especially frustrating if its consequence is, for example, the litigation of issues that counsel believes should not be tried, the summary dismissal of issues that counsel is convinced are entitled to evidentiary consideration, or the infelicitous scheduling of the hearing on an issue. But, to repeat what we have said on so many prior occasions, in the overwhelming majority of instances the party simply must await the licensing board's initial decision before bringing its complaint to us (assuming that the grievance has not been mooted by intervening developments). The failure to accept this fact of adjudicatory life — judicial as well as administrative — has the unfortunate effect of diverting attention from the progress of the licensing board proceedings where it belongs. Beyond that, insubstantial directed certification requests bring about a waste of our time,<sup>9</sup> as well as the profligate expenditure of the time and resources of the parties themselves.<sup>10</sup>

2. The directed certification motion at hand need not detain us long. In fact, it would be difficult to find a more apt illustration of a baseless request for our intercession in a proceeding still in an active status below.

In order to provide West Valley with the relief it seeks of us, we first would have to embark upon our own examination of the environmental impact statements currently on file to determine whether, contrary to

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<sup>9</sup> On that score, we perhaps have gone to undue lengths in explaining in several recent published opinions the reasons for our rejection of a particular directed certification petition. From this point forward, we will be more inclined to reject such petitions summarily if their lack of merit appears manifest.

<sup>10</sup> In offering the foregoing observations, we have not overlooked the Commission's direction in its 1981 *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 456, to the effect that:

If a significant legal or policy question is presented on which Commission guidance is needed, a board should promptly refer or certify the matter to the Atomic Safety and Licensing Appeal Board or the Commission.

We discussed that direction in *North Anna*, ALAB-741, note 5, *supra*. As there concluded, the Commission did not intend to bring about a marked relaxation of the *Marble Hill* standard. 18 NRC at 375. Rather, the direction comes into play only with respect to questions of broad and immediate significance as to which a licensing board determines that prompt appellate determination on an interlocutory basis is necessary.

the Licensing Board's express conclusion in the July 11 order, it is now apparent that to date the staff has not adequately addressed the salt deposition matter.<sup>11</sup> Assuredly, such an essentially factual inquiry is not fit grist for the interlocutory review mill; rather, that is precisely the kind of issue appropriately left for appellate scrutiny on a later appeal from the initial decision.

Moreover, were we to accept the invitation to look at the staff's salt deposition analysis and to agree with West Valley's appraisal of its sufficiency, there would remain the question whether the Board was right in its belief that any deficiencies might be cured by the evidence adduced at the hearing and the initial decision based on that evidence. That question, as well, is one that both can and should await the final disposition of the proceeding below.

These considerations to one side, there is a total lack of foundation to West Valley's claim that the Licensing Board's order affects the "basic structure" of the proceeding. Memorandum in Support of Directed Certification Motion (August 27, 1983) at 2. The order plainly has no such effect — pervasive or otherwise. Irrespective of whether the staff were to file a supplemental environmental impact statement prior to the hearing or, instead, the hearing should now go forward on the present staff analysis (with an opportunity given to the parties to supplement or to contradict it), "the shape of the ongoing adjudication" will remain fundamentally unaltered. *See Cleveland Electric Illuminating Co. (Perry Nuclear Power Plant, Units 1 and 2), ALAB-675, 15 NRC 1105, 1113 (1982).*<sup>12</sup>

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<sup>11</sup> Given that express conclusion, we do not understand West Valley's insistence that, in the December 30, 1982 memorandum and order granting its petition to intervene (LBP-82-117B, *supra*), the Licensing Board determined that the salt deposition matter had not been adequately addressed in either the construction permit or operating license Final Environmental Statements for Palo Verde. Directed Certification Motion (August 27, 1983) at 1. In any event, our own examination of LBP-82-117B has disclosed no such determination. This is scarcely surprising. Before the Licensing Board at that time was simply West Valley's late intervention petition and request that the record be reopened to take evidence on salt deposition effects. In acting affirmatively on the request, the Board was not called upon to make a substantive determination respecting the adequacy of the staff's environmental impact statements. All that it was required to decide, and did decide, was that there was "adequate cause to reopen the record to consider [West Valley's] contentions." 16 NRC at 2032.

<sup>12</sup> There is no greater substance to West Valley's claim that the July 11 order threatens it with irreparable injury because the order "insure[s] that the NRC staff [will] not perform an impartial full analysis of potential [environmental] harm caused by" the Palo Verde facility. Directed Certification Motion at 3. For one thing, that line of argument assumes that the staff has not already performed such an analysis. As already noted, exploration of such questions is not appropriate on interlocutory appellate review. Secondly, and more fundamentally, West Valley will have ample opportunity to raise the matter of the adequacy of the staff's environmental analysis on an appeal from the Licensing Board's initial decision (should it be dissatisfied with that decision). *See, e.g., Houston Lighting & Power Co. (Allens Creek Nuclear Generating Station, Unit No. 1), ALAB-635, 13 NRC 309, 310-11 (1981) (denying a motion for directed certification of a Licensing Board order that similarly rejected a request that the staff be required to prepare a supplemental environmental impact statement).*

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The motion for directed certification and the ancillary stay application are *denied*.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

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

**In the Matter of**

**Docket No. 50-322-OL-3**  
**(Emergency Planning)**

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

**September 29, 1983**

In this appeal under 10 C.F.R. § 2.714a from the Licensing Board's memorandum and order (LBP-83-42, 18 NRC 112 (1983)) denying a petition for leave to intervene in this operating license proceeding of a petitioner who supports the grant of the license, the Appeal Board affirms the result below on the ground of the petition's lateness, eschewing ruling (as did the Licensing Board) on the questions of the petitioner's standing to intervene and its ability to meet the tests for discretionary intervention.

**RULES OF PRACTICE: UNTIMELY INTERVENTION  
PETITIONS**

In passing upon an untimely intervention petition, the Licensing Board is to consider and balance the following five factors:

- (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.

10 C.F.R. § 2.714(a)(1).

#### **APPEAL BOARDS: ADVISORY OPINIONS**

Opinions that, in the circumstances of the particular case, are essentially advisory in nature should be reserved (if given at all) for issues of demonstrable recurring importance. *See Tennessee Valley Authority* (Hartsville Nuclear Plants, Units 1A, 2A, 1B and 2B), ALAB-467, 7 NRC 459, 463 (1978).

#### **RULES OF PRACTICE: UNTIMELY INTERVENTION PETITIONS**

In the absence of good cause for tardiness in seeking intervention, "a petitioner must make a 'compelling showing' on the other four factors [of 10 C.F.R. § 2.714(a)(1)] in order to justify late intervention." *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-707, 16 NRC 1760, 1765 (1982), and cases there cited.

#### **RULES OF PRACTICE: UNTIMELY INTERVENTION PETITIONS (ASSISTANCE IN DEVELOPING A SOUND RECORD)**

In addressing the third lateness factor of 10 C.F.R. § 2.714(a)(1) the extent to which the petitioner's participation might reasonably be expected to assist in developing a sound record — a petitioner "should set out with as much particularity as possible the precise issues it plans to cover, identify its prospective witnesses, and summarize their proposed testimony." *Mississippi Power & Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725, 1730 (1982), *citing South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), ALAB-462, 13 NRC 881, 894 (1981), *aff'd sub nom. Fairfield United Action v. NRC*, 679 F.2d 261 (D.C. Cir. 1982); *Detroit Edison Co.* (Greenwood Energy Center, Units 2 and 3), ALAB-476, 7 NRC 759, 764 (1978).

## **RULES OF PRACTICE: UNTIMELY INTERVENTION PETITIONS (BROADENING OF ISSUES OR DELAY)**

The fifth and final factor of 10 C.F.R. § 2.714(a)(1) — potential for delay — is also of immense importance in the overall balancing process. See, e.g., *Greenwood*, ALAB-476, *supra*, 7 NRC at 761-62; *Virginia Electric and Power Co.* (North Anna Station, Units 1 and 2), ALAB-289, 2 NRC 395, 400 (1975).

## **RULES OF PRACTICE: UNTIMELY INTERVENTION PETITIONS (BROADENING OF ISSUES OR DELAY)**

A late intervenor may be required to take the proceeding as it finds it. *Nuclear Fuel Services, Inc.* (West Valley Reprocessing Plant), CLI-75-4, 1 NRC 273, 276 (1975).

## **APPEARANCES**

Lucinda Low Swartz, Washington, D.C. (with whom Ronald A. Zumbum and Sam Kazman, Washington, D.C., were on the brief), for the petitioner, Citizens for an Orderly Energy Policy, Inc.

W. Taylor Reveley, III, Richmond, Virginia (with whom James N. Christman, Richmond, Virginia, was on the brief), for the applicant, Long Island Lighting Company.

David A. Repka for the Nuclear Regulatory Commission staff.

## **DECISION**

### **Opinion for the Board by Messrs. Rosenthal and Wilber:**

Before us is the appeal under 10 C.F.R. § 2.714a of Citizens for an Orderly Energy Policy, Inc. (Citizens), from the Licensing Board's July 28, 1983 memorandum and order denying its petition for leave to intervene in this operating license proceeding involving the Shoreham nuclear facility on Long Island, Suffolk County, New York.<sup>1</sup> The denial was

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<sup>1</sup> See LBP-83-42, 18 NRC 112.

founded solely on the petition's untimeliness; *i.e.*, the Board found it unnecessary to reach the additional, and substantial, question of Citizens' standing to intervene.<sup>2</sup>

Finding ourselves in basic agreement with the Licensing Board's analysis of the considerations governing the acceptance or rejection of tardy petitions,<sup>3</sup> we concur in its ultimate conclusion that there is insufficient cause to allow Citizens to enter the proceeding at this late date. We thus affirm the result below. In doing so, we follow the Licensing Board's lead and eschew ruling on whether Citizens' asserted interest in the outcome of the proceeding is of the stripe cognizable under the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011 *et seq.* At our request, that question was explored at some length both in the parties' briefs and at oral argument. But it is best left for resolution when and if it should come to us in the context of an intervention petition not requiring rejection as untimely. The same may be said of the question whether, assuming that Citizens lacks standing to intervene as a matter of right, it nonetheless meets the criteria established for allowing intervention as a matter of discretion. *See, e.g., Portland General Electric Co.* (Pebble Springs Nuclear Plant, Units 1 and 2), CLI-76-27, 4 NRC 610, 614-17 (1976); *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), ALAB-363, 4 NRC 631 (1976).<sup>4</sup>

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<sup>2</sup> *Id.* at 120.

<sup>3</sup> In passing upon an untimely intervention petition, the Licensing Board is to consider and balance the following five factors:

- (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.

10 C.F.R. § 2.714(a)(1).

<sup>4</sup> To the best of our recollection, this is only the second time that we have been faced with an intervention petition filed by one wishing to support without qualification the license application under consideration. *See Nuclear Engineering Co.* (Sheffield, Illinois, Low-Level Radioactive Waste Disposal Site), ALAB-473, 7 NRC 737 (1978). This fact reinforces the wisdom of not grappling unnecessarily with the sharply differing views of the parties on the question of Citizens' standing here. Opinions that, in the circumstances of the particular case, are essentially advisory in nature should be reserved (if given at all) for issues of demonstrable recurring importance. *See Tennessee Valley Authority* (Hartsville Nuclear Plants, Units 1A, 2A, 1B and 2B), ALAB-467, 7 NRC 459, 463 (1978).

## I.

A. This proceeding was instituted in March 1976 — seven and a half years ago. Although many of the litigated questions have now been decided by the Licensing Board,<sup>5</sup> one major remaining issue below is that of emergency planning. That issue assumed different proportions in 1980 when, in the wake of the Three Mile Island accident the prior year, the Commission promulgated new regulations governing offsite emergency response plans for nuclear power facilities. *See* 10 C.F.R. §§ 50.33(g), 50.47.

We need not recount here the Shoreham offsite emergency planning developments between 1980 and earlier this year. For present purposes, the appropriate starting point is the February 17, 1983 resolution of the Suffolk County Legislature to the effect that the County would take no further part in the Shoreham emergency planning effort. The asserted reason for this action was that no satisfactory offsite emergency response plan could be developed.<sup>6</sup> On the strength of that legislative action, the County — which in 1977 had been allowed untimely intervention under 10 C.F.R. § 2.714 — moved the Licensing Board to terminate the proceeding. Its claim was that, absent its participation in the emergency response effort, as a matter of law no operating license could be issued.

In response to the motion, the applicant asserted that adequate offsite emergency planning is achievable without Suffolk County participation. In this connection, it indicated that, if given the opportunity to do so, it would present an adequate substitute plan that did not call upon County resources.

On April 20, 1983, the Licensing Board denied the County's motion and ordered that a hearing be held on the applicant's substitute offsite emergency response plan when submitted.<sup>7</sup> Recognizing the significance of the interpretation of NRC regulations that undergirded this result, the Board referred its ruling for immediate interlocutory review.<sup>8</sup> On May 12, 1983, it was affirmed by the Commission.<sup>9</sup>

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<sup>5</sup> *See* LBP-83-57, 18 NRC 445 (1983).

<sup>6</sup> Suffolk County Legislative Resolution No. 111-1983. This was said to be so because of such factors as the geography and population density of Long Island and the asserted inadequacy of available evacuation routes.

<sup>7</sup> LBP-83-22, 17 NRC 608.

<sup>8</sup> LBP-83-21, 17 NRC 593 (1983).

<sup>9</sup> CLI-83-13, 17 NRC 741. Although the referral had been addressed to an appeal board, the Appeal Panel Chairman transferred it to the Commission in an unpublished order entered on April 26, 1983.

On May 26, 1983, the applicant formally submitted its substitute off-site emergency response plan. (By that date, a separate Licensing Board had been convened to hear and decide the offsite emergency planning issues.) On their receipt of the plan, the four intervenors seeking to litigate those issues<sup>10</sup> commenced with the preparation of contentions and other prehearing matters.

On June 14, 1983, Citizens filed its intervention petition and, eight days later, submitted a statement of proposed contentions. According to the petition, Citizens was formed in January 1983 by "engineers, physicians, and scientists working on various projects involving nuclear power" who "favo[r] the issuance of an operating license to the [applicant]."<sup>11</sup> In this regard, the petition was accompanied by the affidavits of five of Citizens' members: a physicist, two nuclear physicists, and two health physicists, all of whom reside within 15 miles of the Shoreham plant.

As the basis for seeking intervention, the petition alleged that Citizens' members have a "strong interest in the availability of safe, clean, efficient energy sources on Long Island," which interest will be adversely affected if Shoreham is not granted an operating license.<sup>12</sup> Because an adverse ruling on the applicant's substitute offsite emergency response plan could result in denial of an operating license for Shoreham, Citizens therefore desires to enter and participate in the proceeding for the purpose of supporting that plan.<sup>13</sup>

On the matter of timeliness, Citizens sought to justify the eleventh-hour filing of its intervention petition on the basis that the events leading to the threat of a denial of the operating license application had only "recently occurred."<sup>14</sup> Addressing the other Section 2.714(a) lateness factors,<sup>15</sup> Citizens maintained that, inasmuch as its membership includes "recognized authorities in the field of nuclear power" and "professional[s] in radiological emergency planning," it will make a "valuable contribution" to the hearing.<sup>16</sup> Although explicitly acknowledging that its ultimate goal did not differ from that of the applicant, Citizens further claimed that its members' lack of financial ties to the applicant and their interest in seeing an adequate emergency plan for them-

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<sup>10</sup> Suffolk County, the Shoreham Opponents Coalition, the North Shore Committee Against Nuclear and Thermal Pollution, and the Town of Southampton.

<sup>11</sup> Petition at 4.

<sup>12</sup> *Id.* at 5-6. A like averment was contained in the supporting affidavits of the five individual members.

<sup>13</sup> *Id.* at 6-7.

<sup>14</sup> *Id.* at 14.

<sup>15</sup> See note 3, *supra*.

<sup>16</sup> Petition at 8.

selves and their families gives them a unique "perspective."<sup>17</sup> Citizens also observed that, as the proceeding will "initially decide the fate" of Shoreham, no other means exist for Citizens' members to protect their interests.<sup>18</sup> Finally, the Licensing Board was assured that Citizens would not undertake to introduce "concerns outside the scope of the hearing" or to delay the proceeding in any other manner.<sup>19</sup>

In response to the petition, applicant filed a general endorsement of Citizens' effort and Suffolk County took an essentially neutral position. The NRC staff, however, opposed the petition, contending that Citizens lacked standing to intervene here, that it had made no case for allowing intervention as a matter of discretion, and that, in any event, the petition should be denied on lateness grounds. On the last point, the staff stressed that Citizens' filing was "seven years late"<sup>20</sup> and argued that the "recent important development" of Suffolk County's withdrawal from the emergency planning arena did not constitute good cause for the filing's untimeliness as it was "simply the latest [event] in the long and continuing process of Shoreham offsite emergency planning."<sup>21</sup> The staff characterized as "tenuous" Citizens' argument that its position would otherwise go unrepresented in light of the identity of Citizens' goal with that of applicant, which, the staff anticipates, "will advocate [its offsite] plan to the fullest extent possible."<sup>22</sup> The staff also suggested that, while Citizens' admission would not necessarily "unduly delay" the proceeding, litigation of some of its concerns might "broaden and complicate" matters.<sup>23</sup> With respect to Citizens' argument that its members' expertise would tender unique assistance at the hearing, the staff asserted that there was no evidence to support the claim, and that "where reliance is placed on the factor of expertise, the petition should provide a bill of particulars" respecting the prospective contribution.<sup>24</sup>

By way of reply, Citizens reiterated its belief that the petition should not be deemed inexcusably late because "[t]he need to litigate [the] issue [of applicant's plan] did not arise until late April, 1983."<sup>25</sup> With

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<sup>17</sup> *Id.* at 9, 10.

<sup>18</sup> *Id.* at 11.

<sup>19</sup> *Ibid.*

<sup>20</sup> The notice of opportunity for hearing established April 19, 1976 as the deadline for intervention petitions. See 41 Fed. Reg. 11,367, 11,368 (1976).

<sup>21</sup> Staff's Response to Citizens' Petition (June 29, 1983) at 8-9.

<sup>22</sup> *Id.* at 10.

<sup>23</sup> *Id.* at 10-11.

<sup>24</sup> *Id.* at 9-10. The Town of Southampton also filed a response to Citizens, essentially echoing the staff's arguments. Subsequently, at a July 13 prehearing conference, the other two intervenors also indicated that they opposed another party being added to the case. Prehearing Conf. Tr. 44, 45.

<sup>25</sup> Reply to Staff Response (July 12, 1983) at 5.

regard to the staff's assertion that Citizens ought to have supplied a "bill of particulars" to document its expertise, Citizens observed that it was "unaware" of any such obligation ever being imposed on prospective intervenors, but stated that "[s]hould the Licensing Board decide . . . that a 'bill of particulars' should be provided, Citizens will do so."<sup>26</sup> This matter came up again at a July 13 prehearing conference when the Chairman of the Licensing Board asked Citizens' counsel:

What role do you intend to play in terms of cross-examining witnesses, presenting your own witnesses, and so forth?<sup>27</sup>

Counsel responded (in part):

The members of Citizens do have a strong background not only in nuclear energy but also in emergency planning. A major portion of Suffolk County's contentions deal with accident assessment. They allege that accident assessment is not adequate or that it can't be done. Members of Citizens would be able to address that in a lot of detail, and I think that is an important point that we would be able to address.<sup>28</sup>

B. In its July 28 order, LBP-83-42, *supra*, the Licensing Board first determined that Citizens' intervention petition was late in that it was filed long after the deadline specified in the 1976 notice of opportunity for hearing for the submission of such petitions. Accordingly, it turned to a discussion of the five Section 2.714(a) lateness factors. On balance, the Board concluded, those factors weighed against allowing intervention.<sup>29</sup>

On the first factor (good cause for being late), the Board reasoned that, although the events leading to Citizens' intervention attempt were of fairly recent vintage, Citizens had provided no justification for not filing at least by February when it became aware of Suffolk County's withdrawal.<sup>30</sup> On the third factor (Citizens' potential contribution to the development of a sound record), the Board agreed with the staff that the petitioner had an affirmative obligation to identify the witnesses and to summarize the testimony or other evidence that it proposed to present, an obligation that the Board thought Citizens had not adequately

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<sup>26</sup> *Id.* at 6-7.

<sup>27</sup> Prehearing Conf. Tr. 34.

<sup>28</sup> Prehearing Conf. Tr. 34-35.

<sup>29</sup> 18 NRC at 116, 120.

<sup>30</sup> *Id.* at 118.



fulfilled.<sup>31</sup> Respecting the fourth and fifth factors, the Board determined that Citizens had not satisfactorily explained why the applicant would inadequately represent its interests in the proceeding and that Citizens' participation might well delay the proceeding to some extent.<sup>32</sup> Thus, as the Board saw it, only the second factor (the availability of other means whereby Citizens might protect its interest) favored the grant of late intervention.<sup>33</sup>

This appeal followed. It is supported by the applicant and opposed by the staff.<sup>34</sup>

## II.

Since 1972, in essentially their present form, the provisions of Section 2.714(a) concerned with the treatment to be accorded untimely intervention petitions have been embodied in the Commission's regulations. In the ensuing eleven years, there have been innumerable Licensing Board orders passing upon such petitions on the basis of an application of the five lateness factors specified in that Section. An informal survey discloses that some 22 of those orders have received appellate review on the merits — typically by an appeal board without further review by the Commission itself. In 15 instances, the Licensing Board's balancing of the five factors led to a *rejection* of the petition; in all but one of those instances, the denial of the petition was affirmed. With regard to the seven appealed Licensing Board *grants* of late petitions, five were affirmed and two were reversed.<sup>35</sup>

Obviously, whether any specific belated petition should be turned aside solely because of its tardiness hinges upon the totality of the circumstances of that particular case. Thus, the foregoing statistics do not of themselves have any direct bearing upon the proper disposition of Citizens' appeal here. They nevertheless are illuminating in several respects. For one thing, it is quite apparent that neither this Board nor the Commission has been readily disposed to substitute its judgment for that of the Licensing Board insofar as the outcome of the balancing of

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<sup>31</sup> *Id.* at 119.

<sup>32</sup> *Id.* at 119-20.

<sup>33</sup> *Id.* at 118, 120.

<sup>34</sup> Although endorsing without reservation Citizens' claim of standing, the applicant observed in its brief (at 2) that the intervention petition "was filed years late" and that it was a "finely balanced question" whether "sufficient grounds exist to excuse the untimeliness." The applicant's ultimate conclusion was that the balance "tips in Citizens' favor." *Ibid.*

<sup>35</sup> In an Appendix to this opinion, *infra*, pp. 413-14, we identify the appellate decisions uncovered in the course of the survey.

the Section 2.714(a) factors is concerned.<sup>36</sup> For another, as is equally apparent, there has not been a general inclination to favor the admission of tardy petitioners to a proceeding. Indeed, given the fact that more than two-thirds of the appellate decisions left the petitioner on the sidelines, the precisely opposite conclusion would be justified.<sup>37</sup>

In contrast to the petitioner in each prior case, Citizens seeks to intervene in support of the utility application under adjudication. Although this fact might well bear upon Citizens' standing to intervene — a question that, once again, we need not here reach — it manifestly can be assigned no weight in the determination of the lateness matter. Stated otherwise, the five Section 2.714(a) factors are to be applied in the same manner in the evaluation of all tardy petitions, irrespective of whether the petitioner favors or, instead, opposes the licensing of the facility in question. Likewise, the amount of deference to be extended the Licensing Board's conclusions on the matter does not turn upon such a legally extraneous consideration.

With these preliminary observations in mind, we now turn to the petition at hand and to the reasons why, in our judgment, the result arrived at below was fully warranted, if not compelled.

A. There can be no doubt that Citizens' petition was untimely. As we have seen, note 20, *supra*, the notice of opportunity for hearing on the Shoreham operating license application stipulated that intervention petitions were to be filed no later than April 19, 1976. That deadline was never extended. Nor was there a new notice, with a new deadline, issued at the time that Suffolk County announced that it would not participate in offsite emergency response planning. This is scarcely

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<sup>36</sup> In this connection, it might be noted that the only prior reversal of a Licensing Board *denial* of a late petition involved the endeavor of Erie County, New York, to participate in a proceeding concerned with a facility located near its boundaries. *Nuclear Fuel Services, Inc.* (West Valley Reprocessing Plant), CLI-75-4, 1 NRC 273 (1975). In that case, by a divided vote we had affirmed the denial. ALAB-263, 1 NRC 208 (1975). On its further review, the Commission observed that 10 C.F.R. § 2.714(a) gives "the Licensing Boards broad discretion in the circumstances of individual cases." 1 NRC at 275. It nonetheless adopted the position of the dissenting member of this Board, which had rested heavily upon the significance that should attach to the fact that the County had a special responsibility insofar as the identification of the public interest and the vindication of public rights were concerned. See ALAB-263, 1 NRC at 220-21 (dissenting opinion); CLI-75-4, 1 NRC at 275. The Commission also stressed that the hearing apparently would not commence for at least another six months or so. *Id.* at 276.

<sup>37</sup> As should hardly require elaboration, the exclusion from a proceeding of persons or organizations who have slept on their rights does not offend any public policy favoring broad citizen involvement in nuclear licensing adjudications. Assuming that such a policy finds footing in Section 189a. of the Atomic Energy Act of 1954, as amended, 42 U.S.C. § 2239(a), it must be viewed in conjunction with the equally important policy favoring the observance of established time limits.

surprising. Manifestly, that announcement did not give rise to a separate and distinct proceeding on the Shoreham application. Rather, it simply added a new dimension to the emergency planning issue that had long been an ingredient of the proceeding that commenced in 1976.<sup>38</sup>

In the circumstances, the first question to be examined is whether all, or any portion, of the lengthy delay in seeking intervention was warranted. This is a particularly significant inquiry. For, as we recently observed, “[i]n the absence of good cause [for its tardiness], a petitioner must make a ‘compelling showing’ on the other four factors in order to justify late intervention.” *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-707, 16 NRC 1760, 1765 (1982), and cases there cited.

As is clear from the petition, Citizens’ interest does not lie principally, if at all, in the applicant’s substitute offsite emergency response plan *per se*; *i.e.*, the desire of Citizens’ members to support that plan does not in reality stem from a concern that, if it were to be rejected, a different and less satisfactory plan might be accepted in its stead.<sup>39</sup> Rather, Citizens’ main objective is simply to insure the licensing of the Shoreham facility, which it deems to be necessary in the furtherance of its members’ “strong interest in the availability of safe, clean, efficient energy sources on Long Island.” See p. 392, *supra*. As Citizens sees it, the accomplishment of that objective might be seriously threatened were the substitute offsite emergency response plan found inadequate.

That threat may well be present. But, contrary to the impression that Citizens seeks to create, the decision on whether to grant an operating license for Shoreham has never turned exclusively upon a finding favorable to the applicant on the offsite emergency planning issue. From its very outset, this proceeding has involved many discrete issues and a determination against the applicant on any one of them might have led to a denial of the license application. That at least some of these issues were not insubstantial is reflected by the fact that the recent Licensing Board decision resolving most (albeit not all) of them is some 1400 pages in length.<sup>40</sup> This being so, it cannot be said that Citizens’ professed

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<sup>38</sup> In October 1977, the Licensing Board authorized discovery on an emergency planning contention of two intervenors. Tr. 50.

Needless to say, the fact that a separate licensing board was recently established to consider the emergency planning issue does not suggest the institution of a new proceeding. That action was taken for administrative reasons only; *i.e.*, because of the other demands on the time of the members of the Licensing Board that had been previously assigned to hear all issues in controversy. See, in this connection, 10 C.F.R. Part 2, Appendix A, § 1(c)(1).

<sup>39</sup> See App. Tr. 107-08.

<sup>40</sup> See LBP-83-57, note 5, *supra*.

interest was not potentially affected prior to the County announcement. To the contrary, Citizens has had a stake in the outcome of the proceeding all along.

Notwithstanding these considerations, we will assume for present purposes that Citizens' members had cause to remain passive observers prior to the time of the Suffolk County announcement that it would not participate any further in the Shoreham emergency planning effort. Such an assumption serves, of course, to reduce considerably the period of Citizens' *unjustified* delay in seeking intervention. But it does not eliminate it. The County Legislature acted on February 17, 1983. The intervention petition was filed on June 14 — almost four months later.

Quite true, in the interim both the Licensing Board and the Commission were grappling with the Suffolk County motion to dismiss the proceeding. See p. 391, *supra*. But that fact cannot be taken as a satisfactory explanation for Citizens' continued inaction once the County had made known its intentions. To our knowledge, it has never been suggested, let alone held, that one whose interest in the outcome of a proceeding is clearly affected by a new development is entitled to withhold asserting that interest to await the result of preliminary legal skirmishing concerned with the development. To the contrary, the expectation has always been that, upon learning of the development, the would-be intervenor will promptly spring into action. Moreover, it was on April 20 that the Licensing Board both denied the County's motion to dismiss and directed that a hearing be held on the applicant's substitute offsite emergency response plan. The effectiveness of that action was not stayed; hence, it is of no moment here that another three weeks elapsed before the Commission affirmed it.

In short, even giving Citizens the benefit of all *reasonable* doubt on the matter of when its petition should have been filed, the inescapable fact is that it was inexcusably tardy. And that the *unjustified* tardiness may be measured in months rather than years does not alter the situation materially. Depending upon the status of the proceeding at the time the late petition is filed, a several month delay may or may not be consequential. Here, as we discuss further below in our appraisal of the fifth lateness factor (pp. 402-03, *infra*), it cannot be lightly ignored. Citizens had every reason to anticipate that a petition filed as late as June would not go unchallenged and that, if challenged, it might be rejected by the Licensing Board on either untimeliness or standing grounds. Citizens also had cause to foresee that the hearing on the applicant's substitute plan would move forward at as rapid a pace as feasible. It thus should have occurred to Citizens that, by waiting so long to file its petition, it was running the substantial risk that the hearing would be

almost at hand before a favorable decision on the petition might be forthcoming at the end of an appellate review. As it has turned out, that risk materialized. The Licensing Board did reject the petition; Citizens was required to take an appeal; and it is now barely more than two months before the scheduled start of the hearing. See p. 402, *infra*.<sup>41</sup>

B. The second and fourth factors may be considered together. We agree with the Licensing Board that Citizens has no other means available for the protection of its claimed interest in Shoreham operation (the second factor). On the other hand, in common with the Licensing Board, we think it much less apparent that the fourth factor supports allowing late intervention. Citizens' objective parallels that of the applicant — even though it may not have precisely the same underpinnings (Citizens' members, of course, do not share the applicant's strong and direct financial stake in the outcome of the proceeding).<sup>42</sup> And it is reasonable to suppose that the applicant will present the strongest possible case for the viability of its substitute offsite emergency response plan. In this regard, as we discuss shortly in our appraisal of the third factor, there is nothing in the record to suggest that Citizens will supplement the applicant's presentation on the plan to any significant extent.

C. In our decision last December in *Mississippi Power & Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725 (1982), we stressed anew the importance of the third lateness factor — the extent to which the petitioner's participation might reasonably be expected to assist in developing a sound record. Because of that importance, we observed, “[w]hen a petitioner addresses this criterion it should set out with as much particularity as possible the precise issues it plans to cover, identify its prospective witnesses, and summarize their proposed testimony.” *Id.* at 1730, citing *South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), ALAB-642, 13 NRC

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<sup>41</sup> Nothing in the foregoing discussion should be understood to imply that, had Citizens filed its petition last February, intervention *perforce* would have been permitted. The Licensing Board would have had to inquire into Citizens' standing, and, if standing were found lacking, the Board would then have had to decide whether cause existed for allowing intervention as a matter of discretion.

<sup>42</sup> See App. Tr. 17-18.

881, 894 (1981), *aff'd sub nom. Fairfield United Action v. NRC*, 679 F.2d 261 (D.C. Cir. 1982); *Detroit Edison Co. (Greenwood Energy Center, Units 2 and 3)*, ALAB-476, 7 NRC 759, 764 (1978).<sup>43</sup>

Citizens has fallen far short of compliance with this obligation. Although specifying the issues it seeks to litigate, Citizens left the Licensing Board entirely in the dark respecting the identity of its proposed witnesses and the substance of the testimony they would offer. Even after the staff noted the absence of a "bill of particulars" on these matters and called Citizens' attention specifically to the *Greenwood* decision,<sup>44</sup> little further information was forthcoming — Citizens apparently being content to rest on its mistaken belief that a prospective intervenor is not obligated to supply any greater detail on its intended contribution to the record. See pp. 393-94, *supra*.

In the context of the present case, this failure on Citizens' part looms large. There well may be instances in which, absent the requisite detail in the petition, an inference nevertheless could be drawn that a tardy prospective intervenor likely will make a valuable contribution beyond that to be expected of existing parties. But this is not such an instance. As previously noted, if anything is to be assumed here, it is that the expert testimony adduced by the applicant will cover all aspects of its substitute offsite emergency response plan that have been challenged by Suffolk County and the other intervenors. (Beyond doubt, the applicant has the technical and legal resources necessary to carry out that undertaking.) On that assumption, one might fairly question whether *additional* worthwhile evidence might be produced by an organization comprised of scientists who have not been shown to possess special expertise in the area of emergency response planning. In a word, if it has the capability to supplement *significantly* the applicant's presentation, Citizens was duty-bound to establish that fact.

In this regard, we are much less impressed than is our dissenting colleague by the fact (first brought to our attention by the applicant<sup>45</sup> rather than by Citizens) that some of Citizens' members participated in the Shoreham construction permit proceeding as members of another organization — Suffolk Scientists for Cleaner Power and Safer

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<sup>43</sup> It is not of present significance that the publication of *Grand Gulf* in the official NRC reports took place very recently. In its appellate brief (at 8 n.4), Citizens explicitly conceded that the ruling in that opinion "regarding a showing of expertise [was] not a new pronouncement" but rather rested on "earlier NRC case law" — specifically, *Summer* and *Greenwood*, which have long been available to the Bar. Citizens insisted, however, that it had provided the information required by *Grand Gulf* and its predecessors.

<sup>44</sup> Staff's Response to Citizens' Petition, note 21, *supra*, at 9-10.

<sup>45</sup> Applicant's Br. at 3.

Environment. For one thing, there is nothing before us that would permit the conclusion that Suffolk Scientists' participation in that proceeding made a substantial contribution to the development of the record. For another, the emergency planning issues that Citizens would litigate here bear no resemblance to any issue that might have confronted the Licensing Board in the construction permit proceeding. In these circumstances, it is small wonder that, even though aware that Citizens' members had participated in that proceeding, Citizens' counsel had perceived no reason to rely upon it.<sup>46</sup>

Our dissenting colleague also stresses that some of Citizens' members have participated in emergency planning drills in the northeastern United States and served as members of radiological emergency response teams. See p. 405, *infra*. Without further particularization respecting their roles in those activities, however, no *informed* judgment can be made regarding their specific ability to make a significant contribution in the exploration of the issues that will confront the Licensing Board. Insofar as concerns the Licensing Board grant of discretionary intervention to the Chicago Section of the American Nuclear Society several years ago in the *Sheffield* proceeding (dissenting opinion, note 4, *infra*), it suffices to note that that grant was not accompanied by a reasoned analysis of the sufficiency of the Chicago Section's showing on its ability to contribute to the development of the record. This being so, it is not entitled to any precedential effect.<sup>47</sup>

Moreover, Citizens has failed to explain to our satisfaction why it needs intervenor status in order to make its contribution to the record (whatever that contribution might be). Presumably, the applicant would be more than willing to sponsor any expert testimony in favor of the substitute plan that Citizens might offer itself if admitted to the proceeding. To be sure, Citizens undoubtedly would prefer to have its experts testify as its witnesses rather than under the applicant's sponsorship. There is no reason to believe, however, that the weight attached by the Licensing

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<sup>46</sup> Indeed, counsel first told us that she deemed the participation of Citizens' members in the prior proceeding to be "not relevant to what we're trying to argue here." When our dissenting colleague then expressed his contrary opinion that "the fact that the members participated at an earlier stage and were apparently fairly effective is some indication at least that they are likely to be effective again," counsel understandably noted her agreement. Even then, however, she felt constrained to add that "[b]ut what we are trying to do in our petition is to demonstrate who our members were and what they could do *here*." App. Tr. 28-29; emphasis supplied.

<sup>47</sup> At oral argument, Citizens' counsel indicated that Andrew P. Hull would serve as one of its witnesses. App. Tr. 33. Mr. Hull made a limited appearance statement in April 1982, in which his principal thesis was that the Commission's current emergency planning regulations "are excessive and lacking a technical basis from actual experience." See Tr. 971. That is, however, not a matter that the Licensing Board can consider in its determination of the adequacy of the substitute offsite emergency response plan. 10 C.F.R. § 2.758(a). If Mr. Hull's testimony on Citizens' behalf would lie in some other direction, the Licensing Board was not so informed.

Board to any testimony it might receive will be influenced by the consideration that it was presented by one party rather than another.<sup>48</sup>

D. This brings us to the fifth and final factor — that of the potential for delay. This factor, too, is of immense importance in the overall balancing process. *See, e.g., Greenwood, ALAB-476, supra, 7 NRC at 761-62; Virginia Electric and Power Co. (North Anna Station, Units 1 and 2), ALAB-289, 2 NRC 395, 400 (1975).*

Were it to be granted intervenor status, Citizens would of course have to take the proceeding as it finds it. *West Valley, CLI-75-4, note 36, supra, 1 NRC at 276.* At the same time, however, the other parties would be entitled to insist that the lateness of the intervention not work to their detriment. Among other things, those intervenors challenging the adequacy of the substitute offsite emergency response plan might not only insist upon discovery against Citizens, but also resist successfully any endeavor either (1) to shorten the time period for its accomplishment or (2) to compel them to conduct discovery while the evidentiary hearing is already in progress on facets of the offsite emergency response planning issues that Citizens does not wish to address.<sup>49</sup>

As matters now stand, the hearing is to start on December 5, 1983 — *i.e.*, in approximately two months. There is therefore, at minimum, the potential for some measure of delay should Citizens be admitted as a party at this late date. We repeat here what we said many years ago in affirming the denial of the tardy intervention petition in *North Anna, ALAB-289, supra:*

Even if the League [the late petitioner] were required to take the proceeding as it finds it, experience teaches that the admission of a new party just before a hearing starts is bound to confuse or complicate matters. And, even putting that to one side,

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<sup>48</sup> In the absence of intervenor status, Citizens would have no right to file proposed findings of fact and conclusions of law or to participate in any appellate proceedings. That, however, has no bearing upon the third factor, which is concerned with contributions to the *evidentiary* record. On the appellate level, of course, Citizens could seek leave to provide its unique "perspective" (*see* p. 393, *supra*) in an *amicus curiae* brief. *See* 10 C.F.R. § 2.715(d). (The Rules of Practice do not explicitly authorize *amicus curiae* filings with licensing boards and we do not decide here whether those boards nonetheless have the inherent power to accept such a filing if, in the board's judgment, it might aid the proper disposition of the proceeding.)

<sup>49</sup> *See* App. Tr. 102. Our dissenting colleague implies (*see* p. 409, *infra*) that any such resistance would necessarily be founded upon a desire to delay the proceeding. We think otherwise. An existing intervenor might have perfectly legitimate reasons for opposing the acceleration of discovery simply to accommodate an inexcusably late intervention petition. Similarly, that intervenor might well find its resources unduly strained if compelled to conduct discovery while the hearing was in progress.



delay can otherwise be avoided only if the parties adverse to the League forego important procedural rights, including the right to discovery. . . . It is scarcely equitable to give the League credit for not causing delay when that result could be achieved only because the circumstances would coerce other parties into waiving substantial rights.

2 NRC at 400 (footnote omitted).

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In sum, four of the five lateness factors weigh against Citizens' intervention. It accordingly follows that the Licensing Board justifiably denied the petition. Indeed, given the prior jurisprudence in this area, we think that any different outcome could have rested on no foundation other than the impermissible one that there is one test for untimely petitioners who would oppose the license application in contest and another, and more lenient, test for those who seek to support the application.<sup>50</sup>

The Licensing Board's July 28, 1983 order, LBP-83-42, 18 NRC 112, is *affirmed*.

It is so ORDERED.

#### FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

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<sup>50</sup> We do not imply that our dissenting colleague is advocating the adoption of any such double standard. It is clear from his opinion that he is not; *i.e.*, that he would have applied the five lateness factors in the same way had Citizens sought to intervene in opposition to Shoreham. Our difficulty with his suggested outcome of this appeal is that the factors have been misapplied by him.

The basis for that belief should be evident from what has been said in this opinion. We therefore do not extend its length still further by undertaking a point-by-point response to the dissent. Rather, we confine ourselves to one general observation. Permeating Mr. Edles' entire analysis of the lateness factors appears to be the premise that allowing those residing in the neighborhood of a nuclear facility to be directly involved in any adjudication concerning that facility far transcends in importance all other considerations. Our acceptance of that premise would be untenable. Apart from making a mockery of the intervention petition deadline that is included in *every* notice of hearing or opportunity for hearing, it would require the at least implicit overruling of the long line of precedents respecting late intervention. For, in marked contrast to the dissent's approach, no prior Commission or Appeal Board decision has strained to find justification for permitting one to enter a proceeding many years after it commenced and on the virtual eve of its concluding chapter. To the contrary, as even a cursory examination of the decisions cited in the Appendix, *infra*, will reflect, endeavors to achieve such a result have been viewed in a most unsympathetic light.

## Opinion of Mr. Edles, dissenting

This case is the first one in which the Commission will be called upon to decide whether a plant should be licensed in the absence of local government participation in the offsite emergency plan. Citizens for an Orderly Energy Policy, Inc. (Citizens), which is an organization made up of individuals who live near the Shoreham plant, some of whom work at the Brookhaven National Laboratory, seeks an opportunity to be heard on that novel issue.

The Licensing Board and my colleagues would keep Citizens out of the case because its petition is tardy, it has supposedly failed to set forth with satisfactory precision exactly who will testify and what they will testify about, and its involvement at this stage may give existing parties an opportunity to delay the proceeding. I think the petitioner has shown that it is likely to make a valuable contribution to the development of the record, with little delay in completion of the proceeding. I also think we know full well exactly what matters it is going to raise. Finally, I do not believe either that the petition is inexcusably tardy or that the petitioner's position can be adequately represented by the applicant. Thus, in weighing and balancing the five lateness factors, I would exercise our discretion and allow Citizens to participate.<sup>1</sup>

The case law granting or denying late intervention petitions demonstrates that all five factors must be evaluated but that the contribution an intervenor is likely to make to the record and the delay likely to be caused by late intervention are the most significant. I turn to these first.

### I.

Citizens can be expected to make a valuable contribution to the record in this case. Given the unique nature of the issues in this case, moreover, its interest cannot be properly represented by the applicant. These matters are interrelated and must be considered together.

The Licensing Board found that Citizens' statements concerning its ability to make a contribution were "vague and insufficient" and that, as

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<sup>1</sup> I agree with the majority that the five Section 2.714(a) factors are to be applied in the same manner in the evaluation of all tardy petitions, irrespective of whether the petitioner favors or opposes the licensing of a facility. I also recognize that neither this Board nor the Commission has been readily disposed to substitute its judgment for that of a licensing board insofar as the balancing of the five factors is concerned. I nonetheless believe that we have an obligation to take a somewhat closer look at a licensing board decision that has the effect of completely depriving individuals or groups of an opportunity to participate in Commission proceedings. Cf. 10 C.F.R. § 2.714a, which permits immediate appellate review of licensing board orders denying a petition to intervene or a request for hearing in its entirety.

a consequence, it had failed to establish that its intervention could be expected to assist in developing a sound record.<sup>2</sup> My colleagues are of the same view. In my judgment, the petitioner has established to a sufficient degree that it can contribute to the development of the issues it seeks to litigate.

According to the petition to intervene, most of Citizens' members have experience in the field of nuclear power. Some of its members, in fact, work professionally in radiological emergency planning, including having participated in emergency planning drills in the northeastern United States and serving as members of federal radiological emergency response teams.<sup>3</sup> Such expertise in the area of nuclear technology appears to be precisely the type of informational foundation upon which the Chicago Section of the American Nuclear Society was permitted to intervene on a discretionary basis following our remand in the *Sheffield* case.<sup>4</sup> Moreover, the contentions of existing intervenors now admitted into litigation (45, 46, and 48 through 51)<sup>5</sup> deal generally with accident and dose assessment and projection, and specifically with the role of Brookhaven National Laboratory personnel in making and communicating those assessments and projections. Obviously the nuclear and health physicists who work at Brookhaven and are members of Citizens are likely to be knowledgeable and helpful participants on those matters:

Citizens' specific interest in developing these issues is clearly revealed in its filings. Its three proposed contentions make the following inter-related arguments. First, Suffolk County's existing civil defense plan can easily be modified to make it applicable to radiological emergencies. Citizens indicates that it will show, in this connection, that Suffolk County is wrong when it claims that no emergency plan can be developed. Second, an emergency response volunteer force is available on Long Island, including many qualified staff members of the Brookhaven National Laboratory. Citizens intends to show, in this regard, that the inference by Suffolk County officials that these volunteer units would fail to perform assigned emergency duties is unfounded. Third,

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<sup>2</sup> LBP-83-42, 18 NRC 119 (1983).

<sup>3</sup> Citizens' Petition (June 14, 1982) at 8.

<sup>4</sup> See Licensing Board Order Granting Further Request for Leave to Intervene as a Matter of Discretion by the Chicago Section, American Nuclear Society (June 20, 1978) (unpublished), cited in *Nuclear Engineering Co. (Sheffield, Illinois, Low-Level Radioactive Waste Disposal Site)*, ALAB-494, 8 NRC 299, 300 n.1 (1978). See also *Public Service Co. of Oklahoma (Black Fox Station, Units 1 and 2)*, ALAB-397, 5 NRC 1143, 1148 (1977), *reconsideration denied*, ALAB-402, 5 NRC 1182 (1977), where we agreed with a licensing board that an individual possessing a PhD in nuclear engineering, several years experience as a reactor engineer, principally in naval service, and additional knowledge gained as an academic researcher in the field of reactor safety, could make a valuable contribution on the issue of whether a plant had sufficient structural integrity and safety redundancy to thwart a saboteur.

<sup>5</sup> See Licensing Board Special Prehearing Conference Order (August 19, 1983) at 19.

Citizens states that it will develop testimony and otherwise litigate the issue of LILCO's ability to rely on personnel from Brookhaven National Laboratory in case of emergency.<sup>6</sup>

We must also bear in mind that Citizens' members, in addition to being scientists, are local residents who are neighbors of the proposed Shoreham plant. In the usual case, governmental representatives participate in support of their own emergency plan and local residents routinely offer their conflicting views or perspectives. In the instant case, we are confronted with the opposite situation — a refusal by the local government to participate in emergency planning. I do not understand why the conflicting views or perspectives of local citizens are likely to be less helpful here.

Indeed, this case is a particularly compelling one for entertaining opposing citizen viewpoints. It appears that approximately 70 contentions or subcontentions have already been admitted for litigation.<sup>7</sup> Central to many of the issues raised by those contentions is the argument that the public will not accept LILCO standing in the shoes of local authorities in implementing an emergency plan. Contention 15, as admitted, is illustrative:

*Contention 15.* Intervenor contend that LILCO is not considered by the public to be a credible source of information. More than 60 percent of the people in Suffolk County would not trust LILCO officials at all to tell the truth about an accident . . . Persons are more likely to question, refuse to believe, disobey or ignore orders, recommendations, or information that come from persons whom they do not believe than that from authorities they trust and consider credible.

Because the public does not perceive LILCO as a credible source of information, protective action recommendations and other information disseminated by LILCO in an emergency will not be followed or believed by the public. Further, LILCO may be viewed hostilely as the source of the problem in the first place, or skeptically because the public will perceive that it is not in LILCO's financial interest to disclose all pertinent information. (Members of the public will perceive that LILCO will not disclose the seriousness of an accident due to fears of lower ratings in the financial markets, NRC sanctions, or a lower public image than already exists.) Therefore, people will be likely to disregard or disobey protective action recommendations or other emergency instructions disseminated by LILCO during an emergency. Intervenor thus contend that the LILCO Plan cannot and will not be implemented, and accordingly, there can be no finding of compliance with 10 CFR Section 50.47. . . .<sup>8</sup>

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<sup>6</sup> See Draft Contentions Submitted by the Citizens for an Orderly Energy Policy, Inc. (June 22, 1983). Citizens originally proposed five contentions. It indicated at oral argument that it would abandon two of them. See App. Tr. 33.

<sup>7</sup> See Special Prehearing Conference Order, note 5 (of dissenting opinion), *supra*.

<sup>8</sup> See Revised Emergency Planning Contentions (filed jointly by all intervenors) (July 26, 1983) at 19-20 and Special Prehearing Conference Order, note 5 (of dissenting opinion), *supra*, at 6.

Citizens' members, as local residents, can be expected to offer a viewpoint on this type of issue, and ask questions on cross-examination designed to elicit information, that would not likely be forthcoming in precisely the same fashion in the absence of their participation.

Local community and governmental advocates addressing one side of a novel and controversial issue have been permitted to intervene in this case, one as recently as March of this year. I would certainly think the record will benefit from participation by community members representing the other side. Given the fundamental thesis of many of the issues the opposing intervenors specifically seek to litigate, the participation of local residents at the hearing under the sponsorship of the applicant simply cannot serve as an effective substitute for their independent representation.

Finally, as the majority notes, some of Citizens' members were also members of Suffolk Scientists for Cleaner Power and Safer Environment, which intervened in the construction phase of this case — a matter unfortunately not brought to the Licensing Board's attention and, thus, not considered by it, but of which we may obviously take notice.<sup>9</sup> Suffolk Scientists attended the earlier sessions, presented evidence, conducted cross-examination, and was commended by the Licensing Board in the earlier proceeding "for the diligence . . . [it] displayed in pleading . . . [its case.]"<sup>10</sup> Although the two organizations are not identical, Citizens' members have a track record that lends additional support to their claim that they are likely to make a serious contribution to the development of the record.

## II.

Admission of Citizens to the case is not likely to broaden the issues or delay the proceeding appreciably. To begin with, neither the Licensing Board nor my colleagues find that a grant of Citizens' participation would broaden the issues, and clearly it will not. The Licensing Board did find, however, that Citizens' intervention could cause delay, and my colleagues agree. I disagree with the approach the Licensing Board and the majority take regarding the factor of delay. I also disagree with the inferences they draw from the facts.

<sup>9</sup> Dr. Vance L. Sailor, for example, is a member of Citizens and was chairman of Suffolk Scientists.

<sup>10</sup> *Long Island Lighting Co. (Shoreham Nuclear Power Station)*, LBP-73-13, 6 AEC 271, 274-75, 306 (1973).

As a threshold matter, I am uncomfortable with the majority's apparent conclusion that Citizens' burden is a particularly heavy one in the context of this case. Citizens is, even by the majority's reckoning, only four months late. Moreover, Citizens sought to intervene before emergency planning contentions had been filed. As we pointed out in our *Greenwood* decision:

Manifestly, the later the petition, the greater the *potential* that the petitioner's participation will drag out the proceeding.<sup>11</sup> (emphasis added)

In other words, time lag is important only insofar as it increases the likelihood of delay. To the degree that my colleagues appear to attach independent significance to the length of time by which Citizens' petition is late without regard to the impact of that tardiness on the current posture of the case, their approach is inconsistent with *Greenwood*.<sup>12</sup>

In my view, there must be some individualized application of the potential for delay to the facts of the case at hand. On the facts before us, it is highly unlikely that significant delay will occur. To begin with, as even the staff acknowledges, Citizens has no incentive for delay.<sup>13</sup> In any event, Citizens is obliged to accommodate the needs of other parties in order to expedite the case. Furthermore, the emergency planning phase of the case is still at a relatively early stage. When Citizens originally filed its request, only informal discovery was taking place. The intervention petition was filed before the deadline for submitting contentions concerning offsite emergency planning, and *Citizens' proposed contentions were submitted at the same time as all other contentions*. The pendency of this appeal has necessarily delayed entry of Citizens into the case but discovery is still in progress and will not be completed until

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<sup>11</sup> LBP-83-42, 18 NRC 120, quoting *Detroit Edison Co.* (*Greenwood Energy Center, Units 2 and 3*), ALAB-476, 7 NRC 759, 762 (1978).

<sup>12</sup> The majority, purportedly by way of dictum, alludes to the fact that Citizens had a "stake in the outcome" of the proceeding as early as 1976, see p. 398, *supra*, so that the Suffolk County announcement "simply added a new dimension to the emergency planning issue that had long been an ingredient of the proceeding that commenced in 1976." See p. 397, *supra*. They also refer to Citizens' request as seeking to "enter a proceeding many years after it commenced. . . ." See note 50, *supra*. If the majority is implying that Citizens' burden of gaining entry is greater because it had a cognizable interest in the outcome of the case as early as 1976 requiring it to seek to intervene at that stage, I disagree. The 1976 date is irrelevant to determining good cause. As the Commission recently observed, "recent events may be a key factor in establishing 'good cause,'" *Metropolitan Edison Co.* (*Three Mile Island Nuclear Station, Unit No. 1*), CLI-83-25, 18 NRC 329, 332 (1983), and the Licensing Board quite properly considered Citizens' request in the context of the *Catawba* decisions dealing with the formulation of contentions based on newly discovered information. *Duke Power Co.* (*Catawba Nuclear Station, Units 1 and 2*), ALAB-687, 16 NRC 460 (1982), *rev'd in part*, CLI-83-19, 17 NRC 1041 (1983). This is not a situation where a litigant "slept on its rights." Citizens could not have reasonably foreseen in 1976 that the special facts it now seeks to litigate would have arisen during the course of the case.

<sup>13</sup> NRC Staff Brief in Opposition to Citizens' Appeal (August 24, 1983) at 11.

October 14. The hearing will not begin until December 5<sup>14</sup> and Citizens has agreed to comply with all procedural time limits.

A second prong of my colleagues' argument regarding delay is that Citizens' introduction into the case at this stage might trigger requests for discovery by other parties. I agree fully that Citizens' participation would inject the possibility — although not the inevitability — that some delay may occur.<sup>15</sup> I am not prepared to assume, however, either that existing parties would use the fact of Citizens' late intervention as an excuse to engage in dilatory tactics or that the Licensing Board would prove incapable of controlling inexcusable or unnecessary delay. I also think that it is a bad precedent to suggest that we accord existing parties a *de facto* veto right over late intervention requests based on the specter that they will utilize the fact of such intervention as an excuse for delay.

In any event, I have no reason to believe that any delay will be significant. Citizens seeks to litigate only three contentions and will apparently present only two witnesses. Some additional discovery of these witnesses may be required but there has been no demonstration that such discovery need be disruptive. There are already six participants involved in the case, litigating 70 contentions or subcontentions, and the staff indicates that "the hearing is already anticipated to be a very long one."<sup>16</sup> In my judgment, any incremental delay associated with Citizens' participation is likely to be slight. Indeed, the applicant, which has the most to lose in the event of untoward delay, seems prepared to accommodate any extension that may ensue as a result of Citizens' intervention.<sup>17</sup>

### III.

Citizens' failure to intervene earlier does not warrant a denial of its petition in light of the important public benefits likely to accrue from intervention. To be sure, the original *Federal Register* notice in this proceeding required the filing of intervention requests in 1976. At that time, however, NRC approval of state or local emergency plans was not

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<sup>14</sup> See Revised Special Prehearing Conference Order of August 30, 1983, at 2-3 (unpublished).

<sup>15</sup> At oral argument, LILCO's counsel suggested that over the course of this proceeding discovery has gone on while hearings were also being conducted. App. Tr. 102. Such an approach might be successful if discovery of Citizens' witnesses is desired.

<sup>16</sup> NRC Staff Brief at 11.

<sup>17</sup> The Licensing Board found that there were no other means by which Citizens could protect its interest but accorded little weight to this factor in the balancing process. It also found that Citizens had failed to establish that LILCO could not represent its interests, a finding with which I disagree. To the extent these factors are considered in the balance, they weigh in favor of intervention.

a condition of nuclear power plant licensing. It was only in July of 1979, in the wake of the accident at Three Mile Island, that the Commission even began to examine the need for emergency plans as a condition for issuing a license.<sup>18</sup> The first set of regulations establishing mandatory emergency planning requirements became effective on November 3, 1980.<sup>19</sup> It seems clear, therefore, that a request to intervene to address such new emergency planning issues would not have been rejected as late had it been submitted in 1980.

Moreover, as my colleagues concede for decisional purposes, the ramifications of the emergency planning issues in this case changed dramatically with Suffolk County's announcement in February of this year that it no longer intended to support the emergency plan.<sup>20</sup> Thus, just like the Licensing Board, they start the clock running in February 1983, for the purpose of determining "good cause," and find that Citizens is essentially only four months late.

I am not convinced that February 1983 is the proper starting point for considering whether Citizens has established good cause for filing late. The filing of Suffolk County's motion genuinely called into question whether or not any hearing on emergency planning issues was even likely to take place. The Licensing Board ruled on the motion on April 20, 1983, concluding that the case could proceed in the absence of a governmentally-approved emergency plan. The Board nevertheless recognized that the issue was a novel one and that the Commission's regulations and underlying legislation might dictate an opposite result. Accordingly, it referred the matter to the Appeal Board, and Chairman Rosenthal, acting in his capacity as chairman of the Panel, referred it directly to the Commission for disposition.<sup>21</sup> The Commission decided, on May 12, 1983, that the case could go forward, and LILCO submitted its alternate emergency plan on May 26. Citizens' petition was filed on June 14. Plainly questions regarding whether or not a hearing would be held were not resolved until the Commission's May 12 decision, and Citizens could not reasonably have been expected to take a position for or against the adequacy of the applicant's plan until some time after it was first made available for public review on May 26. In my judgment,

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<sup>18</sup> See 44 Fed. Reg. 41,483 (1979). The July 17, 1979 issuance was an advance notice of proposed rulemaking which asked such fundamental and threshold questions as "What should be the basic objectives of emergency planning . . . To what extent should these objectives be quantified . . . (and) What constitutes an effective emergency response plan for State and local agencies. . .?"

<sup>19</sup> See 45 Fed. Reg. 55,402 (1980).

<sup>20</sup> See p. 398, *supra*.

<sup>21</sup> See LBP-83-21, 17 NRC 593 (1983) and Appeal Panel Chairman's Order of April 26, 1983 (unpublished).



Citizens' petition to intervene was tendered with the requisite degree of promptness.

#### IV.

One additional matter tilts the balance in favor of intervention in this case. My colleagues decline specifically either to address Citizens' right to intervene in this proceeding or to determine whether intervention is warranted as a matter of discretion. They believe the case can be decided on the independent issue of lateness.

I view this matter somewhat differently. I agree with my colleagues that issues not necessary to decisions ordinarily should not be reached on appeal.<sup>22</sup> In the instant case, however, my conclusion that Citizens should be allowed to intervene late is colored by a judgment that they should be permitted to participate either because they have standing or, if not, as an exercise of administrative discretion. In other words, if I were convinced that Citizens should not be allowed to intervene, I would be more willing simply to join with my colleagues in dismissing Citizens' petition as late. (This may also be an implicit factor in the majority's decision. In any event, I find it difficult to divorce the two issues.) As a result, and unlike my colleagues, I must set out a few brief observations on the issue of standing and discretionary intervention.

Generally speaking, the Commission applies the test of standing enunciated by the courts.<sup>23</sup> The Commission's precedent has evolved essentially in the context of individuals or groups opposing applications.<sup>24</sup> As far as I am aware, we have been called upon only once — in the *Sheffield* case — to address the question of the standing of a group seeking to support an application. Our opinion in that case indicated that the same test should be applied whether prospective intervenors support or oppose the grant. Although I find it unnecessary to decide whether or not Citizens has standing to intervene, it seems to me that the facially neutral principle announced in *Sheffield* may have the practical effect of routinely excluding one segment of the public, *i.e.*, individuals or groups

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<sup>22</sup> See the majority opinion in *Armed Forces Radiobiology Research Institute (Cobalt-60 Storage Facility)*, ALAB-682, 16 NRC 150, 155 (1982), in which I joined, and my separate opinion in *Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit No. 1)*, ALAB-698, 16 NRC 1290, 1323 (1982), *rev'd*, CLI-83-22, 18 NRC 299 (1983).

<sup>23</sup> *Portland General Electric Co. (Pebble Springs Nuclear Plant, Units 1 and 2)*, CLI-76-27, 4 NRC 610 (1976).

<sup>24</sup> See, *e.g.*, *Ten Applications for Low-Enriched Uranium Exports to EURATOM Member Nations*, CLI-77-24, 6 NRC 525, 529 (1977); *Allied-General Nuclear Services (Barnwell Fuel Receiving and Storage Station)*, ALAB-328, 3 NRC 420 (1976); *Long Island Lighting Co. (Jamesport Nuclear Power Station, Units 1 and 2)*, ALAB-292, 2 NRC 631 (1975).

favoring the grant of applications, from presenting their views on health or safety matters unless we adopt a hospitable attitude toward intervention as a matter of administrative discretion.

Strict application of the judicial standards to administrative proceedings is not required by statute or the Constitution.<sup>25</sup> The approach has been used by the Commission for somewhat the same reason that it has been employed by the courts, *i.e.*, to guarantee that the decisional process "benefits from the concrete adverseness brought to a proceeding by a party who may suffer injury in fact by Commission licensing action . . . ." <sup>26</sup> Moreover, the standing test as applied by the courts is calculated in part to ensure that the federal judiciary will not become a forum for deciding "abstract questions of wide public significance . . . [where] other governmental institutions may be more competent to address the questions and . . . judicial intervention may be unnecessary to protect individual rights."<sup>27</sup> In considering the related questions of standing and discretionary intervention, we should not overlook those underlying purposes.

It is clear that Citizens is in the right forum and does not seek to litigate an abstract question. Its interests cannot be protected elsewhere. It seems to me, therefore, that the purposes of the Commission's standing precedent will be better served by grant of Citizens' petition than by denial.

## V.

In retrospect, it might have been preferable had Citizens sought to enter the proceeding at the time Suffolk County filed its motion. In its brief Citizens suggests that it did not seek to intervene at that time because it was unclear whether or not any hearing on the license application would in fact take place.<sup>28</sup> We have held that it is primarily an intervenor's contribution to the evidentiary record, rather than its views on legal issues, that are determinative when considering petitions to intervene late.<sup>29</sup> The issues before the Licensing Board and the Commission in connection with Suffolk County's motion were purely legal. It was not

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<sup>25</sup> See *Koniag, Inc., Village of Uyak v. Andrus*, 580 F.2d 601 (D.C. Cir.), *cert. denied*, 493 U.S. 1052 (1978); *Pebble Springs*, note 23 (dissenting opinion), *supra*, 4 NRC at 613.

<sup>26</sup> *Pebble Springs*, note 23 (dissenting opinion), *supra*, 4 NRC at 613.

<sup>27</sup> *Warth v. Seldin*, 422 U.S. 490, 500 (1975).

<sup>28</sup> Citizens' Brief at 5.

<sup>29</sup> *Houston Lighting and Power Co. (Allens Creek Nuclear Generating Station, Unit 1)*, ALAB-671, 15 NRC 508, 513 n.14 (1982).

entirely unreasonable, therefore, for Citizens to have awaited the outcome of the Commission's deliberations, and the filing of the LILCO plan, before seeking to participate in the case.

In any event, the failure even to establish good cause for late intervention does not foreclose the possibility of intervention altogether.<sup>30</sup> Given my view that Citizens can be expected to participate constructively in developing the record on a unique issue of first impression, and can do so with only minimal delay, I would, on balance, grant the petition to intervene.

## APPENDIX

*Appellate decisions on licensing board action granting or denying late-filed petitions for leave to intervene under 10 C.F.R. § 2.714(a)*

- A. Decisions in which an appeal board or the Commission *affirmed* a licensing board's *denial* of a late-filed petition to intervene:
1. *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-707, 16 NRC 1760 (1982).
  2. *Mississippi Power & Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725 (1982).
  3. *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-671, 15 NRC 508 (1982).
  4. *Puget Sound Power and Light Co.* (Skagit Nuclear Power Project, Units 1 and 2), ALAB-559, 10 NRC 162 (1979), *vacated as moot*, CLI-80-34, 12 NRC 407 (1980).
  5. *Carolina Power and Light Co.* (Shearon Harris Nuclear Power Plant, Units 1-4), ALAB-526, 9 NRC 122 (1979).
  6. *Duke Power Co.* (Perkins Nuclear Station, Units 1, 2 and 3), ALAB-431, 6 NRC 460 (1977).
  7. *Duke Power Co.* (Cherokee Nuclear Station, Units 1, 2 and 3), ALAB-440, 6 NRC 642 (1977).
  8. *Tennessee Valley Authority* (Browns Ferry Units 1 and 2), ALAB-341, 4 NRC 95 (1976).
  9. *Project Management Corp.* (Clinch River Breeder Reactor Plant), ALAB-354, 4 NRC 383 (1976).

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<sup>30</sup> *Nuclear Fuel Services, Inc.* (West Valley Reprocessing Plant), CLI-75-4, 1 NRC 273 (1975); *Virginia Electric and Power Co.* (North Anna Station, Units 1 and 2), ALAB-289, 2 NRC 395, 398 (1975).

10. *Long Island Lighting Co.* (Jamesport Nuclear Power Station, Units 1 and 2), ALAB-292, 2 NRC 631 (1975).
  11. *Virginia Electric and Power Co.* (North Anna Station, Units 1 and 2), ALAB-289, 2 NRC 395 (1975).
  12. *Boston Edison Co.* (Pilgrim Nuclear Generating Station, Unit 2), ALAB-238, 8 AEC 656 (1974).
  13. *Duquesne Light Co.* (Beaver Valley Power Station, Unit 2), ALAB-208, 7 AEC 959 (1974).
  14. *Iowa Electric Light & Power Co.* (Duane Arnold Energy Center), ALAB-108, 6 AEC 195 (1973).
- B. Decision in which an appeal board or the Commission *reversed* a licensing board's *denial* of a late-filed petition to intervene:
1. *Nuclear Fuel Services, Inc.* (West Valley Reprocessing Plant), CLI-75-4, 1 NRC 273 (1975).
- C. Decisions in which an appeal board or the Commission *affirmed* a licensing board's *granting* of a late-filed petition to intervene:
1. *Detroit Edison Co.* (Greenwood Energy Center, Units 2 and 3), ALAB-476, 7 NRC 759 (1978).
  2. *Florida Power & Light Co.* (St. Lucie Nuclear Power Plant, Unit No. 2), ALAB-420, 6 NRC 8 (1977), *aff'd*, CLI-78-12, 7 NRC 939 (1978).
  3. *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), ALAB-342, 4 NRC 98 (1976).
  4. *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-339, 4 NRC 20 (1976).
  5. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-223, 8 AEC 241 (1974).
- D. Decisions in which an appeal board or the Commission *reversed* a licensing board's *granting* of a late-filed petition to intervene:
1. *South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), ALAB-642, 13 NRC 881 (1981).
  2. *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 2), ALAB-384, 5 NRC 612 (1977).

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

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

**In the Matter of**

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

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

**September 1, 1983**

Intervenor's motion to reopen the record on a portion of a contention, after findings had been required to be filed on that portion, is denied as untimely. The Board further decides that it will not reopen the record itself, in the interest of compiling a complete record, because intervenor had not persuaded it that the material raises a serious safety matter that would not otherwise be considered.

In a separate matter, a motion to strike non-record material is denied because the Board may ignore materials that are not in the record and nothing is gained by striking those materials.

**RULES OF PRACTICE: MOTION TO REOPEN**

When findings have been required concerning an aspect of an admitted contention, a motion to reopen may be granted only if it is timely

and raises an issue of substance. The Board may take up late matters itself, but it must first be persuaded that they are essential to the determination of an important safety issue.

#### **RULES OF PRACTICE: MOTION TO REOPEN**

Unexpected events in the course of a hearing do not provide grounds for late-filing documents two months after the close of the hearing.

#### **RULES OF PRACTICE: MOTION TO STRIKE**

Extra-record materials need not be struck from the Board's files, as the Board may merely ignore those materials in reaching its decision.

### **MEMORANDUM AND ORDER** **(Motions to Reopen the Record and to Strike)**

Citizens Association for Sound Energy (CASE) has requested that we permit it to supplement the record in regard to Walsh/Doyle allegations.<sup>1</sup> Because we have already required the parties to file findings of fact and conclusions of law on this subject, which has been fully heard in an evidentiary hearing, we consider this motion to be in the nature of a motion to reopen the record. Furthermore, with the exception of a few matters of which we may take cognizance whether or not they are part of the evidentiary record, we have decided to deny CASE's request.

Texas Utilities Generating Company, *et al.* (applicant) has requested that we strike CASE's "extra-record" submittals.<sup>2</sup> We have decided to deny this motion, believing that we have already expressed our views on this general subject in LBP-83-48, 17 NRC 236 (1983), in which we admonished CASE to present materials to us in an orderly fashion and not in dribs and drabs.<sup>3</sup>

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<sup>1</sup> Motion of 8/23/83 (hereinafter Motion to Reopen).

<sup>2</sup> Applicants' Motion to Strike Intervenor's Extra-Record Submittals (August 12, 1983).

<sup>3</sup> Despite language in LBP-83-48 that could be interpreted to the contrary, parties have an obligation to inform us of significant developments that are relevant to the case.

## I. MOTION TO REOPEN THE RECORD

When a party moves to reopen the record on an issue that is part of an ongoing proceeding, it must demonstrate that its motion is timely and that it raises an issue of substance.<sup>4</sup> In this instance, CASE has demonstrated — through its candor — that portions of its motion are not timely. Much of the material it now seeks to introduce was in its possession during the hearing that terminated two months ago.<sup>5</sup> CASE claims that the method of procedure at that hearing was confusing to it, and the Board is concerned that CASE was not represented by a lawyer and that there may be some validity to this assertion.<sup>6</sup> However, if CASE had important material to introduce it should have been able to inform the Board at some time during the trial (even if not at the appropriate time) and we would have let it take things out of order; or CASE should have discovered its need for this material in the week immediately following trial, when beginning to prepare its findings pursuant to the directions of the Board.

We have been impressed by CASE's diligence, acting as volunteers without pay, in pursuing its case. However, there simply is no acceptable excuse for waiting this long. Indeed, the passage of time, during which this material slipped from CASE's minds, detracts from CASE's claim that this material is essential to its case.

The standard governing reopening of the record is an important one. Hearings must not be open-ended. Even in cases as important as this one, there must be some point at which a hearing has an end. Furthermore, there must be a strong incentive for a party to raise all important matters at a hearing so that they may be subject to cross-examination and rebuttal and to clarifying questions from the Board. Parties must also be able to prepare their findings with a common understanding of the evidentiary record.

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<sup>4</sup> *Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Unit 2), ALAB-86, 5 AEC 376 (1972); *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), LBP-83-52, 17 NRC 256 (1983); see also *Consumers Power Co.* (Midland Plant, Units 1 and 2), LBP-83-50, 17 NRC 242, 248 (1983).

<sup>5</sup> Motion to Reopen at 2.

<sup>6</sup> It often happens that a trial unfolds in an unforeseeable fashion, requiring trial counsel to be flexible. In this instance, CASE was not represented by counsel and what occurred was less foreseeable than is generally the case. At Tr. 6476 ff., the Board decided to expedite cross-examination by asking Mr. Walsh, CASE's technical interrogator, to explain his concerns to the Board so that it could assist him or ask the questions itself. (The Board explained that if Mr. Walsh thought *surprise* essential to any part of his interrogation, he should explain that and would be permitted to proceed by himself.) The reason for this unusual procedure, which the Board requested comments on and to which no party objected (Tr. 6477), was that intervenors had made highly inefficient use of documents in cross-examination the day before and the Board was determined to get at the truth in a more expeditious fashion. (See also Tr. 6486-89 for an example of how this worked.)

In nuclear plant licensing cases, there is an exception to the standards for reopening, but we must be cautious lest the exception become an open gate. This exception arises because of the responsibility of the Licensing Board to see that the record is complete. However, the Board must be persuaded that a serious safety matter is at stake before it is appropriate for it to require supplementation of the record.<sup>7</sup> In no instance has CASE persuaded us that the material it seeks to introduce has raised a serious safety matter that would not be adequately considered unless the material were admitted into our record.

CASE's failure to persuade the Board that these new matters are serious also is a reason why newly discovered information that is part of CASE's filing may not now be admitted in our record. CASE has not demonstrated that these new matters are issues of substance.

On the other hand, CASE's filing indicates that it may have some misunderstanding about what need be in the evidentiary record. In particular, it is not necessary for legal materials — including the Standard Review Plan, Regulatory Guides, documents constituting staff guidance, and industry code sections applicable to Comanche Peak — to be in the evidentiary record. These are the materials that the Board must use to interpret the facts properly. Past practice of the Appeal Board indicates that it looks at such materials even if they were not considered by the Licensing Board, so there is no point in our providing a stricter standard of "proof" at the trial level.<sup>8</sup> Furthermore, there is no unfairness to applicant or staff in allowing the introduction of legal standards, as these parties are required to apply these standards and should be familiar with them.

Another possible misunderstanding CASE may be under is that matters of common knowledge need not be demonstrated by proof. For example, CASE would not have to prove the laws of multiplication or Boyle's Law. On the other hand, many matters appearing in textbooks are not matters of common knowledge. If, for example, our record contains contrary expert opinion, or if another party introduces a contrary citation to a textbook or article, this commonsense exception to the need to prove matters does not come into play.

Some of the materials CASE has filed are regulatory materials, and we will consider those. Textbooks and studies that were not properly intro-

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<sup>7</sup> In *Perry*, note 4, *supra*, at 17 NRC 258, the Board stated that "[w]hen new information is submitted to this Licensing Board, we have the responsibility to review the information and decide whether it casts sufficient doubt on the safety of Perry so that its inferences must be logically and reasonably addressed and resolved." (Emphasis added.)

<sup>8</sup> See, e.g., *Consumers Power Co. (Big Rock Point Nuclear Plant)*, ALAB-725, 17 NRC 562, 567-68 (1983).



duced into evidence will not, however, ordinarily be considered. We will consider such materials only if our review of them, in light of the entire record (including applicant's rebuttal), persuades us that the matter being proved is a matter of common knowledge.

## II. MOTION TO STRIKE

Applicant's Motion to Strike leans heavily on the following language of this Board, under its previous Chairman:

This Board is presiding over an adjudicatory trial-type hearing and intends to manage these proceedings fairly and efficiently. It does not propose to allow itself to become distracted from the purposes of that hearing by prolix motions which are irrelevant to the issues and which are largely beyond the scope of the Board's function or jurisdiction.<sup>9</sup>

We agree with this statement but come to the opposite administrative conclusion concerning the need to strike filings from our record. (We do not consider ourselves bound by decisions of a prior Board Chairman concerning matters that are administrative in nature.) We will not be distracted from the purposes of the hearing. However, a licensing board is not intended to be cloistered. We read newspapers and magazines. We receive and read NUREGs and studies. We receive notifications from parties regarding significant events. We appear at Limited Appearance Statements. We receive unsolicited mail from the public.

Under these circumstances, we do not think that anything is gained from "striking" from the record. Indeed, we prefer to retain whatever we have received so that we will have complete records.

This decision does not, however, comprise a retreat from our decision of August 15, 1983, that we will not grant a motion to supplement the record on a matter that is not yet ripe for trial. We cling to the belief that parties have a responsibility to present an orderly case to this Board.<sup>10</sup> Furthermore, we agree with applicant that if a party is engaged in extra-record activities, this may count against it (although not always being determinative) in weighing whether or not to grant a motion for an extension of time.

We urge the parties to exercise self-restraint in making extra-record filings, but we will not grant applicant's Motion to Strike at this time.

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<sup>9</sup> Memorandum and Order (unpublished), March 1, 1983, at 4.

<sup>10</sup> LBP-83-48, 17 NRC 236 (1983).

## **ORDER**

For all the foregoing reasons and based on consideration of the entire record in this matter, it is, this 1st day of September 1983,

### **ORDERED**

1. Citizens Association for Sound Energy's Motion to Supplement the Record (in Regard to Walsh/Doyle Allegations) is denied, without prejudice to its relying on appropriate legal materials or on common knowledge.

2. Texas Utilities Generating Company, *et al.*'s Motion to Strike Intervenor's Extra-Record Submittals is denied.

**FOR THE ATOMIC SAFETY AND  
LICENSING BOARD**

**Peter B. Bloch, 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. A. Dixon Callihan  
Dr. Richard F. Foster**

**In the Matter of**

**Docket Nos. 50-413-OL  
50-414-OL  
(ASLBP No. 81-463-01-OL)**

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

**September 6, 1983**

The Licensing Board denies motions for summary disposition of a contention relating to safe operation of the spent fuel pool at the Catawba facility. The Board grants a related motion concerning the environmental effects of the spent fuel pool. The Board denies a motion for sanctions based merely upon one party's impermissibly narrow reading of a contention.

## **MEMORANDUM AND ORDER**

**(Ruling on Applicant and Staff Motions for Summary Disposition of Contentions 16 and 19 and on Palmetto Motion for Sanctions)**

### **I. MOTIONS FOR SUMMARY DISPOSITION OF CONTENTION 16**

Palmetto Alliance Contention 16 reads as follows:

Applicants have not demonstrated their ability safely to store irradiated fuel assemblies from other Duke nuclear facilities so as to provide reasonable assurance that those activities do not endanger the health and safety of the public.

On the basis of Palmetto Alliance's responses to interrogatories, Applicants' motion for summary disposition characterizes this contention as consisting of three parts (Motion at 1):

- A.1. The design of the Catawba enlarged pool has not adequately accommodated the expanded heat load;
- A.2. The potential for cask drop and fuel handling accidents is increased;
- A.3. The potential for aircraft crashes to threaten public health and safety is increased.

Relative to Part A.1, Applicants proffer "material facts to which there is no genuine issue to be heard." (Applicants' Motion II-B through H); relative to Part A.2, seven more material facts (II-I through O) are proffered; and relative to Part A.3, material facts II-P and II-Q are proffered. These submissions are supported by affidavits from Duke Power Company employees A.L. Snow, M.S. Tuckman, and M.C. Green.

The Staff's motion for summary disposition of Contention 16 focuses on three principal areas: (1) criticality; (2) the ability of the spent fuel pool cooling system to remove decay heat and to maintain adequate levels of water; and (3) the ability of Applicants to move spent fuel casks into and out of the spent fuel storage facility without causing damage either to the assemblies being moved or to assemblies in the spent fuel pool. The Staff also considered whether removal of spent fuel assemblies from the casks presented any safety concerns. The Staff "statement of material facts" includes 8 statements on the criticality area (5-12); 18 on the cooling system (13-30); and 8 on cask handling (31-38). Material Fact No. 39 deals with doses to workers, and No. 40

makes a legal conclusion. The Staff's submission is supported by affidavits from NRC employees A. Singh and K.N. Jabbour.

In its answer of August 5, 1983 Palmetto Alliance reiterates its concern about Duke Power Company's "Cascade Plan" for moving spent fuel from one station to another and poses general questions about the cooling capacity of the enlarged fuel storage area and the risks associated with the handling of large numbers of spent fuel casks arriving from other sites. Its general argument involves not only Contentions 16 and DES 19, but also several other contentions which this Board has already rejected. See LBP-82-16, 15 NRC 566 at 578-81; Memorandum and Order of February 25, 1983, LBP-83-8B, 17 NRC 291. We caution Palmetto Alliance against further attempts to reintroduce issues, such as the management and transport of spent fuel from other power stations, which are outside the scope of this proceeding.

More to the point, Palmetto Alliance has provided as a part of its answer to Contention 16 a list of material facts as to which they allege a genuine issue. We read these "material facts" as an attempt to controvert those of the Staff and Applicants, even though they are little more than assertions, unsupported by affidavits by experts. Indeed, Palmetto Alliance states that: "[It] employs no persons competent to testify either from personal knowledge or on the basis of expert opinion to the matters addressed in the affidavits of the employees of the NRC or Duke Power Company." (Affidavit of counsel for Palmetto Alliance at 2.)

Palmetto asks for a continuance to give it additional time to obtain affidavits to support its position. Palmetto states that it has found two experts, Dr. Marvin Resnikoff and Mr. Lindsay Audin, to perform the needed analysis. We deny this request for a continuance primarily because it is untimely. Palmetto has been on notice for many months that it would probably face a summary disposition motion on this highly technical contention, and that it had no technical expertise to support its position. Furthermore, the motions themselves — which Palmetto alleges contain new technical material — were served on July 8, almost a month before the continuance was finally requested on the same date that Palmetto's response to the motion was due. Beyond that, the continuance request is open-ended. We are not being asked for an additional week, or month, or for any specific period, but apparently for however long it may take to secure the desired affidavits.

In view of the fact that we are denying the motions for summary disposition in several respects as explained hereafter, it does not appear that Palmetto is being significantly disadvantaged by our denial of its continuance request. We hope that Palmetto will be able to obtain the

assistance of necessary experts in the presentation of its case on these technical contentions.

## **A. Adequacy of the Spent Fuel Pool Cooling System**

### **1. Under Normal and Maximum Heat Load Conditions**

The Staff affiants (§ 10) state that the pool water temperature can be maintained at less than 105°F with *two* cooling trains operating, assuming maximum heat load of  $39 \times 10^6$  Btu/per hour (emphasis added). This temperature is also maintained when storing Oconee and McGuire spent fuel. The "maximum" increase in heat load due to storing Oconee and McGuire fuel is less than 2%. It states further that the cooling system is designed to maintain a pool temperature below 150°F with a heat load of  $42.7 \times 10^6$  Btu/per hour.

Applicants' Material Fact C maintains that the spent fuel pool cooling system satisfies GDC 44 and 61; that the failure of *one* train will not compromise the design temperature under *normal* conditions; and that under *abnormal* conditions [maximum heat load?] consideration of failure of *either* train is inappropriate (emphasis added).

Palmetto Alliance questions how the inventory of spent fuel in the Catawba pool can be more than double that planned at the CP stage without increasing the effectiveness of the cooling system and how adding such a substantial amount of spent fuel from Oconee and McGuire only increases the heat load by 2%. (Material Facts 27, 28, 29 and pp. 10 and 11).

In view of the enigmatic statements of the Applicants and Staff relative to cooling capacity under various combinations of normal, maximum, and abnormal heat loads, with and without Oconee and McGuire spent fuel and with one or both cooling trains operating, we find that the evidence does not establish the absence of a genuine issue. The portions of the Applicants' and Staff's motions which concern the ability of the spent fuel pool cooling system to maintain the anticipated pool water temperature, with Oconee and McGuire fuel, at or below the Staff's acceptance criteria are denied.

### **2. Under Abnormal and Accident Conditions**

If the spent fuel pool cooling system should fail to perform its function, for whatever reason, the temperature of the pool water could rise above the acceptance criteria value (150°F) and might eventually boil. Applicants' affiant (M.C. Green at pp. 1 and 2) explains that the fuel pool liner will not rupture at 150°F and that the leak-tight integrity

of the liner system would be maintained at 210°F. He further states that if the liner plate did fail, calculations indicate a total outflow through all cracks of less than one-half gallon per day.

Palmetto Alliance (Material Facts 10, 11, and 12) controverts the Applicants' statement but offers no evidence or rationale for the opposite view. The Staff's motion does not address this matter.

Finding no basis for Palmetto Alliance's position we grant Applicants' motion in respect to the integrity of the pool liner and leakage from cracks in the structure.

The Staff's Material Fact No. 25 states that

Applicants' analysis of the consequences of failure of both cooling trains, assuming no makeup water is supplied and the maximum decay heat production rate, showed that it will take 72 hours before the fuel assemblies would be uncovered; this affords ample time under any foreseeable conditions to initiate makeup water replacement to maintain the water level in the pool.

Palmetto Alliance asserts that, in the event of an accident, the stored fuel assemblies will not remain covered for 72 hours (Material Fact 4), that 72 hours is not sufficient time to initiate corrective action (Material Fact 8), and that manually initiated sources cannot provide virtually unlimited makeup water for the pool (Material Fact 9).

The Applicants state that NRC recognizes that 72 hours is sufficient (Motion at 8, 9) and that the manually initiated makeup water supply sources can provide virtually unlimited makeup (A.L. Snow, ¶ 8).

However, as support for 72 hours being sufficient to take corrective action, Applicants cite 10 C.F.R. Part 50, Appendix R, II.L.5 and FSAR § 9.1.3.3.1. We read Appendix R to be associated with *fire protection*. Further, FSAR 9.1.3.3.1 states that "the fuel assembly would remain covered for the required 72 hours to *meet sabotage requirements*" (emphasis added). FSAR 9.1.3.3.1 goes on to read:

The time [72 hours] takes into account 26 gpm being removed from the pool for reactor coolant makeup and that the fuel pool boils after approximately 24 hours. The large heat capacity of the fuel pool and the slow heat up rate provide enough time for maintenance to assure adequate cooling for multiple component failures including the above, complete loss of cooling.

We find that a genuine dispute exists concerning the validity of the 72-hour time calculations and whether there will be sufficient time to take corrective action needed to prevent uncovering of the fuel assembly. This aspect of the Applicants' and Staff's motions is denied.

## **B. Criticality**

This area is not a distinct part of the Applicants' motion but is mentioned briefly in relation to the dropping of a spent fuel cask (M.C. Green, ¶¶ 8, 9, 10 and 11). As we read Mr. Green's affidavit, GDC 62 is satisfied because the dropping of a spent fuel cask onto spent fuel assembly cannot happen.

The Staff's motion treats the potential for criticality in much greater depth (Material Facts 5-12) but acknowledges that "the Staff did not perform any direct calculations of the reactivity of spent fuel storage arrangements within the racks but a comparison was made to the design of the spent fuel racks in other plants." The Staff also states that "the Applicants performed an analysis which showed that criticality will remain below 0.95 . . . for any configuration of the fuel storage in the Catawba pool that would involve fuel from McGuire or Oconee facilities." (Affidavit, ¶ 9).

Palmetto Alliance maintains that a  $k_{\text{eff}}$  of 0.95 or less does not provide an adequate margin to preclude criticality (Material Fact 20), and that the fuel storage arrangement at Catawba is not adequate to maintain an acceptable margin to criticality (Material Facts 22, 23, 24). They also challenge the Staff's use of comparative, rather than direct, calculations (Material Fact 21) and the Applicants' analysis of configurations involving fuel from McGuire and Oconee. Palmetto Alliance's assertions are not supported by affidavits of experts or other evidence.

Considering the unusual size of the expanded Catawba fuel storage facility, it is not self-evident that the reactivity of the spent fuel storage arrangement can be adequately assessed by a comparison to other plants rather than by a design-specific calculation. Further, the Staff does not indicate whether the Applicants' analysis of configurations of spent fuel from McGuire and Oconee received any independent review. Thus the evidence does not establish the absence of a genuine issue to be heard and the portion of the Staff's motion concerned with criticality is denied.

## **C. Cask Drop**

Applicants maintain that it is physically impossible for a cask to drop into the spent fuel pool (Motion at 10). This position, which relies heavily on mechanical stops to prevent the cask crane from being moved into the fuel pool area, is supported by the affidavit of M.C. Green (¶¶ 8-12 and FSAR 9.1.2.3).

The Staff's motion (Material Facts 31-38 and somewhat more lucidly the Affidavit at §§ 14-17) explains that the safe handling of heavy loads is assured by a two-phase approach. First, by a set of general guidelines



identified in NUREG-0612; and second, by requiring extra "features" where evaluation indicates that the potential consequences of a load drop could be "significant." The Staff affidavit at ¶ 16 states that "— the Applicant has committed to implement the measures in [affidavit] paragraph 15 above before receiving an operating license." Nevertheless, the Board infers from the obscure statement of Affidavit, ¶ 16 and SER § 9.1.5, that one or more issues posed in NUREG-0612 remain.

Palmetto Alliance denies the Applicants' claim that a cask drop accident is physically impossible (Material Facts at p. 20) and also asserts that a commitment by the Applicants to meet NRC requirements is not enough (Palmetto Alliance Material Facts 17 and 33). However, no supporting evidence is presented. Nor does Palmetto raise any significant questions about the Applicant and Staff position.

The Applicants and Staff have considered cask drop potential at length and are proceeding with NRC requirements that are specifically formulated to prevent such accidents. Although the implementation of the specific requirements is not yet complete, the Applicant has committed to accomplish this implementation before receiving an operating license. Such commitments about future performances are appropriate for many requirements in the operating license context, so long as there is a reasonable assurance that they will be met. Therefore, we find no genuine issue of material fact concerning the dropping of a cask into the spent fuel pool and this portion of the Applicants' and Staff's motion is granted.

#### **D. Fuel Handling**

Somewhat apart from the issue of dropping a cask into the spent fuel pool is the potential for mishandling of the cask (including the removal of the cask lid when shielding is inadequate, *i.e.*, the top of the cask protrudes above the water). Palmetto Alliance maintains that the Applicants' lack of experience and absence of written procedures, combined with the large number of casks expected to arrive from Oconee and McGuire, raise serious questions about the Applicants' ability to meet the GDC 61 requirement for suitable shielding for radiation protection. (Palmetto Alliance Material Facts, p. 16).

Applicants maintain that the procedures will be implemented, but they are not yet completed and will not be needed for some years. (Applicants' Motion at 12). The Staff merely states that the unshielded removal of the cask lid would be inconsistent with the Applicants' com-

mitment to assure that doses to workers are as low as reasonably achievable.<sup>1</sup>

None of the evidence presented by the parties is persuasive and the movants have not shown that there is no genuine issue as to any material fact. Consequently, we deny the part of the motion which relates to fuel handling.

### **E. External Threats**

The Applicants and the Staff believe that Palmetto Alliance expects to include external threats, such as aircraft crashes, within the scope of Contention 16. (Applicants' Motion at 14 and Staff's Motion at 3). Palmetto Alliance makes its intent abundantly clear with three pages of argument beginning on p. 20 of its Material Facts response.

As stated by both the Applicants (Motion at 14) and the Staff (Motion at 4), Intervenor sought to introduce this topic with its contentions on the DES (DES 16). That contention was rejected by this Board as untimely. It is not appropriate for Palmetto Alliance now to attempt to reintroduce that same subject by annexing it to a different contention that was accepted much earlier in this proceeding. We do not consider external threats such as aircraft crashes to be embraced within this contention which is concerned with the *activity* of storing irradiated fuel assemblies from other Duke nuclear facilities. We now specifically exclude external threats such as aircraft crashes from consideration in the contention.

We note in conclusion that the Applicants' decision to expand the spent fuel pool at Catawba was taken after the construction permit was issued. The expansion was accomplished without a formal construction permit amendment because the Applicants and Staff apparently believed that it did not involve a "significant hazards consideration" within the meaning of § 189a of the Atomic Energy Act. As a result, there has been no opportunity for public scrutiny of the expanded spent fuel pool in the licensing process. This provides an independent reason why seemingly significant safety issues concerning the pool should be explored at the hearing.

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<sup>1</sup> The Board notes that Contention 16 is concerned with the health and safety of the *public*. Workers are not mentioned. Since neither Applicants nor Staff have objected to the broadening of the scope to include occupational exposure, we do not disallow it.

## II. MOTION FOR SUMMARY DISPOSITION OF CONTENTION 19

Contention DES 19 is the remnant of a much broader contention originally filed by Palmetto Alliance in December of 1981 as Contention 15. The history of this contention, and rejection of all parts save that listed below, was set forth in our Memorandum and Order of February 25, 1983, 17 NRC at 295-96. The portion of DES 19 we finally admitted reads as follows:

Failure to evaluate the environmental costs of operation of Catawba as a storage facility for spent fuel from other Duke facilities compromises the validity of the favorable cost-benefit balance struck at the construction permit phase of this proceeding. Since the CP stage hearing, Duke Power has considerably expanded the Catawba spent fuel pool capacity and provided for denser storage of irradiated fuel. FSAR Table 1.2.2-1. Applicants intend to use Catawba for storage of irradiated fuel from the McGuire and Oconee nuclear facilities of Duke Power Company. FSAR 9.1.2.4; OL Application, pp. 11-12.

This Board recognized that the wording of DES 19 was rather general "due in part to the fact that the FES contains very little analysis of environmental impacts associated with the spent fuel pool." *Id.* at 295. We directed that the primary focus be on the environmental effects of routine releases during normal operation at Catawba. We noted that there would be "no reason to consider" environmental effects of severe accidents "unless it were first shown that severe accidents are credible in the spent fuel pool designed for Catawba." *Id.* at 296.

Now before us are motions for summary disposition of Contention DES 19 by the Applicants and Staff and a response to both motions from Palmetto Alliance. All parties discuss both routine releases and accidents. We treat these areas in that order.

### A. Routine Releases

Applicants listed six (C-H) material facts as to which there are no genuine issues to be heard relating to routine releases and support those facts with an eight-point affidavit from employee A.L. Snow. The Applicants' argument is to the effect that: (a) Intervenors failed to raise a general spent fuel pool contention; (b) they expressed their concern only about the transhipped fuel from both Oconee and McGuire; (c) since there is nothing different about the transhipped fuels, the environmental impact cannot be greater than that from a pool filled only with spent fuel from Catawba; (d) since there is no argument about filling the pool with Catawba spent fuel, there should be no concern about part

of the pool containing spent fuel from Oconee and McGuire. We reject this debate team approach and turn our attention instead to the potential for a significant increase in environmental costs as a consequence of there being a spent fuel pool of expanded size partially filled with fuel from the Oconee and McGuire stations.

The Staff's motion on this contention handles the potential for routine releases from the spent fuel storage facility (SFSF) and the environmental consequences in a clear and straightforward manner. Its motion lists 40 material facts as to which there is no genuine issue to be heard and, significantly, supports the motion with an affidavit of employees J.S. Boegli, E.F. Branagan, Jr. and R.J. Serbu, which is sixteen pages long. The subjects covered by the list of material facts and by the affidavit include: (a) reference to pertinent parts of the FES, (b) the nature and source of radioactive materials released from spent fuel assemblies stored in the pool, (c) the nature and quantity of radioactive material originating in the spent fuel storage facility which escapes to the offsite environment, (d) the doses to individuals and populations which result, (e) the doses to workers who handle the fuel, and (f) the nature and volume of the solid waste generated by the transhipped fuel.

Palmetto Alliance's answer to the motions for summary disposition of DES 19 provides a list of thirty-two material facts alleging a genuine issue to be heard. This list closely tracks that of the Staff and with minor exceptions simply states that the Staff fails to adequately demonstrate its point. While the Staff's facts are supported by its affidavit which goes on to explain key assumptions and makes reference to the computational methods used, Palmetto Alliance offers no basis at all for its list of material "facts." Indeed, Palmetto's list is nothing more than a *pro forma* denial. Under the summary disposition rule, such denials are to be given no effect. 10 C.F.R. § 2.749(b).

In view of the Staff's thorough presentation and Palmetto's failure to present any contrary evidence or even to suggest a significant issue, we find that there are no material facts as to which there is a genuine issue to be heard concerning routine releases (including solid waste) from the Catawba spent fuel pool.<sup>2</sup> The Staff's motion for summary disposition is granted.

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<sup>2</sup> This contention focuses on the *environmental costs* of the spent fuel pool. In this situation, we read "environmental costs" as primarily associated with radiation dose to people. The Staff estimates the dose to the total body of the population within a 50-mile radius of Catawba, due to the normal operation of the SFSF to be less than 0.1 man-rem per year. Affidavit, ¶ 18. In order to have an environmental cost of any significance, the dose to the population would need to be many times the estimated 0.1 man-rem. Consequently, we do not view the facts proffered in regard to the adequacy of predicting routine releases and the resulting dose as *material*, in the sense they would not likely affect the outcome of the litigation.

## B. Accidental Releases

The motions of both the Applicant and the Staff plead that Palmetto Alliance had not shown that a severe accident in the SFSF is credible (as conditioned by this Board's Order of February 25, 1983) and consequently severe accidents should be excluded from further consideration. Palmetto Alliance argues that it has raised a number of accident scenarios, and cites the accident portion of its rebuttal to summary disposition motions on Contention 15 as support. Absent the summary disposition presentation on Contention 16, we would have no prior showing at all about accidents, credible or otherwise, in relation to DES 19. Palmetto Alliance's subject pleading, which merely postulates accident types without further evidence or elaboration, does not show that any of them are credible.

Our rulings on the abnormal and accident portions of Contention 16 allowed the following aspects of that contention to be heard: (1) a 72-hour period for re-establishment of pool cooling, (2) criticality and (3) fuel handling. Should Palmetto Alliance prevail in the hearing on any of these admitted scenarios, we will then determine whether there is a need for further consideration under Contention 19 of the environmental effects of accidental releases associated with such scenarios. As to other possible accident scenarios under Contention 19, the Applicant and Staff motions for summary disposition are granted.

## C. Occupational Exposure

The Staff's motion for summary disposition of DES 19 includes the aspect of occupational exposure. (Material Facts 6, 33, 34, 35, 36, 37, 38 and Affidavit at 11-14). In response, Palmetto Alliance merely asserts that the Staff has failed to adequately demonstrate that occupational doses are properly characterized. (Material Facts 25, 26, 27 and 28).

The Staff's position is adequately supported by its affidavit and Palmetto Alliance presents no reasons at all for its contrary assertions. We grant the Staff's motion relative to the occupational exposure aspect of this contention.<sup>3</sup>

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<sup>3</sup> We find the inclusion of occupational exposure in this environmental costs contention surprising — the more so because of related Contention 16, *supra*, which includes the same subject and is more obviously dependent on GDC 61 and ALARA concepts. In any event, we will be hearing the fuel handling aspect of the subject as an accepted part of Contention 16.

#### **D. Staff's Affidavit**

As a part of its answer to the motion on DES 19, Palmetto Alliance complained that the Staff's affidavit is supplementary in nature and that Palmetto Alliance should be provided an opportunity to retain an expert to review it. (Material Facts on DES 19, at p. 12). Palmetto suggests further that this affidavit be published as a supplement to the FES and circulated for public comment. As we made clear in denying a similar continuance request (at p. 423, above), we have no intention of prolonging this proceeding by granting belated requests for open-ended continuances to enable any party to seek advice on technical matters that could have been sought in a timely fashion. However, we do agree that the subject affidavit is a welcome clarification of how the Staff arrived at the values and conclusions about the SFSF which they published in the FES. In order that the Staff's affidavit will be readily available in the public record, we are appending it to this Order for later publication.

### **III. PALMETTO ALLIANCE MOTION FOR SANCTIONS AGAINST DUKE POWER COMPANY**

By motion dated August 5, 1983, Palmetto Alliance has asked the Board to impose certain sanctions on the Applicants. In support of this request, Palmetto alleges that:

The Applicants have consistently attempted to mislead the Board by misrepresenting Palmetto Alliance's position on . . . contentions [16 and 19] in a way that abuses licensing process by obfuscating issues and hence diverting the energies of all the parties involved from the serious issues affecting the health and public safety.

Motion at 1-2. The specific example principally urged in support of this broad claim concerns the way in which the Applicants have characterized both the scope of Contention 16 and certain Palmetto positions in discovery under Contention 16.

The Applicants have responded in opposition to the Palmetto motion. The burden of their argument is that the motion is factually inaccurate and that, if any sanctions are warranted, they should be imposed on Palmetto. The Applicants analyze various pleadings in detail in an effort to show the accuracy and reasonableness of their past positions.

The facts of this matter are relatively complicated, as evidenced by the thirty pages of pleadings before us. Because of the view we take of it, we are not required to weigh and determine the right or wrong of every charge and countercharge involved. Suffice it for our purposes to say that the Applicants' very narrow interpretation of Contention 16 is

wrong. To say, as the Applicants do, that Contention 16 is concerned only with differences in fuel characteristics between Catawba, Oconee and McGuire requires a hypertechnical parsing of its terms and a disregard of the context from which it emerged. Indeed, quite early in the case we indicated our disagreement with the Applicants' narrow reading of this contention, although we were never called upon to render a square ruling during discovery. LBP-82-116, 16 NRC 1937 at 1951. Contrary to the Applicants' position, and as reflected in our summary disposition ruling, Contention 16 does encompass the design characteristics of the Catawba spent fuel pool and whether they will accommodate the quantities of spent fuel possibly to be transhipped from Oconee and McGuire. Most of what the Applicants have to say in the merits portion of their response (pp. 6-19) rests upon their impermissibly narrow reading of Contention 16. We accordingly disagree with most of this discussion.

Having said that much, however, it does not follow that some sanction against the Applicants is appropriate merely because they have taken a legal position the Board thinks is wrong. In this regard, we are guided primarily by the Commission's *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 454 (1981). To be sure, the Commission stated that: "When a participant fails to meet its obligations, a board should consider the imposition of sanctions against the offending party." But that statement was made in the context of preventing unwarranted delay in licensing proceedings. For example, sanctions are appropriate when a party entirely fails to meet important discovery obligations, as Palmetto has done earlier in this case. See Memorandum and Order of June 20, 1983 (LBP-83-29A, 17 NRC 1121). But except perhaps in very unusual circumstances not presented here, partisan advocacy is an inherent part of the process, not a basis for sanctions.

A few additional observations are called for. Palmetto's motion levels several serious charges against the Applicants, including attempts to "mislead the Board" (Motion at 1), "deception to buttress their claim" (*Id.* at 3) and "deliberately misrepresenting the record" (*Id.* at 4-5). In our judgment, none of these charges has been substantiated. Furthermore, these charges and other portions of Palmetto's pleading (for example, the last sentence) impugn the integrity of the Counsel for the Applicants. The motion does not substantiate these charges. On the basis of their participation in this case over an extended period of time, the Board knows Counsel for the Applicants to be men and women of integrity. We caution Counsel for Palmetto to avoid inflammatory rhetoric in the future.

The Palmetto motion for sanctions is denied.

**FOR THE ATOMIC SAFETY AND  
LICENSING BOARD**

**James L. Kelley, Chairman  
ADMINISTRATIVE JUDGE**

September 6, 1983.

**ATTACHMENT TO LBP-83-56**

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

**BEFORE THE ATOMIC SAFETY AND LICENSING BOARD**

**In the Matter of**

**Docket Nos. 50-413  
50-414**

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

**AFFIDAVIT OF JACQUES S. BOEGLI,  
EDWARD F. BRANAGAN, JR., AND RICHARD JOHN SERBU  
IN SUPPORT OF SUMMARY DISPOSITION OF  
DES CONTENTION 19**

1. I, J.S. Boegli, being duly sworn, do depose and state: I am an employee of the U.S. Nuclear Regulatory Commission in the Effluent Treatment Systems Branch, Office of Nuclear Reactor Regulation. I am responsible for the review and evaluation of radioactive waste treatment and effluent control systems and for the calculation of effluent source



terms for nuclear power reactors. My professional and education qualifications are attached to this statement. I certify that I have personal knowledge of the matters set forth herein with respect to the above areas for which I am responsible, and that the statements made are true and correct to the best of my knowledge.

2. I, Edward F. Branagan, Jr., being duly sworn, do depose and state: I am a Health Physicist in the Radiological Assessment Branch, Division of Systems Integration within the Office of Nuclear Reactor Regulation. A copy of my professional qualifications is attached. I certify that I have personal knowledge of the matters set forth herein with respect to assessment of the impact from exposure of the public to radioactive effluents from spent fuel stored at Catawba. The statements made are true and correct to the best of my knowledge.

3. I, Richard John Serbu, being sworn, do depose and state: I am an employee of the U.S. Nuclear Regulatory Commission (NRC). My present position is Health Physicist, Radiological Assessment Branch, Division of Systems Integration within the Office of Nuclear Reactor Regulation. A copy of my professional qualifications is attached. I certify that I have personal knowledge of the matters set forth herein with respect to assessment of occupational exposures to on-site personnel and that the statements made are true and correct to the best of my knowledge.

4. This affidavit addresses DES Contention 19, which reads as follows:

Failure to evaluate the environmental costs of operation of Catawba as a storage facility for spent fuel from other Duke facilities compromises the validity of the favorable cost-benefit balance struck at the construction permit phase of this proceeding. Since the CP stage hearing, Duke Power has considerably expanded the Catawba spent fuel pool capacity and provided for denser storage of irradiated fuel. FSAR Table 1.2.2-1. Applicants intend to use Catawba for storage of irradiated fuel from the McGuire and Oconee nuclear facilities of Duke Power Company. FSAR 9.1.2.4; OL Application, pp. 11-12.

In admitting this contention, the Licensing Board stated that "... the primary focus of DES 19 would be on the environmental effects of routine releases from such [Oconee and McGuire] transshipped fuel during normal operations at Catawba." (Memorandum and Order, February 25, 1983; p. 9 [LBP-83-8B, 17 NRC 291 at 295-96]).

5. In the FES, the Staff analyzed "the environmental costs of operation of Catawba as a storage facility for spent fuel from other Duke facilities" in the following manner. The major environmental pathways of exposure of humans were considered. Tables D.1 and D.4 included releases from spent fuel from Catawba and the spent fuel that is

expected to be stored at Catawba from Oconee and McGuire. In its review, the Staff determined that the releases of radioactive materials from fuel stored in the Catawba Spent Fuel Storage Facility (SFSF) were very small fractions of the total releases from normal operations of the entire Catawba facility. Similarly, dose commitments to a maximally exposed individual and to the population from operating Catawba included releases from the storage at Catawba of spent fuel from Catawba, Oconee and McGuire. (See Tables D.6, D.7, D.8). Finally, estimates of dose to workers from normal handling of spent fuel casks from Oconee and McGuire were evaluated at Sec. 5.9.3.1.2 of the FES (p. 5-19). The Staff concluded that the systems as now designed and built are capable of controlling effluent releases, including those from stored spent fuel from other Duke facilities, to meet the dose-design objectives of Appendix I to 10 C.F.R. 50. In addition, the estimated doses to individual members of the public and to the general population from exposure to all effluents from the facility were very small fractions of the annual doses from exposure to background radiation. Further, the Staff, in its review, determined that estimated doses to individual members of the public and to the general population from exposure to effluents from the SFSF were very small fractions of the estimated doses from exposure to all effluents.

6. This affidavit sets forth in more detail than in the FES the sources and amounts of routine releases of radioactive materials, and resultant dose commitments both onsite and offsite which may be expected from the SFSF. In the following analysis the Staff has evaluated the environmental impact associated with the receipt and storage of spent fuel in the SFSF by addressing (1) the types of releases from the SFSF (liquid; gaseous, solid) leading to possible exposure of the public, and (2) the possible occupational doses to workers associated with spent fuel storage and fuel handling. The Staff's environmental evaluation encompasses the contribution of the expanded spent fuel storage facility, at full capacity, and includes the contribution attributable to receipt and storage of Oconee and McGuire spent fuel at Catawba.

### **Routine Releases**

7. The amount of radioactivity which will be released into the environment from the SFSF, and the amount of radioactivity which may be attributed to the storage of Oconee and McGuire spent fuel in the Catawba SFSF, may be determined based on the capacity of the SFSF, the release and transport mechanisms that result in the appearance of radioactive material in liquid and gaseous streams, and the plant-specific

design features used to treat and store radioactive material from fluid streams by collection on media for disposal as solid waste. Such estimates of routine radioactive releases are called the "source term" and are derived by techniques presented in NUREG-0017, "Calculation of Releases of Radioactive Materials in Gases and Liquid Effluents from Pressurized Water Reactors (PWR-GALE Code)" using inplant measurements at many of the operating nuclear power plants. The SFSF at Catawba, Unit 1 and Unit 2, are independent, as required by 10 C.F.R. Part 50, Appendix A, GDC No. 5. However, they have similar design features such that the routine releases may be calculated on a per unit basis.

### **Capacity of the SFSF**

8. In determining the routine releases per unit, the Staff considered the SFSF to be full at its design capacity of 1418 fuel assemblies. Although the environmental statement published upon consideration of the Catawba construction permit application was based on a SFSF with 265 fuel assemblies, the FES and Safety Evaluation Report published for the operating license application are based on the increased capacity. This increase would allow for 193 fuel assemblies from off-loading a fully loaded core at Catawba at any time, plus storage space for approximately 258 fuel assemblies from Catawba that are less than five years out-of-core, and storage space for approximately 967 fuel assemblies that would be over five years out-of-core. Applicants have proposed to store spent fuel from Oconee and McGuire at Catawba which would be at least five years out-of-core. However, for the purpose of calculating routine releases, the Staff considered for the FES that the Catawba fuel assemblies and those from McGuire and Oconee to be equivalent after five years out-of-core since the assemblies are approximately the same size (8.4 X 8.4 X 144 inches), the same materials (Zircaloy-4/Inconel 718), contain the same  $UO_2$  fuel (about 1150 pounds  $UO_2$ /assembly) are used to about the same burnup rate (33 MWD/Kg U) and would have approximately the same fission product inventory after the same amount of time in storage. Therefore, the origin of fuel assemblies over five years out-of-core would not impact the routine releases. Although the date at which maximum capacity would be reached would be advanced by the storage of McGuire and Oconee fuel assemblies in the SFSF, the Staff bases for routine releases considered a full SFSF at any time during the operating life of the Catawba Nuclear Station. Therefore, the routine releases based on a full SFSF will not be increased by the shipment of five year old fuel

assemblies from McGuire and Oconee, and the routine releases at a time where the SFSF is below capacity will be less than at full capacity.

### **Release Mechanisms and Treatment Provisions**

9. The release mechanisms for routine releases are the same for the underwater storage of fuel assemblies at all facilities. During the movement and storage of fuel assemblies in the SFSF, both volatile and nonvolatile radioactive materials may be transferred to the SFSF pool water from the outer surface of the fuel assemblies or from defects in the fuel assembly cladding. Most of the outer surface material consists of activated corrosion products, such as Co-58, Co-60, Mn-54 and Fe-59, which are nonvolatile. The Staff estimates that this outer surface material constitutes about 0.001 Ci/assembly and that most of the material is insoluble. The spent fuel pool cleanup system removes the insoluble material transferred to the pool water by continuous recirculation through filters and removes any soluble material by demineralization. Most of the surface material is removed during the first few months of storage in the pool water such that there would be little contamination of the SFSF by assemblies shipped from McGuire or Oconee that have been stored in their respective spent fuel pools at least five years prior to shipment to Catawba. None of the surface corrosion products are volatile since they are salts and metal oxides.

10. The radioactive materials that may be transferred to the SFSF pool waters from cladding defects are generally nonvolatile fission products, such as Cs-134, Cs-137, Sr-89 and Sr-90. The abundance of fission products transferred into the SFSF water is dependent on the fission yield, the time since irradiation in core, the size of any cladding leak and the temperature of the cladding. The Staff estimates that the fission products transferred to the pool water due to cladding defects constitutes about 0.01 Ci/assembly at the time of unloading from the core, less than 0.001 Ci/assembly after about 20 days in storage, and an undetectable amount after several years in storage. These soluble and insoluble radioactive materials are continuously removed from the pool water by the demineralizers and filters in the spent fuel pool cleanup system. Measurements at operating plants have shown that most defects or pinhole perforations in the fuel cladding are self-sealing when the cladding temperature is relatively cool, approximately 180°F. This self-sealing condition occurs in about 20 days after a fuel assembly is removed from the core, and together with radioactive decay, greatly reduces the net effect of nonvolatile fission products in the SFSF pool water. Since Oconee and McGuire spent fuel received and stored at

Catawba would be at least 5 years out-of-core, the contribution of radioactive materials due to defects in such fuel would be undetectable.

11. The release mechanism for volatile fission products is the same as for the nonvolatile; however, their solubility in the SFSF pool water must be considered. Generally the SFSF water is maintained below 140°F to reduce the cladding temperature, reduce water evaporation and to increase the solubility of gases and thereby contain most of the volatile materials. Radioiodines and most of the noble gases are reduced by radioactive decay, together with the self-sealing condition of the fuel cladding. Tritium produced in the reactor coolant and within the fuel assembly is not a significant nuclide, since in the case of Catawba, there is no major mixing of reactor coolant water or fuel assembly transfer cask water into the SFSF. Operating experience has demonstrated that after 4 to 6 months there is no significant release of volatile fission products from fuel assemblies and the only significant noble gas nuclide attributable to long term storage of fuel assemblies would be Kr-85, which is at undetectable concentrations in the plant effluent after two years out-of-core.

12. The SFSF pool water is recirculated and continuously cooled, filtered and demineralized. The treatment removes radioactive materials from the water by filter and exchange media such that nonvolatile materials are collected for disposal as solid waste, and solids disposal is to a licensed burial site. During routine servicing and maintenance operations, excess water from the SFSF is treated in a similar manner by the liquid radwaste treatment system. There are no releases of SFSF pool water. Radioactive materials in gaseous effluents from the SFSF are collected by the fuel building ventilation system, treated by filters and absorbers for particulate and radioiodine removal (if any), monitored and released to the atmosphere via the plant vent. (These effluents are discussed further in the section entitled "Calculated Releases and Dose Impact.")

13. Prior to the publication of the FES, the Staff reviewed the release mechanisms for radioactive materials from spent fuel assemblies and the provisions for treating the liquid, gaseous and solid waste generated by the operation of the Catawba SFSF. The Staff found that the release mechanisms were not altered by the number of fuel assemblies in the SFSF, and the treatment provisions were designed and installed adequately to meet the requirements of a full SFSF. Since there are no detectable transfers of radioactive material from the fuel assemblies to the pool water after five years of storage, there would be no difference between a full SFSF containing only Catawba spent fuel assemblies and

a full SFSF containing fuel assemblies from McGuire and Oconee. The pool water radioactivity would be essentially the same.

### Calculated Releases and Dose Impact

14. There are estimated to be essentially no liquid releases from the SFSF since it is a closed recirculation/treatment system. Therefore, radioactive materials in liquid effluents calculated for the FES and the SER for Catawba, Unit Nos. 1 and 2 did not include SFSF releases, and the proposal to store fuel assemblies from McGuire and Oconee would not change this conclusion.

15. Solid radioactive wastes, generated by the Catawba SFSF pool water filter and demineralizer treatment system are packaged and shipped to a licensed burial site. The Staff estimated that the volume of solid waste generated by disposal of filters and demineralizer exchange media from the spent fuel cleanup system would amount to about 6 cubic feet per year per unit at Catawba, containing approximately 0.1 Ci/cubic feet. The environmental impact of the transportation and disposal of these low level wastes are accounted for by the generic values in Table S-3, 10 C.F.R. 51.20, as stated in the FES. As a conservative estimate, the Staff assumed that the amount of solid waste generated by the storage of McGuire and Oconee fuel assemblies at the Catawba SFSF may be increased by 6 cubic feet per year per unit. There would be no increase in activity of this solid waste since there is no increase in the radioactivity of the pool water. The annual average amount of solid waste to be shipped from each unit at Catawba is estimated to be about 20,000 cubic feet per year. The total solid waste volume generated by the storage of McGuire and Oconee fuel assemblies at Catawba is estimated to be less than 0.1% of the preceding value and would not have any significant environmental impact not already considered in the FES and the SER for the Catawba Nuclear Station.

16. Due to the release mechanism for volatile fission products from fuel assemblies after several years out-of-core (described in paragraph 11, above), it is estimated that there would be no measurable releases of noble gases in the plant effluent. Using computer models, the Staff calculated in the FES, Table D.1 on page D-5, that the annual average release of Kr-85 for the auxiliary building stack, which includes releases from the SFSF, would be less than 1 Ci/yr averaged over the 30 year operational life of the plant, with the SFSF less than at full capacity some of this time. The Staff conservatively estimated that if the SFSF were at full capacity all of the time, the maximum routine release of

Kr-85 would be less than 1 Ci/year or no more than 0.5% of the total annual release of Kr-85 from either unit.

17. Therefore, if fuel assemblies from McGuire and Oconee were shipped after 5 years out-of-core and stored in the Catawba SFSF a conservative estimate of the gaseous releases would be less than 1 curie per unit per year of Kr-85. The estimated doses to the total body and skin of a maximally exposed individual are estimated to be much less than 0.1 mrem/year. The Staff's method for calculating the total body dose impact is provided in Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I." Revision 1, October 1977. This dose is not significant when compared to the approximately 100 mrem/year that an individual receives from natural background radiation and small compared to the fluctuation in the annual dose that an individual would receive from natural background radiation.

18. The dose to the total body of the population within a 50-mile radius of the Catawba Nuclear Station (estimated to be about 1,700,000 persons in the year 2000, FES, p. D-9) due to normal operation of the SFSF, with the storage of McGuire and Oconee fuel assemblies, is estimated to be less than 0.1 man-rem/year. This dose is a very small fraction of the annual dose of about 160,000 person-rems (FES, p. D-9) that this population would receive from natural background radiation. Thus, the Staff concludes that normal operation of the SFSF including the proposed storage of fuel assemblies from McGuire and Oconee in the Catawba SFSF will not have any significant impact on exposures offsite.

### **Occupational Dose**

19. In addition to the effluent pathways, the DES/FES and SER considered occupational doses which might be associated with the handling and storage of spent fuel, including fuel transferred from other facilities. The SER, in Section 12.5, considered occupational doses and ALARA/radiation protection practices associated with fuel handling and storage operations at the SFSF at Catawba, which was evaluated by the NRC Staff as follows:

The storage of spent fuel at Catawba has been evaluated in accordance with Standard Review Plan Sections 12.2 and 12.3-12.4. The applicant has provided information which satisfactorily meets with our guidance and positions in the Standard Review Plan, including the requirements in 10 CFR Part 50, Appendix A; General Design Criteria-61; 10 CFR Part 70, 70.24; and Regulatory Guide 8.12, and

is therefore acceptable. Additionally the radiation protection program, organization, and policies have been evaluated as indicated in Sections 12.1 and 12.5 of the Safety Evaluation Report, and are acceptable for the transfer and storage of spent fuel from Oconee and McGuire. No significant additional occupational doses should result from the storage of additional spent fuel at Catawba, since direct doses from stored fuel provide only a fractional contribution to spent fuel pool area dose rates in comparison to radioactivity in pool water. Similarly, dose increases due to the handling of spent fuel casks at Catawba would contribute only a very small fraction to the total projected dose for the facility.

20. The Staff evaluated and found acceptable Applicants' estimates of worker doses associated with spent fuel pool operations. These estimates are based on work area dose rates, the nature and location of work to be performed, and the time spent performing work in the pool area. Applicants' estimates reflect source terms, dose rates, work, and work times which are consistent with those measured and observed for similar facilities and operations throughout the industry.

21. Dose rates of 1 mrem/hr to 2 mrem/hr are typically measured at the surface of spent fuel pools, primarily due to the presence of contaminants such as Co<sup>60</sup> and Co<sup>58</sup> in the pool water. These contaminants are introduced into the spent fuel pool water as fuel is moved about in the pool and activated corrosion products (which typically adhere to in-core fuel assemblies) are disturbed and transfer to the water. However, as stated in paragraph 13, *supra*, Oconee and McGuire fuel, being stored over five years prior to storage at Catawba, would not transfer detectable amounts of such contaminants to the Catawba SFSF. Therefore, while occupational dose rates from operations at Catawba are expected to reflect industry experience, generating dose rates in the range of 0.5 mrem/hr to 5 mrem/hr — and most probably generating dose rates of 1 mrem/hr to 2 mrem/hr during stable storage periods with the pool cleanup system in operation — no significant amount of these dose rates would be attributable to the Oconee and McGuire spent fuel proposed to be transshipped to Catawba.

22. Due to the shielding effect of water, the fuel assemblies themselves will contribute little to the overall dose rate at the surface of the spent fuel pool — a fraction of the dose rate originating from the pool water itself. A specific water level for radiation shielding is not required by regulations. Design guidelines for spent fuel pools, ANSI N 210-1976, "Design Objectives for Light Water Reactor Spent Fuel Storage Facilities at Nuclear Power Stations," recommends that radiation dose to personnel in normally occupied areas of spent fuel pools be maintained as low as reasonably achievable below 2.5 mrem/hr whole body dose during normal operations. This design guideline can be met by maintaining a minimum of 10 to 12 feet of water over fuel in storage



— enough water to reduce the gamma dose rate from fuel assemblies to the range from 5 mrem/hr to 0.5 mrem/hr at the pool surface. However, dose rates at the surface of the pool with a typical water depth of 24 feet are on the order of only  $10^{-6}$  mrem/hr due to direct radiation from recently discharged fuel assemblies.

23. At the CP stage Applicants made the following commitment:

During all phases of spent fuel transfer, the gamma dose rate at the surface of the water is 2.5 mr/hr or less. This is accomplished by maintaining a minimum of 10 feet of water above the top of the fuel pellets in the fuel assembly during all handling operations.

(Source: Applicant's PSAR, Section 9.1.4.3.4, "Radiation Shielding") To provide further assurance that a minimum 10 feet of water is maintained above the fuel, keeping dose rates below 2.5 mrem/hr, the Applicant has committed to provide limited maximum lift height for handling equipment used to raise and lower spent fuel. (Source: Applicant's FSAR, Section 9.1.4.1, "Design Bases"). The Applicants' assumptions and bases for shielding design and operations applicable to the SFSF were evaluated by the Staff, and the Applicants' design methods, including the use of source terms, cross section data, shield and source geometries, and radiation transport calculational schemes, were found to be consistent with accepted practice. (Source: Catawba SER; Section 12.3.2). The storage of spent fuel from McGuire and Oconee at Catawba does not impact the Applicants' commitments or the Staff's findings, since fuel storage assessments were based on recently discharged fuel (and full capacity) rather than five year old spent fuel (and less than full capacity).

24. As noted in the FES (Table D.9), the Staff has estimated 480 person-rem as the total body dose to plant workers for a year of operation for a single unit at Catawba. Normal fuel handling operations in the fuel handling building for Catawba are expected to result in an average total body dose of about 1.5 person-rem per year per unit. As stated in Section 5.9.3.1.2., additional handling of spent fuel from Oconee and McGuire is estimated to result in a total body dose of 0.029 person-rem per spent fuel shipment, or 8.7 person-rem for 300 shipments (the maximum number of shipments per year proposed by Applicants). Doses from fuel handling are thus only a small fraction of total dose for the Catawba facility.

25. In summary, the Staff evaluated in the FES the environmental impacts of spent fuel stored in the Catawba SFSF, as expanded since the original construction permit application. This evaluation included the operation of the Catawba SFSF as a storage facility for spent fuel from

Oconee and McGuire. The Staff's evaluation is contained in the FES, at pp. 5-19, 9-7, 9-8, 9-12, 9-13, and in Appendix D. A more detailed exposition of that analysis has been presented above.

26. The conclusions of the Staff's evaluation are as follows:

- (a) The releases of radioactive material from fuel stored at Catawba, including fuel from Oconee and McGuire, are estimated to be very small fractions of the total releases from normal operations at Catawba.
- (b) The Catawba effluent treatment systems as now designed and built are capable of controlling effluent releases, including releases from stored spent fuel from Oconee and McGuire, to meet the dose-design objectives of Appendix I to 10 CFR 50.
- (c) The doses to individual members of the public and the general population exposed to effluents from fuel stored at Catawba are very small fractions of the annual doses from background radiation.
- (d) Occupational doses attributable to spent fuel storage and handling operations, including handling and storage of spent fuel received from Oconee and McGuire are a small fraction of the total worker dose for the Catawba facility.
- (e) As a result, the proposed operation of the Catawba SFSF has been fully evaluated, to include receipt and storage of Oconee and McGuire spent fuel, and found to have a small impact on the environment.

Edward F. Branagan, Jr.

Jacques S. Boegli

Richard John Serbu

Subscribed and sworn to before me  
this 23 day of June, 1983

(Maxine H. Laiefsky)  
Notary Public

My Commission Expires: 7/1/86

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Lawrence Brenner, Chairman  
Dr. George A. Ferguson  
Dr. Peter A. Morris**

**In the Matter of**

**Docket No. 50-322-OL**

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

**September 21, 1983**

The Licensing Board issues a Partial Initial Decision deciding all issues before it, except the emergency diesel generator contentions on which litigation was deferred at the request of all parties. (Offsite emergency planning issues are pending for litigation before a separate licensing board.) The Board decides all issues in Applicant's favor, with the exception of portions of two issues involving Mark II containment loads due to RHR discharge mode operation and the testing and inspection program for undetected check valve failure. However, the Board finds that the pendency of those two issues, over which jurisdiction has been retained, would not prevent issuance of a low-power (up to 5%) operating license, if and when the pending diesel issues are resolved in LILCO's favor.

The decision (in Section V) includes several conditions involving the implementation of the recent rule governing environmental qualification of electrical equipment (10 C.F.R. § 50.49), and the agreement by LILCO to the NRC Staff's definition and application of the terms "important to safety" and "safety-related" insofar as safety classification and qualification of plant structures, systems and components are concerned. The Board also recommends that the Commission

consider: whether the ECCS Appendix K factors should be updated for the current BWR 8 x 8 fuel array; and whether the Staff should provide detailed guidance for the identification of "important to safety" equipment required for environmental qualification by 10 C.F.R. § 50.49(b)(2). The Chairman of the Board also recommends that the Commission consider whether present and projected progress and management by the Staff of Unresolved Safety Issue A-17 (Systems Interaction) is proper.

The Board also denies, on the basis of the Commission's previous ruling in this case, Suffolk County's motion that a low-power license could not be issued unless a revised NEPA cost-benefit analysis was performed to consider the circumstance of denial of a full-power license due to inadequate offsite emergency preparedness. (See Section IV.)

### **TECHNICAL ISSUES DISCUSSED**

1. Water Hammer
2. ECCS Core Spray
3. Passive Mechanical Valve Failure
4. Anticipated Transients Without Scram
5. Seismic Design
6. Mark II Containment
7. Safety Relief Valve Tests and Challenges
8. Post-Accident Monitoring
9. Environmental Qualification
10. Systems Interaction and Safety Classification
11. Quality Assurance and Quality Control

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\*The text for Section III of this Partial Initial Decision is not being published in this issuance but may be found in the NRC Public Document Room, 1717 H Street, NW, Washington, DC 20555.

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## PARTIAL INITIAL DECISION

### I. INTRODUCTION

This is a Partial Initial Decision on the application of the Long Island Lighting Company (LILCO or Applicant) to operate a nuclear power plant at the Applicant's Shoreham site in Suffolk County, New York. The application is for the operation of one General Electric (GE) boiling water reactor (BWR) which has a rated output of 820 megawatts of electric power. The principal architect/engineer for the plant is the Stone & Webster Engineering Corporation (S&W or SWEC). A permit to construct the plant was issued on April 12, 1973,<sup>1</sup> and the notice of an opportunity for a hearing on the operating license application was published on March 18, 1976.<sup>2</sup>

In addition to LILCO and the NRC Staff (Staff), the parties to this proceeding are the County of Suffolk, New York (SC or County), the Shoreham Opponents Coalition (SOC), the North Shore Committee Against Thermal and Nuclear Pollution (North Shore Committee or NSC), and the New York State Energy Office (SEO).<sup>3</sup>

<sup>1</sup> See 38 Fed. Reg. 14,183 (1973).

<sup>2</sup> See 41 Fed. Reg. 11,367 (1976).

<sup>3</sup> The procedural background of the Shoreham proceeding is described in detail in unpublished Appendix A to this Partial Initial Decision. Other unpublished appendices to this decision, which have been adopted with only minor changes from those submitted by LILCO as a part of its January 17, 1983 proposed findings, include: Appendix B, "Sequence of Settlements"; Appendix C, "Sequence of Testimony"; Appendix D, "Witnesses in Alphabetical Order"; and Appendix E, "Exhibits by Party and Number." Unpublished Appendix F, "Joint Compilation of Settlement Agreement Obligations" (June

*(Continued)*

This Partial Initial Decision is being rendered by the Atomic Safety and Licensing Board designated to preside over all matters relevant to this operating licensing proceeding, other than emergency planning. Although this Board was originally vested with jurisdiction over all matters, at our request, a separate Atomic Safety and Licensing Board was appointed on May 11, 1983, to preside over the emergency planning phase of this proceeding.<sup>4</sup> Accordingly, the scope of this Partial Initial Decision includes all admitted contentions in this proceeding which have not been previously dismissed,<sup>5</sup> decided by summary disposition<sup>6</sup> or resolved through settlement agreements approved by the Board,<sup>7</sup> with the exception of those matters pending before the emergency planning Board and with the exception of the County's recently admitted contention regarding the emergency diesel generators.<sup>8</sup>

Through this Partial Initial Decision, the Board also confirms its conclusion that the Staff's supplemental filings on uncontested generic unresolved safety issues relevant to Shoreham provide the requisite bases for permitting operation of the Shoreham facility prior to the resolution of those issues.

Pursuant to 10 C.F.R. § 50.57(a), a licensing board must be able to make a finding, prior to the issuance of an operating license, that there is reasonable assurance that the facility can be operated without endangering the health and safety of the public. Under the Appeal Board's decisions in *Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-491, 8 NRC 245, 248 (1978) and *Gulf States Utilities Co.* (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760, 774 (1977), this finding must include a finding

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28, 1983) was prepared by the parties in response to a Board request for a coordinated compilation of those conditions which all parties agree should be included in any operating license issued for Shoreham. Tr. 19,731. The compilation includes three such conditions, together with a list of other commitments made as a part of those settlement agreements reached among the parties and approved by the Board. See Appendix B. The Board once again commends the parties for their extensive efforts and considerable success in wholly or partially resolving many contested issues in this proceeding before, and in some cases, after their litigation before this Board. Their many settlement conferences proved useful in both clarifying and narrowing the issues for litigation.

<sup>4</sup> See Appendix A, *passim*. A separate Atomic Safety and Licensing Board was also appointed at our request to preside over Suffolk County's contentions relating to LILCO's security plan for the Shoreham facility. That portion of this operating license proceeding was terminated prior to hearing as a result of a comprehensive settlement agreement among the parties. See "Memorandum and Order Cancelling Hearing, Approving Final Settlement Agreement and Terminating Proceeding" (December 3, 1982) (unpublished).

<sup>5</sup> See Appendix A at A-20, A-22.

<sup>6</sup> See Appendix A at A-11 to A-12, A-22.

<sup>7</sup> See generally Appendix B.

<sup>8</sup> On June 22, 1983, the record was reopened to admit portions of a new contention proposed by the County relating to excessive vibration and cylinder head cracking in the diesel generators. "Memorandum and Order Ruling on Suffolk County's Motion to Admit New Contention," LBP-83-30, 17 NRC 1132 (1983).

of reasonable assurance that a facility can be operated without undue risk to the public health and safety, notwithstanding any applicable generic unresolved safety issues, in addition to a resolution favorable to an applicant on all contested issues.

As explained by the Appeal Board in its recent decision in *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1110-13 (1983), *North Anna* and *River Bend* do not mandate that a licensing board apply the same degree of scrutiny to uncontested generic unresolved safety issues as is applied to issues subject to the adversarial process. A licensing board is required to examine the Staff's presentation in the SER on such uncontested generic issues, however, to determine whether a basis is provided to permit operation of the facility pending resolution of those issues. While a licensing board need not make formal findings of fact on these matters as if they were contested issues, a licensing board is required to determine that the relevant generic unresolved safety issues do not raise a "serious safety, environmental, or common defense and security matter" such as to require exercise of the Board's authority under 10 C.F.R. § 2.760a to raise and decide such issues *sua sponte*. 17 NRC at 1112; see also *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-728, 17 NRC 777, 806-07 (1983).

The *Waterford* Appeal Board was highly critical of the Staff's present practice of addressing unresolved generic safety issues in the SER through the use of "generalized boilerplate language" potentially applicable to many reactors, without regard for the specific applicability of that language to the facility in question, even though these Staff conclusions are supposed to serve as the basis for a licensing board's *North Anna* findings about that particular facility. 17 NRC at 1112-13. We believe the same criticisms to be equally applicable to the discussion of the generic unresolved safety issues relevant to Shoreham contained in the Shoreham SER.

We found the Staff's SER discussions of these issues to be so broadly worded and cursory and so replete with cross-references to other documents as to be woefully incomprehensible. Therefore, we directed that the Staff file proposed findings of fact and conclusions of law on the unresolved safety issues relevant to Shoreham prior to the close of the record. Tr. 10,045-56. The Staff complied with this request on November 2, 1982.<sup>9</sup>

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<sup>9</sup> "NRC Staff's Proposed Opinion, Findings of Fact and Conclusions of Law on Unresolved Safety Issues in the Form of a Partial Initial Decision" (November 2, 1982).

While the Staff cites no information in this document other than that which appears in the SER and its supplements, this filing presents, in a clear and comprehensive manner, the relevant information necessary for this Board to be able to make the requisite *North Anna* finding. We commend the Staff for the preparation of these findings. We believe the adoption of such a format for such information in other proceedings would be welcomed by other licensing boards, and would in the long run save both licensing board and Staff time. We encourage the Staff to adopt the use of this practice in other proceedings.

The remaining portions of this Partial Initial Decision are organized as follows: Part II of this decision consists of the Board's opinion on each of those contentions litigated before us to date which was not subsequently settled by agreement among the parties. Each contention is discussed in a separate section of the opinion which is designated by an upper case letter of the alphabet. The opinion on each contention is based on and contains references to the Board's findings of fact, which are contained in the correspondingly lettered sections of Part III of this decision (unpublished). These findings of fact are based on the record of this proceeding and contain supporting citations to the record in the form of references to the transcript, to written testimony bound into the transcript and to exhibits.<sup>10</sup>

To summarize briefly, by this decision we resolve in LILCO's favor, subject to certain conditions, all those contentions which have been litigated to date, with the exception of certain portions of both Contentions SC 11, Passive Mechanical Valve Failure, and SC 21, Mark II Containment. In Sections II-C and III-C, we conclude that LILCO has met its burden of proof on most aspects of Contention SC 11, Passive Mechanical Valve Failure. However, we find the present record lacks sufficient detail to determine whether LILCO's program for the in-service testing (IST) of valves adequately addresses the concerns expressed in IE Bulletin 83-03 about the inadequacy of "forward flow only" testing to detect latent failures of check valves.

IE Bulletin 83-03 concluded that the disassembly and partial disassembly of check valve internal parts is not effectively found by normal forward flow only testing and indicated that alternate testing methodologies, such as the use of both forward and reverse flow testing or periodic valve inspection and disassembly should be effective. LILCO proposes to test the function of certain check valves by single direction

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<sup>10</sup> During the litigation of these contentions, many of the exhibits were bound into the transcript of this proceeding for the convenience of the parties. For simplicity of citation, however, references to exhibits in this decision do not also include such transcript citations. Appendix E (unpublished) to this decision includes such transcript citations for those exhibits which were bound into the transcript.



(forward or reverse) flow testing only. We therefore require that LILCO supplement the record on this contention to clarify the basis for its conclusion that its IST program addresses the concern raised by IE Bulletin 83-03 about the adequacy of forward flow only testing to detect latent check valve failures. However, while we are retaining jurisdiction over this issue, we do not find the gap existing in the present record to be of such significance as to preclude our finding reasonable assurance of the adequacy of LILCO's IST program to permit fuel load and operation up to five percent of rated power.

In Sections II-F and III-F, we conclude that LILCO has met its burden of proof on all aspects of Contention SC 21, Mark II Containment, including the concerns raised by former GE employee John Humphrey, with the exception of that Humphrey concern related to the operation of the residual heat removal (RHR) system discharge mode when in the steam condensation mode. The Staff analysis of this issue requires that if the system should be operated in the steam condensing mode, the effects of the discharge into the suppression pool must not disable any safety-related equipment. While the Staff testified that it did not believe that the confirmatory load analysis being performed by LILCO would result in the erosion of the conservatism of Shoreham's design margins, the Staff lacked sufficient information at the time the record closed on this issue to determine whether a design modification would be necessary, or whether this issue would be resolved on a generic or a Shoreham-specific basis.

As the information in the record before us is not sufficient at this time to permit us to resolve this issue, we retain jurisdiction for such future resolution as circumstances may dictate. However, as the record indicates that operation of the RHR system in the discharge mode in the steam condensation mode is not material during operation of power levels of five percent of rated power, we do not find the pendency of this issue to create any unresolved health or safety issue which would preclude the issuance of a license for operation of Shoreham at power levels up to five percent of rated power.

In Part IV of this Partial Initial Decision, we discuss LILCO's motion requesting authorization for the issuance of a license for fuel loading and operation of Shoreham at levels up to five percent of rated power. We conclude that Commission precedent mandates our denial of the County's request that no authorization for the issuance of the low-power license requested by LILCO be granted, unless a supplemental Environmental Impact Statement (EIS) or an Environmental Impact Appraisal (EIA) is first prepared to consider the possibility that Shoreham might never receive a full-power license, after the issuance of a low-power license.

Therefore, as all issues in this Partial Initial Decision have been resolved in LILCO's favor, at least insofar as fuel loading and low-power testing are concerned, and as there are no longer any 10 C.F.R. § 50.47(d) (primarily onsite) emergency planning contentions pending before any Shoreham Board, we conclude that the only pending issue which must be resolved in LILCO's favor as a prerequisite to the issuance of the requested low-power license is that portion of Suffolk County's recently admitted emergency diesel generator contention which relates to the cracking of cylinder heads (at least as to its identified aspects of concern for low-power operation).<sup>11</sup>

Part V of this decision discusses our conclusions of law in this proceeding. It includes those license conditions which we are imposing based on this decision and a discussion of those matters over which we are retaining jurisdiction. This section also contains recommendations for certain actions which we believe the Commission should consider. These recommendations are not material to our decision on the licensing of the Shoreham reactor and therefore are presented as generic recommendations. Finally, in Part VI, we note that this decision is appealable at this time.

The Board which presided over the evidentiary hearings on the contentions which are the subject of this Partial Initial Decision consisted of Administrative Judges Lawrence Brenner, Chairman, James H. Carpenter, Member and Peter A. Morris, Member. After the record was closed on these issues and while the Board was in the process of preparing this decision, Judge Carpenter became unavailable due to illness.

Pursuant to 10 C.F.R. § 2.721(b), Judge George A. Ferguson was appointed to replace Judge Carpenter on July 14, 1983. Judge Ferguson has participated in and joins in this Partial Initial Decision only on the following issues: Anticipated Transients Without Scram (Sections II-D and III-D); Safety Relief Valves (Sections II-G and III-G) and Environmental Qualification (Sections II-I and III-I). Accordingly, all other issues in this Partial Initial Decision have been decided by a majority (two-person quorum) of the Board consisting of Judges Brenner and Morris.

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<sup>11</sup> See LBP-83-30, note 8, *supra*, 17 NRC at 1153-56. The Board has previously ruled that the portion of Suffolk County's new emergency diesel generator contention which relates to the long-term effects of vibration on the required performance of the generators need not be litigated as a prerequisite to the issuance of a low-power license. *Id.* at 1148-53. However, deferral of this aspect of the contention may be reconsidered if it appears from the results of presently ongoing analyses that vibration was a causative factor in the diesel generator crankshaft failure which occurred during testing on August 12, 1983.

We add that prior to his unavailability, Judge Carpenter was instrumental in the preparation of this decision on the issues of Water Hammer (Sections II-A and III-A), Safety Relief Valves (Sections II-G and III-G) and Post-Accident Monitoring (Sections II-H and III-H) and therefore is in complete agreement with the reasoning and result reached on those issues. However, the final expression of the Board's decision on those issues is the responsibility of the present Board alone.

## II. OPINION

### II-A. Water Hammer (SC Contention 4)

#### 1. Prevention and Mitigation of Water Hammer Events at Shoreham

"Suffolk County contends that LILCO has not demonstrated adequate assurance of the operability of safety-related piping to prevent or withstand the effects of water hammer because LILCO has not considered the start-up experience at similar BWR plants. Therefore, Shoreham safety-related piping (e.g., ECCS, Reactor Decay Heat Removal Systems) does not meet 10 C.F.R. 50, Appendix A, GDC 1, 31, and 46."

The term "water hammer" was used in this proceeding in a broad sense that included transients involving steam and two-phase flow as well as the usual application of the term to events resulting from valve closure and pump start-up in solid water systems (Finding A-3). A comprehensive program for prevention or mitigation of water hammer phenomena would include system design to preclude or withstand water hammer, stress analysis to demonstrate that expectable loads can be tolerated, operating procedure formulation in accordance with the design, operator training for cognition of water hammer potential and preoperational tests to evaluate system performance (Finding A-6). Testimony and cross-examination encompassed all of these aspects of the water hammer issues.

Many water hammer phenomena may be precluded by the use of system designs that avoid the initiating conditions. The Shoreham design reflects extensive attention to appropriate design strategies that are based on generally established engineering principles and experience gained during start-up and operation of BWR plants (Finding A-7). In addition, the Shoreham design incorporates a number of special systems to prevent or mitigate water hammer (Findings A-8, A-9), which are responsive to considerations of previous start-up and operating

experience. These existing design features strongly rebut the intervenor's allegation that experience has not been considered.

In addition, design consideration of water hammer events has taken place during the stress analyses of the piping, which included the dynamic effects of water hammer. Such analyses have been used in designing the pipe supports to conform with ASME III Code requirements (Finding A-10).

Water hammer phenomena should receive careful attention in the formulation of system operating procedures, as shown by the many reported water hammer events that were described as procedure related (Finding A-11). According to LILCO supplemental testimony, Shoreham preoperational test and operating procedures have been written with consideration of avoidance or mitigation of water hammer (Finding A-12). The Board agrees with LILCO that the written procedures should not be cluttered with repetitive cautionary statements with regard to water hammer that would make them unduly lengthy (Finding A-13). Operator awareness of potential water hammer phenomena is being addressed during training in classroom sessions and system walkdowns (Finding A-14).

Suffolk County's proposed finding<sup>12</sup> that "Shoreham does not have procedures specifically for the prevention or minimization of water hammer" reflects insufficient consideration of the fact that the potential for water hammer events arises during plant operations and it is *only* in carrying out the procedures for these operations that prevention and mitigation can be accomplished; *i.e.*, the operator would not be expected to spend some part of a shift in water hammer mitigation "specifically," but would be expected to achieve this result indirectly through the normal application of sound operational policies and procedures.

The NRC Staff testimony indicates that there is only limited Staff review of LILCO operating procedures. The LILCO supplemental testimony on procedures was not challenged by cross-examination by either Suffolk County or the Staff.

Roughly one-half of the reported BWR water hammer events have been described as procedure related (Finding A-11). The LILCO testimony showing appropriate consideration of water hammer procedures has not been questioned, but Staff confirmation is sorely lacking.

Although, based on LILCO's testimony, we require no further conditions in the context of this adjudication before us, we suggest that

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<sup>12</sup> Suffolk County Proposed Findings, January 31, 1983, Vol. 2, p. 85, Finding 4:87.

Staff review of the procedural aspects of avoidance or mitigation of water hammer events is equally important as design review and should take place prior to system operation because water hammer events are more likely during early stages of plant operation.

## **2. Examination of Specific Events**

During the litigation of this contention, several specific water hammer events were the subjects of cross-examination by Suffolk County. The first of these was an event in 1980 at the Millstone 1 plant (Finding A-15). The LILCO witnesses testified that this event had been reviewed at Shoreham (Finding A-16) and the Staff witness indicated that he had not taken specific cognizance of this particular event (Finding A-17). We take this testimony to be a demonstration that the GE and SWEC programs of monitoring industry experience have been implemented at Shoreham in contrast to the County's allegation and that the NRC Staff review has been limited to an audit role for the overall programs (Finding A-18).

A second line of questioning concerned two items (19 and 29) in the EG&G report that were not clearly identified water hammer events, but rather discovery of pipe support damage in the Brunswick units that was ascribed to water hammer even though no events had been observed (Finding A-19). LILCO's witnesses and the Staff witness were not familiar with the Brunswick keep full systems or remedial modifications (Findings A-20, A-21). Investigation by these witnesses during the hearing led to testimony that the Shoreham design is a more complete loop fill system than the original Brunswick design and the observed pipe support damage at Brunswick would not be expected at Shoreham (Finding A-22).

The third line of questioning concerned a 1980 event at a European GE BWR plant. The NRC Staff witness was familiar with the event report and described the event as similar to prior events in U.S. reactors. He had investigated to determine that GE was aware of the event and had taken the view that the design features necessary to avoid this type of event are present in the Shoreham design, so that further consideration of this event was not necessary (Finding A-24). We infer from this testimony that this event had received appropriate and adequate consideration.

A fourth event inquired into occurred in the Caorso plant in Italy during 1978. This event report was evaluated at Shoreham and the initiating conditions (inadequate slope of steam lines) were found to be absent from the Shoreham design (Finding A-26). This testimony,

brought forth in the intervenor's cross-examination, clearly refutes intervenor's allegations that experience at other plants is not being considered at Shoreham.

We note that the NRC Staff proposed findings fail to appreciate that the testimony relates to two different European events in 1978 and 1980 (NRC Staff Proposed Findings, February 11, 1983, Vol. 1, p. 46, 4:19), as does LILCO (LILCO Proposed Findings, January 17, 1983, Vol. 1, pp. 84 and 86, A-37 and A-41).

This testimony on the four items leads us to the general view, contrary to the intervenor's allegations, that experience at other BWR plants has been considered during the design of the Shoreham plant.

### 3. Water Hammer as an Unresolved Safety Issue

Water hammer has been designated as a generic Unresolved Safety Issue. It was accorded this status as a result of a relatively large number of past water hammer events (Finding A-27). These events were made the subject of NUREG-0582 which listed these water hammer data and made certain recommendations as to corrective action. After its subsequent designation as a generic Unresolved Safety Issue (Finding A-29), the Staff initiated studies to develop recommended actions and this work should be completed in 1983 (Finding A-32).

Where generic Unresolved Safety Issues are involved in an operating license proceeding, for an application to succeed there must be some explanation why operation can proceed even though an overall solution has not been found. *Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-491, 8 NRC 245, 248 (1978). A plant will be allowed to operate pending resolution of these unresolved issues when there is "reasonable assurance" that the facility can be operated without undue risk to the health and safety of the public. *Gulf States Utilities Co.* (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760, 774 (1977). See also *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Plant, Units 1 and 2), LBP-81-21, 14 NRC 107, 118 (1981). A basis for allowing a plant to operate could exist in a number of ways. See *Gulf States Utilities Co.*, *supra*, 6 NRC at 775; *Virginia Electric and Power Co.*, *supra*, 8 NRC at 248; and *Pacific Gas and Electric Co.*, *supra*, 14 NRC at 113.

The record in this proceeding establishes that no undue risk to public health and safety will be caused by the operation of Shoreham pending the generic resolution of the water hammer issue. Most of the measures that are expected to be included in Staff's final generic resolution of water hammer have already been incorporated at Shoreham (Findings A-32, A-33). This near resolution of the issue and the compliance at

Shoreham with Staff's interim strategy for avoiding or mitigating water hammer effects are, in our view, an acceptable basis for licensing and provide the necessary reasonable assurance to permit reactor operation.

## II-B. ECCS Core Spray (SC Contention 10)

Suffolk County Contention 10 concerns whether the Japanese test data described in Board Notification 81-49 — data indicating that uneven Emergency Core Cooling System (ECCS) core spray distribution caused by the steam environment may result in little or no direct core spray to the central fuel bundles — invalidate General Electric's ECCS calculations for Shoreham. The County had alleged that Shoreham's ECCS has not been shown to meet the requirements of 10 C.F.R. § 50.46 and Appendix K as regards core spray distribution and counter-current flow (Findings B-1, B-4, B-5). The County presented no witnesses to support its allegations (Finding B-2).

We find, as presaged by the subject Board Notification itself, that the testimony before us, including the NRC Staff's SER Supplement 2 (Staff Ex. 2C, at 6-1 to 6-2), clearly demonstrates that:

- a. There are no specific requirements for core spray *distribution* in 10 C.F.R. § 50.46 or Appendix K and no assumption of core spray distribution in the GE ECCS analysis performed for Shoreham (Finding B-9; *see* Finding B-8).
- b. During a Loss of Coolant Accident (LOCA), the convective heat transfer coefficients acceptable for use in the Shoreham ECCS analysis based on Appendix K will be met due to the core spray flow, even assuming no direct core spray to the central fuel bundles. This is due to the fact that the core spray water will be delayed and formed into a pool at the top of the core due to the countercurrent flow limiting (CCFL) effect of the uprush of steam through the core. Enough of this core spray water, with ample margin, will flow from the pool through the fuel channels to provide adequate core spray coolant to justify the use of the Appendix K heat transfer coefficients in the Shoreham analysis (Findings B-10, B-11; *see* Findings B-6, B-7, B-8).
- c. Tests at the GE Lynn facility, Japanese tests, and analyses and review by GE and the Staff, show that during a LOCA, in addition to and concurrently with the CCFL pooling effect, there will be a much greater flow of core spray down the peripheral channels leading to rapid reflood of the core

(Finding B-12). Credit was not taken for this rapid reflood in the GE ECCS analysis for Shoreham (Finding B-13). The evidence establishes that even if no credit is taken for core spray flow through the core (other than the flow down the peripheral channels for purposes of reflood only) — *i.e.*, a core spray heat transfer coefficient of zero is assumed — the rapid reflood alone will assure that the peak clad temperature of 2200°F specified in Section 50.46 is not exceeded (Findings B-13, B-14).

With a minimum of hedging, the County now effectively concedes in its proposed findings that the allegations of its contention have been disproved (*see, e.g.*, SC Findings 10:7, 10:8, 10:9, 10:11). We agree for the reasons we have just outlined.

The County's argument that the test data and analyses relied on by GE and the Staff are not applicable to the Shoreham BWR core is contrary to the evidence and rejected (Finding B-14).

The County's arguments that the pertinent core cooling phenomena and Japanese tests are not sufficiently understood and should be explored in further detail are rejected. In the context of this litigation, further details are not necessary for the Board to reach the decision set forth above regarding the CCFL pooling and flow down effect assuming no direct core spray distribution to the central bundles. Further, although not necessary to disprove the contention, the finding that the additional phenomenon of rapid reflood will be able to perform required cooling, even assuming no core spray heat transfer, is well-supported and uncontradicted.

We do not rely on the additional cooling phenomena of CCFL at the bottom of the core or steam cooling, although we find they exist (Findings B-15, B-16). This is because the extent of their effect on cooling is not established in this record. LILCO's and the Staff's proposed findings that steam cooling alone will satisfy the minimum heat transfer coefficient (LILCO Finding C-19, Staff Finding 10:12) are rejected as not clearly supported by the citations provided. It appears (although it is unclear) that the Staff's witness was also assuming the presence of the rapid reflood phenomenon when discussing the steam cooling effect and the satisfaction of the Appendix K requirements. *See* Tr. 2596-98, particularly 2598, lines 21-22 (Sun).

The County's argument (SC Finding 10:8(h)) that the low pressure core spray system should be assumed to be the only [low pressure] ECCS system requires the assumption of the double failure of both low pressure coolant injection (LPCI) loops. There is no basis for such an assumption, and we reject it (Finding B-18). It also appears that such an



argument was not alleged and therefore is beyond the contention. Accordingly, it is understandable that there is no record on whether reflood would be acceptable if supplied with just core spray water and no LPCI water.

It is also well beyond the contention for the County to imply after the hearing (County Finding 10:8(a)), that we should reexamine the GE design process because it failed to account for the fact that the design goal of core spray distribution in an air environment would not be met in a steam environment. We reject such post-hearing attempts to change the contention. We note that there has been aggressive follow-up testing and analyses, fully discussed in this record and reflected in our findings, to show that the design of the core spray system need not be changed even though the design goals are not met. We see no health and safety purpose in the context of this proceeding to open an inquiry into how GE could have overlooked the need to design the core spray distribution for a steam environment.

The County apparently bemoans the lack of a LOCA in an actual full-scale operating reactor to prove that the peripheral core spray flow and rapid reflood will prevent the 2200 degree temperature limit from being violated (County Finding 10:8(c)). We readily agree with Mr. Hill's understatement, when the County postulated such an actual "test" during cross-examination, that "[i]t is not a very prudent test." Tr. 2619 (Hill); see Tr. 2618-19 (Lanpher, Hill).

We have found that as permitted by Appendix K, § D.6, appropriate experimental data support the use for the Shoreham 8 x 8 fuel array of the heat transfer coefficients which are specified in that section of Appendix K as being acceptable for a 7 x 7 fuel array (Findings B-6, B-7). That suffices for this contention for this proceeding. However, we recommend that the Commission consider whether Appendix K should be updated for this factor, as well as any other pertinent features, to specify the factors which would be acceptable in an ECCS analysis performed for an 8 x 8 fuel array. Otherwise, the presumed purpose of specifying these matters generically in Appendix K to avoid case by case determinations is not achieved for the current design of BWR fuel.

In conclusion, if needed, required ECCS cooling would be achieved even though there is no direct core spray distribution to fuel bundles. For the reasons outlined above, and detailed in our findings, we reject the contention and resolve the issue in LILCO's favor. As a generic matter, with no effect on this proceeding or the Shoreham reactor, we recommend that the Commission consider whether Appendix K should be updated for 8 x 8 fuel arrays.

## **II.C. Passive Mechanical Valve Failure (SC Contention 11)**

### **1. Introduction**

Suffolk County Contention 11 concerns the possibility of undetected failures occurring in valves utilized in the Shoreham safety-related systems. At issue in this contention is whether the subject valves may fail in an undetectable or unsafe mode, thereby jeopardizing the safe operation of the plant and, therefore, failing to be in compliance with 10 C.F.R. Part 50, Appendix A, General Design Criteria (GDC) 23, 34, 35, 37, and 40 (Findings C-1, C-6 and C-7).

Testimony was originally taken on this contention on June 4, 8 and 9, 1982 (Finding C-2). On April 7, 1983, subsequent to the filing of proposed findings on this issue, the County moved to reopen the record on this contention to permit the introduction into evidence of IE Bulletin 83-03, "Check Valve Failures in Raw Water Cooling Systems of Diesel Generators" (March 10, 1983) (Finding C-3). LILCO and the Staff opposed this motion (*id.*).

As no party sought a further evidentiary hearing even if the Board were to grant the County's motion, the Board determined that it would rule on the County's motion to reopen the record as a part of its initial decision on the merits of this contention (*id.*). The Board directed the parties to provide supplemental filings on IE Bulletin 83-03 and certain related documents and thereafter directed further filings responding to certain specific Board questions (Findings C-3, C-4). For the reasons stated below, the County's motion to reopen the record on this contention is hereby granted, and those documents identified in Finding C-5 are admitted into evidence.

#### ***a. The County's Motion to Reopen the Record***

We need not tarry in our discussion of the legal principles which are applicable to a motion to reopen the record. The Board has recently discussed these principles extensively in LBP-83-30, *supra*, 17 NRC at 1141-43 (1983), and we incorporate that discussion herein by reference. Suffice it to say that the test for reopening the record in an NRC proceeding "requires that (1) the motion be timely, (2) new evidence of a significant safety (or environmental) question exists, and (3) the new evidence might materially affect the outcome." *Id.* at 1141, and cases cited therein.

The County's motion to reopen states, *inter alia*, that the record on this contention should be reopened to permit the inclusion of IE Bulletin 83-03 because it represents recent data compiled by the NRC which indicates that the likelihood of undetected valve failure may be greater than previously anticipated and that this Bulletin documents that the in-service testing programs used by licensees have not been adequate to identify such failures. The County did not address the timeliness of its motion in this filing.

LILCO's April 22, 1983 response to the County's motion asserts that the County has not made the showings necessary to reopen the record. LILCO states that the County's motion to reopen is untimely, not because the County had delayed for too long a time after the March 10, 1983 issuance of IE Bulletin 83-03, but because, with the exception of the check valve failures at the Quad Cities plant described in that Bulletin, the events on which Bulletin 83-03 were based had already been the subject of previous I&E documents (LILCO Response at 3-5). LILCO also considers significant the fact that the County did not choose to cross-examine a LILCO witness testifying on Quality Assurance issues on November 17, 1982, about certain NRC check valve failure reports.

LILCO also asserts that the information contained in IE Bulletin 83-03 would be of little value to the resolution of this contention as it does not establish the probable frequency of valve failure at Shoreham or provide any information regarding Shoreham's in-service testing program (*id.* at 7-8).

The Staff's April 27, 1983 response joins in LILCO's argument that the County's motion is untimely because the vast majority of the undetectable valve failures referenced in the IE Bulletin had been previously reported by the Staff and should have been raised by the County before April 1983 (Staff Response at 3-4).

The Staff also asserts that, based on the Appeal Board's decision in *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-598, 11 NRC 876 (1980), the introduction of the Bulletin into evidence would not change the outcome of this proceeding, even if it is assumed that IE Bulletin 83-03 does present significant new information on the general subject of check valve reliability and in-service testing adequacy. The *Diablo Canyon* decision involved a request by intervenors to reopen the record in that proceeding on the subject of environmental qualification. One of the bases relied upon by intervenors in that proceeding was "new information" contained in a generic Staff communication to all construction permit and operating license applicants apprising them of a

Staff proposal for new generic standards for environmental qualification which, if approved, would have required that applicants backfit their plants to meet the standard. The Appeal Board ruled in that case that "[t]here must be indication in the 'new evidence' that the decision on the existing record would permit the use of unsafe equipment or create some other situation similarly fraught with danger to the public that merits immediate attention" in order to justify the use of a new Staff regulatory proposal as a basis for reopening the record. 11 NRC at 887.

In its May 5, 1983 reply, the County asserts that it is incorrect for LILCO and the Staff to state that the information contained in IE Bulletin 83-03 does not provide information which was not known previously. The County notes that IE Bulletin 83-03 specifically concludes that "our analysis of operating experience with check valves has shown that disassembly and partial disassembly of check valve internals is not effectively found by [ASME Code] Section XI testing as it is implemented at this time" [IE Bulletin 83-03, at 1.] (County Reply, at 2).

The County also disputes LILCO's and the Staff's position that the information was merely cumulative of previously reported information as the majority of the previous notifications contained little to put it on notice of in-service testing (IST) deficiencies. It observes that the Quad Cities data were developed only after the Staff requested such an inspection based on the Dresden failures and the similarities between the two plants. The County therefore views the Quad Cities failures to be "crucial" to the Staff decision that normal ASME Code Section XI testing is not effective in detecting such failures (County Reply at 3-5). The County also questions whether it would have been proper or realistic to expect it to have pursued its check valve concerns in the context of LILCO's QA testimony (*id.* at 5).

We believe the County has made an adequate showing to justify the limited reopening of the record on this contention which we are permitting by this decision. While we agree that the Dresden failure information did become available prior to the issuance of IE Bulletin 83-03 (albeit after the close of the record on this contention), we cannot say that the record before us on this motion to reopen indicates either that those references of previous events contained in Table 1 to IE Bulletin 83-03 should have been sufficient to put the County on notice of the failure of ASME Code Section XI testing to detect such failures or that the County should have filed its motion to reopen prior to the issuance of this Bulletin. We also believe that it would have been inappropriate for the County to pursue the substantive issue of check valve failures in the course of its cross-examination on quality assurance issues.

Furthermore, we find that IE Bulletin 83-03 provides new evidence that a significant safety question exists which could, indeed does, materially affect the outcome of our decision on this contention. We believe the *Diablo Canyon* decision to be distinguishable because this IE Bulletin found specific deficiencies in existing regulatory requirements for in-service testing of valves, whereas the notification in issue in *Diablo Canyon* merely related information of a proposed change in the regulations (which may or may not have ultimately been adopted).

In addition, the existing hearing record on LILCO's IST program in this proceeding already raised questions as to the adequacy of LILCO's IST program to detect passive failures of mechanical valves. The Staff's conclusion in IE Bulletin 83-03 that normal ASME Code testing is not effective in detecting such valve failures therefore raised considerable questions as to the ability of LILCO's IST to detect such failures.

We believe that the record, as supplemented, is generally responsive to these concerns, except as noted herein.

## **2. Scope of Contention SC 11**

While there existed some confusion at the hearing over the definition of the term "passive mechanical valve failure" and whether this referred to types of components or types of failures, it was generally established on the record that this term refers to the mechanical failure of an active or passive valve which may remain undetected until the system is called upon to perform its safety function (Findings C-6, C-7).

## **3. Generic Task B-58**

The County asserts in its proposed findings that the Staff's identification of Generic Task B-58, "Passive Mechanical Failures" indicates Staff support for its concern about undetectable mechanical failures of valves (Suffolk County Proposed Opinion, Findings of Fact, and Conclusions of Law in the Form of a Partial Initial Decision at 110 (Proposed Findings 11:12 through 11:15 (January 31, 1983) (hereinafter "Suffolk County Proposed Opinion")). Based on the limited description of this Task which appears in the record (Finding C-8) and the definitional problem described in Finding C-7, we find that the record lacks sufficient information on the precise focus of Generic Task B-58 to say that this is so (*see generally* Findings C-8 through C-10).

Regardless of the actual scope of this generic task, we believe it fair to state that IE Bulletin 83-03 does stand for the proposition that the Staff

is pursuing a generic program considering undetectable failures of valves (see Finding C-81).

#### 4. Single Failure Criterion

In general, the single failure criterion requires that systems important to safety be designed such that a single failure of a component will not compromise the system safety function. As defined in 10 C.F.R. Part 50, Appendix A, Definitions and Explanations:

A single failure means an occurrence which results in the loss of capability of a component to perform its intended safety functions. Multiple failures resulting from a single occurrence are considered to be a single failure. Fluid and electric systems are considered to be designed against an assumed single failure if neither (1) a single failure of any active component (assuming passive components function properly), nor (2) a single failure of a passive component (assuming active components function properly), results in a loss of the capability of the system to perform its safety function.<sup>2</sup>

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<sup>2</sup> Single failures of passive components in electric systems should be assumed in designing against a single failure. The conditions under which a single failure of a passive component in a fluid system should be considered in designing the system against a single failure are under development.

(Finding C-11.)

The "Introduction" section of 10 C.F.R. Part 50, Appendix A provides, in pertinent part:

The development of these General Design Criteria is not yet complete. For example, some of the definitions need further amplification. Also, some of the specific design requirements for structures, systems, and components important to safety have not as yet been suitably defined. Their omission does not relieve any applicant from considering these matters in the design of a specific facility and satisfying the necessary safety requirements. These matters include:

(1) Consideration of the need to design against single failures of passive components in fluid systems important to safety. . . .

(See Finding C-12.)

The County alleges in its testimony that LILCO has inappropriately applied the single failure criterion in the design of Shoreham (Findings C-17, C-18). LILCO interprets this criterion as requiring that fluid and electrical systems be designed to assure that neither the single failure of any active component, assuming passive components function properly, nor the single failure of any passive component, assuming active components function properly, will result in a loss of the capability of

the system to perform its safety function (Finding C-14). LILCO reads this criterion as requiring that single failures of passive components in an electrical system be assumed in designing against a single failure (*id.*). LILCO does not read the single failure criterion to require in all cases that an applicant assume a single failure of a passive component in designing a fluid system against a single failure of an active component (*id.*).

LILCO's witness testified that the single failure criterion has been applied in the design of Shoreham to assure that system safety function is preserved (Finding C-15). Fluid systems are designed to perform their safety functions after a single failure of active components (*id.*). Those safety-related fluid systems or portions thereof which are required to function during certain phases of normal plant operation have been designed to function after a single failure of passive components (*id.*).

LILCO has not designed the fluid systems at Shoreham to assume all potential single passive component failures in connection with a single active component failure (Finding C-16). The passive component failure evaluation at Shoreham is predicated on such events occurring after a loss-of-coolant accident (*id.*). By definition (Finding C-7), passive valves would not be required to move to mitigate accident type events and to perform their safety function during this time frame (Finding C-16). The single failure analysis performed for Shoreham has therefore assumed such passive failures as leakage from pump seals and valve stem seals and the failure of measuring devices, which were determined to be the most likely failures under such circumstances (*id.*).

Based on its reading of the portion of the Introduction to 10 C.F.R. Part 50, Appendix A described in Finding C-12, the County has read footnote 2 to the single failure criterion as requiring that an applicant assume a "passive failure" in addition to an active component failure if "passive failures" could not be detected via periodic testing or functional observation (Finding C-17). By the use of the term "passive failure," the County's witnesses testified that they meant an "undetectable failure," whether it occurs in an active component or a passive component<sup>13</sup> (*id.*). The County would have LILCO factor a single failure analysis, based on this definition, into what it describes as

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<sup>13</sup> Suffolk County included in its definition of "undetectable failures" not only mechanical failures such as the separation of valve discs from valve stems, but also valves which are inadvertently "locked out" in the improper position by operator error (Finding C-17). While such failures may indeed be "undetected failures," they are certainly not "mechanical failures" so as to be a design consideration in designing a fluid system against "undetected" or "passive" mechanical valve failures, and are thus beyond the scope of this contention (*see* Tr. 3705-06 (Judge Brenner)).

a "complete failure analysis" which would be used in establishing both valve testing frequency and design criteria (Finding C-17).

The Board finds no basis in 10 C.F.R. Part 50 to support the County's reading of the single failure criterion as requiring the assumption of a "passive" or "undetectable" failure of a passive or active component when designing against a single failure in a fluid system. While footnote 2 to the definition of the single failure criterion and the Introduction to 10 C.F.R. Part 50 are admittedly imprecise as to the criteria which should be followed in assuming the failure of a passive component in the design of a fluid system against the single failure criterion, each of these references clearly relates to the assumption of a "passive component" failure, not a "passive" or "undetectable" failure of either an active or passive component.

While it is true that the General Design Criteria are only minimum requirements and an applicant is required to consider areas which are still "under development" (Finding C-23), the County's reading of the definition of the single failure criterion would require that LILCO design Shoreham to postulate both a single failure and an undetected "passive mechanical valve failure" of an active or passive component (Finding C-22). At least insofar as this would require that LILCO assume the failure of an active component when designing against the single failure of an active component, this would constitute a postulated double failure of active components (*id.*). Such a reading of 10 C.F.R. Part 50, Appendix A, is clearly beyond existing regulatory requirements and inconsistent with regulatory practice (Findings C-19, C-20, C-21).

We believe that LILCO has adequately analyzed the conditions under which a failure of a passive component should be assumed in the design of a fluid system against a single failure. Furthermore, LILCO's application of the single failure criterion to active components in the design of Shoreham would bound undetected single failures of active components (Finding C-22). Accordingly, based on the record before us, the Board finds LILCO's application of the single failure criterion in the design of Shoreham to comply with the requirements of 10 C.F.R. Part 50, Appendix A.

##### **5. The Possibility of Undetected Valve Failures at Shoreham**

The main focus of this contention centered on the possibility of undetected valve failures at Shoreham and the adequacy of LILCO's efforts to prevent or detect their occurrence. While the Staff, LILCO and the County all agreed that the possibility of an undetected valve



failure is unlikely, each also agreed that such failures are possible (Findings C-24, C-25, C-26).

No party had performed any analysis to determine the probability of such failures (Findings C-24, C-25). However, on the basis of the record which has been developed on this contention, a further overall valve failure analysis, as advocated by the County (*see* Findings C-18, C-66, C-83, C-84), is not required or warranted (*see* Section II-C.5.d.3), *infra*).

**a. Valve Design and Construction as an Indication of Valve Reliability**

The record indicates that the safety-related valves used at Shoreham are highly reliable (Finding C-26). These valves were constructed to the codes and standards in effect on the purchase order date of the components and they were procured, designed, fabricated, inspected, and installed in accordance with the quality assurance requirements of 10 C.F.R. Part 50, Appendix B (*id.*). They have been and will be subjected to extensive testing, from manufacture through in-service inspection and testing (*id.*). Furthermore, to the extent practical, Shoreham uses standardized valve and valve operators that have been proved over time to be reliable (Finding C-28).

The County took issue with LILCO's and the Staff's conclusion that the valves used at Shoreham were "highly reliable," and with the assertion that the design and construction of these valves was relevant to their ability to prevent undetected mechanical valve failures at Shoreham. At the hearing, the only example of a valve utilized at Shoreham which the County cited as being unreliable and as being subject to undetectable failures is the Rockwell-Edward main steam isolation valve (MSIV) (Findings C-29, C-30, C-31). During a six-year period there were seven reported failures of MSIVs involving the mechanical separation of the valve internals permitting the main disc to become separated from the valve stem. Five of these failures took place at Brunswick Unit 2, one occurred at Brunswick Unit 1 and one occurred at Hatch Unit 2 (Finding C-29).

LILCO had at the time of hearing ordered the MSIV modifications recommended by the manufacturer to correct potential deficiencies described by the Staff in an I&E information notice (Finding C-29). The County asserted that LILCO's response to these failures was inadequate to demonstrate the reliability of these valves, however, as LILCO had not undertaken any kind of failure analysis to ensure that the same or similar kinds of failures would be detected if they occurred in Shoreham's modified MSIVs (Finding C-29).

We find no need for such an analysis, however. The record demonstrates that the County's concern about the detectability of MSIV failures is unfounded. The design of these discs is such that on separation, pressure would drive the disc closed so that the failure would become detectable (Finding C-32). Furthermore, the record strongly suggests that the repeated failures of the MSIVs described by the County were primarily plant-specific maintenance problems related to the apparent inability of the workers at the Brunswick facility to properly install a retaining pin in the valves after maintenance (Finding C-47). We therefore find no basis in the record or in any regulatory requirement that such an analysis be performed.

While we find on this record that the valves used at Shoreham are generally highly reliable, at least at the time of their installation, the reliable design and construction of valves, of course, cannot by itself guarantee that mechanical valves will not later fail in an undetectable mode (Finding C-34). The undetected check valve failures described in IE Bulletin 83-03, for example, primarily involved failures due to abrasive and corrosive wear (Finding C-33). Accordingly, the remaining segments of this opinion examine LILCO's efforts to detect or predict valve failure and preserve system function.

***b. Position Indicators, Flow Monitors and Redundant Systems***

Valve stem position indicators are one means by which certain "passive mechanical valve failures," such as gear train failure, may be detected (Finding C-40). Position indicators will generally not detect a disc-to-stem separation, however (*id.*). If a stem-to-disc separation occurs while the valve is trying to close and the disc is jammed, the position indicator would show no indication of failure (*id.*). Whether the failure would be detected prior to the request for the valve to close depends upon the function of each specific valve (Finding C-39).

Except for solenoid valves, all remotely actuated motor- or air-operated valves have either position indicators, which will detect passive failures in the upper portion of the valve including the entire valve operator, or discharge pressure indicators, which indicate valve operation (Finding C-35). Solenoid valves on very small branch lines do not have position indicators as they cannot be designed to accommodate them (*id.*). The function of the electric circuitry leading to these valves is monitored, however (*id.*).

Manual valves do not typically have position indicators (Finding C-36). The criterion established is that manual valves which are inaccessible, such as those in the drywell, and which are located in the

essential flow streams do have position indication (*id.*). Manual valves which do not have position indicators are typically valves whose operation can be verified through physical inspection (*id.*). Position indicators are also used on manual valves where required by technical specifications (*id.*).

Certain other valves, such as check valves, do not have position indicators (Finding C-37). This is because their reliability was believed to be such that there was no need to require position indication (*id.*). The primary failure mode of such valves is steam leakage from valve seals (*id.*). The LILCO witness did not believe that any of these valves would be readily adaptable to the installation of position indicators (*id.*).

Suffolk County took the position at the hearing that valve position indicators should be required for all safety-related valves at Shoreham and that LILCO should be required to justify any decision not to utilize such indicators (Tr. 3725 (Bridenbaugh)). In its Proposed Opinion, Suffolk County takes the position that the record is incomplete because LILCO has provided no evidence of a systematic program to analyze the need for position indicators or to develop criteria for determining whether position indicators should be required for all safety-related valves. Suffolk County's Proposed Opinion at 124, 125 (Proposed Findings 11:41, 11:44). The County cites no authority for this reading of the record, and we are not aware of any regulatory requirement for the development of such failure analyses as a basis for determining criteria for the use of position indicators.

We find the County's criticism of LILCO's alleged lack of criteria for the use of valve stem position indicators to be quite ironic, considering that the only basis which any County witness gave for arguing that all safety-related valves should have valve stem position indicators, even valves which are manually operable only, locked in a particular position and readily accessible during operation, is that he would "feel better" if they all had them (Tr. 3725 (Bridenbaugh)). Valve stem position indicators would be of little utility in detecting valve stem-disc separations (Findings C-39, C-40) and would usually detect other types of passive (undetected) valve failures only when a valve failed to operate (Finding C-40).

The record on this contention indicates that the general criterion followed by LILCO for the use of valve stem position indicators or other devices to detect operation or operability is that such instruments are used for both remotely activated valves and for manual valves which are both inaccessible and located in essential flow streams (Findings C-35, C-36).

No position indicators were required for check valves because their reliability was believed to be such that there was no need for these devices (Finding C-37). While the recent issuance of IE Bulletin 83-03 may have raised some doubt concerning the reliability of such valves (Finding C-73), it is clear that position indicators would not detect either leakage from valve seals (the primary failure mode of these valves) or disc-stem separations such as those discussed in IE Bulletin 83-03 (Findings C-35, C-39, C-40; *see generally* Findings C-33, C-67, C-68).

Furthermore, we agree with LILCO witness Fortier that it is not necessary to have position indication on all safety-related valves at Shoreham since it is not individual valve function which must be preserved, but overall system function (Finding C-38). A single undetectable mechanical valve failure will not jeopardize the safe operation of Shoreham because there are redundant lines or other systems to bring a plant to a safe condition (*id.*). Therefore, while it would be necessary to detect system function in the event of a failure, it would not be required that valve operability be detectable (*id.*).

Accordingly, we find reasonable assurance on this record that LILCO has made adequate and reasonable use of valve stem position indicators at Shoreham. We find there is no legal requirement or any other basis in this record for requiring that LILCO outfit all safety-related valves at Shoreham with valve stem position indicators or other devices capable of detecting valve operation or operability, or for requiring that LILCO perform a failure analysis to determine the appropriate locations for such devices, as advocated by the County.

### ***c. Monitoring and Evaluation of Industry Experience***

A further method by which LILCO safeguards against potential valve failures is by monitoring and evaluating industry experience with valves to determine its applicability to Shoreham and to take any remedial action that may be necessary at the plant (Findings C-41 through C-45). The County asserts in its Proposed Opinion:

A primary Suffolk County concern in this regard is that LILCO needs written procedures for the review and assessment of industry experience regarding valve failures. The procedures should specify the different sources of operating experience that will be monitored, the persons responsible for such monitoring, the timeliness of the review process, and the criteria by which decisions can be made as to whether changes needed to be implemented in plant hardware, operating procedures, or in surveillance and testing requirements (Tr. 3555, 3579-80, 3688-89 (Bridenbaugh)).

Suffolk County Proposed Opinion, Volume Two of Two, at 126 (Proposed Finding 11:48) (January 31, 1983). The plan described by LILCO at the hearing addresses each of these concerns.

Shoreham will review data from numerous sources of industry experience. The principal sources include General Electric (Service Information Letters and Technical Information Letters), the Nuclear Safety Analysis Center, the Institute of Nuclear Power Operations (INPO) (Significant Event Reports and Significant Operating Experience Reports), the NRC (new Regulatory Guides, I&E Notices, Bulletins and Circulars, and Licensee Event Reports) and the Electrical Power Research Institute (EPRI) (Finding C-41).

In addition to LILCO's own evaluation of industry experience, contractual obligations of Stone & Webster and General Electric with LILCO ensure that it will receive these companies' evaluation of industry experience relevant to Shoreham (Finding C-42).

Information from these sources goes to the Nuclear Operating Services Division (NOSD) and to the plant itself (Finding C-43). If it is determined to be applicable to Shoreham or to pose any potential question, it is disseminated to the Technical Support Division which forwards such information to the Technical Support Division manager (*id.*). He sends it to an appropriate section or department head who, in turn, assigns the item to the appropriate technical expert for detailed review, with an action date. Upon satisfactory completion of that work, the section head, the department head and the plant manager document their review and approval of the work (*id.*).

Industry experience is also evaluated and reviewed by the Independent Safety Evaluation Group (ISEG). Its recommendations regarding applicability and proposed modifications are forwarded to the plant manager (Finding C-44). Recommendations for changes to the plant are reviewed by the Review of Operations Committee, and necessary follow-up action is implemented (Finding C-45). Documentation of the entire review process is maintained to show what information was reviewed, its evaluation and the response or action taken (*id.*).

The County's witnesses testified at the hearing that they had no reason to doubt that LILCO intends to implement the program described at the hearing for monitoring and reviewing industry experience (Finding C-46).

The County's Proposed Opinion states that "[t]he LILCO descriptions of its programs for monitoring industry experience seem, on paper, to be adequate." Suffolk County Proposed Opinion, Volume Two of Two, at 127 (Proposed Finding 11:51) (January 31, 1983). The County follows, however, with the statement that "there is evidence that the

LILCO program has not been effective at least to date,” which it asserts raises the concern of whether LILCO’s present and future programs will be implemented properly.

The specific concern regarding LILCO’s monitoring of industry experience raised by the County relates to the multiple MSIV failures at Brunswick Units 1 and 2 and Hatch Unit 1 (described in Findings C-29 through C-32) and the fact that LILCO took no corrective action with regard to its own similar MSIVs from 1976 to 1981 until after the issuance of IE Information Notice 81-28 (Finding C-46).

As we described above, however, LILCO testified that until the issuance of IE Information Notice 81-28, the MSIV failures appeared to be plant-specific maintenance problems, primarily since all but one of these failures occurred at the Brunswick facility (Finding C-47). Indeed, we note that five of the seven MSIV failures were described as the result of the maintenance crew’s failure to insert or improper insertion of a retaining pin, and one involved the failure of a square pin which had been used in a round hole (*id.*).

The record before us on the MSIV failures gives us no difficulty in accepting LILCO’s explanation of its delay in discerning the need for corrective action on these valves. We find there is reasonable assurance that the program described by LILCO for monitoring and evaluating industry experience is adequate.

Furthermore, we believe that LILCO’s inclusion of the six diesel generator check valves described in IE Bulletin 83-03 in its IST program prior to the issuance of that IE Bulletin, and LILCO’s requirement of both forward and reverse flow testing of these particular check valves prior to the issuance of that Bulletin, gives us additional reason to find such reasonable assurance (Finding C-77).

#### ***d. In-service Testing of Valves***

The final method by which LILCO proposes to mitigate the possibility of undetected valve failures at Shoreham is through its “In-Service Testing (IST) Program.” In-service testing provides further assurance that valves are reliable and function properly (Finding C-55).

##### ***1). Regulatory Requirements***

The regulatory basis for in-service inspection and testing of valves is 10 C.F.R. § 50.55a, which subsumes ASME Code Section XI (Finding C-48). Generally, the ASME Code provides that testing of valves

should occur every three months (*id.*). The Code recognizes that circumstances may make deviations from this testing frequency desirable, although it provides no further guidance on these deviations (*id.*). While ASME Code testing requirements are not based on rigid reliability analyses (Finding C-50), the Board notes that it is the normal practice in the United States for National Standards and industry codes to be adopted by consensus among senior acknowledged experts in the appropriate technical fields.

The Staff requires compliance with the testing described in the ASME Code, "provided that [such testing] does not put the plant in an unsafe condition" (Finding C-48). When the Staff determines that a valve need not be tested every three months, the valve must be tested at cold shutdown, where practicable, and in no event at an interval longer than every refueling (Finding C-49). In those cases, a period ranging from three months to two years (normal refueling) is adequate (*id.*).

For certain valves, a testing frequency of once every three months reduces reliability (Finding C-51). There is a balancing judgment which must be made regarding the frequency of testing; too much testing may reduce the overall reliability of the component being tested, while too little testing could also reduce valve reliability (*id.*). The crucial variable in determining test frequency is safety, which includes consideration of the detectability of failures and the historical reliability of the component being tested (Findings C-51, C-52).

Valve testing frequencies approved by the Staff become a part of the technical specifications to the plant's operating license (Findings C-53, C-54). Special testing is also imposed by technical specifications to demonstrate system performance, including valve operability during various plant operating conditions (Finding C-54). Special tests are required for specific valves, for fluid systems, and under certain conditions, for systems during normal operations (*id.*). These additional test requirements include surveillance intervals beyond those covered by the in-service testing program (*id.*).

## 2). *LILCO's In-service Testing Program*

There was considerable discussion at the hearing of the draft LILCO IST program submitted for Staff review in January 1982 (Finding C-55). The uncontroverted testimony at the hearing was that LILCO's January 1982 plan followed the format of the NRC's "Guidance for Preparing Valve Testing Program Descriptions and Associated Relief Requests Pursuant to 10 C.F.R. § 50.55a(g)" and was representative of testing plans in the industry (Finding C-57).

The concern raised most frequently by the County at the hearing involved the number of "relief requests" which LILCO had filed with that plan (Finding C-58). LILCO sought relief in the form of longer test periods for about 20 percent of the approximately 500 (97 out of 486) valves included in its January 1982 plan (*id.*).

The County position was that LILCO's plan did not adequately explain its basis for requesting longer intervals between tests, such as whether this decision was based on the possibility that excessive testing of a particular valve might increase the potential for valve failure or other considerations (*id.*).

The Staff had not reviewed the January 1982 LILCO IST plan and took no position on its adequacy at the hearings (Finding C-56). The testimony of LILCO and Staff witnesses at the hearing was that the final number of relief requests would probably be reduced after review by LILCO's consultant and the NRC Staff (Findings C-59, C-60). LILCO's witness testified at the hearing, however, that LILCO's January 1982 test plan "could be a moving target," since the test plan would not be final until the issuance of an operating license; the date of operating license issuance determines which edition of the ASME Code must be followed (Findings C-61, C-62; *see* 10 C.F.R. § 50.55a(g)).

After preliminary review by the Staff in November and December 1982, and a review by a LILCO consultant, the IST program which had been the subject of our June 1982 hearings was substantially revised (Finding C-63). This revision, which was submitted to the Staff in April 1983, is anticipated to be the program that will be in effect at fuel load (*id.*).

The scope of the April 1983 revision to the LILCO IST program has been considerably expanded from that of the January 1982 test plan. There are 1268 safety-related valves in the April 1983 Shoreham IST program, of which 579 are check valves: 168 are piping system check valves and 411 are check valves in the hydraulic control units (HCU). Every safety-related check valve (a check valve which must function in order to ensure the proper operation of a safety-related system) at Shoreham is included in the IST program (Finding C-64). Requests for relief from the quarterly testing were filed for a total of 446 of the 579 check valves (77 percent) (Finding C-65). These relief requests apply to 383 of the 411 HCU check valves, to 58 of the 162 regular check valves and to 5 of the 6 stop check valves (*id.*).



### 3). *Suffolk County's Concerns*

The Suffolk County witnesses testified at the hearing that where relief is sought from a quarterly test or inspection requirement, the rationale for a longer test period should be identified and justified (Finding C-66). They stated that there should be a carefully disciplined approach to relief requests which is fully documented and which can be reviewed. The County advocated that a complete failure analysis be performed to determine consequences of a valve failure, and that this analysis be used as a basis for establishing the frequency of valve testing (*id.*). The County's witnesses also testified at the hearing that the January 1982 LILCO IST program did not address passive valves or indicate which valves may be susceptible to undetectable failures (*id.*).

IE Bulletin 83-03, "Check Valve Failures in Raw Water Cooling System of Diesel Generators" (March 10, 1983), which is admitted into evidence by this decision, is relied upon by the County as a new specific example to support its argument that the Shoreham IST program is inadequate to detect passive failures of mechanical valves (Finding C-68). This IE Bulletin describes the failure of the check valves in the raw cooling water supply systems for the diesel generators at the Dresden and Quad Cities nuclear power stations as the result of the separation of the valve discs from the valve stems. The Dresden check valve failures rendered two diesels inoperable at the same time when the valve discs, which had been floating free within the valve bodies, moved to the valve outlets and blocked flow to the diesels. At Quad Cities, the failures remained "latent," *i.e.*, the valve discs were floating free but had not moved to the outlet or blocked flow (Findings C-68, C-69, C-70). The dominant failure mode for all valves described in that bulletin was the result of abrasive and corrosive wear of valve internals (Finding C-33).

IE Bulletin 83-03 was issued by the Staff to directly respond to the check valve failures at Dresden and Quad Cities. The Bulletin requires holders of operating licenses to take specific actions to improve in-service testing of check valves in the cooling water systems for diesel generators (Finding C-71). The specific failures referred to in Bulletin 83-03 concerned check valves *not* included in the in-service testing programs at those respective plants (*id.*). The Staff noted in IE Bulletin 83-03, however, that check valve failures such as those of Dresden and Quad Cities are "not effectively found" by ASME Section XI testing as it is usually implemented at this time:

[O]ur analysis of operating experience with check valves has shown that disassembly and partial disassembly of check valve internals is not effectively found by Section XI testing as it is implemented at this time. Tests performed for Section XI or Technical Specifications usually require only forward flow through check valves.

These tests may not detect internal check valve failures unless the disassembled parts move to block flow during the test.

(Finding C-68.) IE Bulletin 83-03 requires that diesel generator raw cooling water valves be tested for forward and reverse flow (or that an acceptable alternative to such testing, such as disassembly, be implemented) (Finding C-71). LILCO is required to comply with the Bulletin (Finding C-72).

This IE Bulletin also notes that the scope of its concern extends beyond the diesel generator cooling system check valves:

It should be noted that the popular use of swing check valves in safety related plant fluid systems considerably expands the scope of concern for check valve maintenance and testing beyond diesel cooling systems. Licensee event reports indicate that other systems important to safety have experienced failure of check valves which are not included in the IST program and have not been discovered during testing. Other licensee event reports indicate that for those valves which are not leak tested, both the type and frequency of testing may not be adequate to detect valve failure. Maintenance and IST programs should be reconsidered in light of detecting and preventing gross and multiple check valve failures that can defeat functions of systems important to safety. This includes concerns both for check valve opening and closure.

(Findings C-73, C-74.)

The ASME Code requires that check valves be "considered" for inclusion in in-service testing plans (Finding C-75). All safety-related check valves at Shoreham are included in the LILCO IST program submitted to the Staff in April 1983 (*id.*). Prior to the issuance of IE Bulletin 83-03, Shoreham had specified that not only would the six valves in the diesel generator cooling water system be tested for both forward and reverse flow, but also that 44 other check valves would also be tested for both forward and reverse flow (Finding C-75). There are 219 check valves in the IST program that are tested for forward flow only, and another 310 check valves that are tested for reverse flow only (*id.*). Mr. Rigert's July 9, 1983 affidavit states that the selection of flow direction for testing is based upon the required valve response to system flow conditions during system operation. For example, if a valve must pass forward flow and prevent reverse flow for the system to operate properly, the valve is tested in both directions (Finding C-76).

IE Bulletin 83-03 states that the specific requirements it imposes are only part of a generic response to check valve failures which will result in improved testing to ensure operability and to improve reliability of check valves (Finding C-81). Recently completed and ongoing Staff generic efforts are described in the "Affidavit of Ralph Caruso" (June 10, 1983), at 1-4 (*id.*).

LILCO is also continuing efforts to identify causes of passive mechanical valve failures (Findings C-78, C-79). Furthermore, it asserts that it is "investigating" the adoption of a computerized system which could be used to incorporate industry and Shoreham-specific valve-related experience into its IST and preventative maintenance programs. This program would assist LILCO in performing trending analyses and in identifying common causes of not only passive mechanical valve failures but all valve failures (Finding C-78).

The County asserts that the check valve failures described in IE Bulletin 83-03.

show clearly that such failures are relatively common, and that they can occur simultaneously in redundant systems, that they are not detectable by the normal testing program, that they can result in non-availability of essential safety systems, and that the standard level of valve position indication instrumentation is not capable of providing warning of such failures.

(Finding C-82.)

The County states that the criterion described by LILCO for determining whether a check valve is to be tested by forward flow testing, reverse flow testing, or both is "overly simplistic" (Finding C-82). The County believes that because IE Bulletin 83-03 states it to be doubtful that normal forward flow testing would have detected check valve failures such as those described therein, LILCO should perform "a more sophisticated failure analysis for each of the valves to determine unusual failure modes that might occur, to quantify more accurately the test acceptance criteria, and to identify the need for augmented action, such as periodic disassembly, and additional position indicators for valves determined to be 'high risk' " (*id.*).

The County also states that while a computerized program to ensure responsive testing and maintenance such as that proposed by LILCO would be "desirable," LILCO has not committed to install and utilize such a system (Finding C-83). Furthermore, even if such a program is implemented the County believes that a reactive system such as this "cannot obviate the need for a systematic and disciplined failure analysis" (*id.*).

Addressing each of the County's arguments individually, we note first that we have already rejected the County's argument that additional valve position indicators would be able to detect the separation of valve discs from valve stems (Findings C-39, C-40). We find nothing in IE Bulletin 83-03 which would lead us to question that conclusion.

We also do not agree with the County's conclusion that IE Bulletin 83-03 shows that valve disc separations from valve stems are "relatively

common.” While it is true that IE Bulletin 83-03 states that “numerous check valve failures have occurred in systems important to safety in nuclear power plants” (Finding C-73), we cannot say that this makes such failures “relatively common.” Indeed, no example of any such failure was raised by the County at the hearing.

Furthermore, we find this statement from IE Bulletin 83-03 to be so general as to raise more questions than it answers. This statement gives no indication what its authors considered to be “numerous,” how many of these check valve failures were disc-stem separations or failures of other sorts, such as seal failure, or how many would have been undetectable by normal in-service testing. Indeed, as licensees are only required to “consider” in-service testing of check valves (Finding C-75), we do not have any indication of how many of these check valves being described were subject to no in-service testing whatsoever prior to their failures.

Nothing in IE Bulletin 83-03 controverts the statement of the County’s own witness that the frequency of undetectable failures of valves of any sort “has been relatively low” (Finding C-26). Therefore, while we acknowledge the possibility of undetectable failures of check valves, we cannot conclude that they have been relatively common, at least if they are included in in-service testing programs.

Next, while we acknowledge that check valve failures such as those described in IE Bulletin 83-03 can occur simultaneously in redundant systems when subjected to no in-service testing, we are uncertain what conclusion the County would have us draw from this occurrence. Theoretically, it has always been the case that any two redundant systems could fail simultaneously. We do not find the situation described in IE Bulletin 83-03 to provide an adequate basis to warrant any change in our interpretation of the single failure criterion discussed above or as providing an adequate basis for requiring that LILCO postulate a double failure (*i.e.*, an undetected failure of one component together with a single failure of another component) as a basis for designing the fluid systems at Shoreham. We still deem such an assumption to be beyond any regulatory requirement and unjustifiable based on the isolated occurrences described in IE Bulletin 83-03.

We also conclude that there is no basis in this record, including the events described in IE Bulletin 83-03, for requiring that LILCO perform a “comprehensive failure analysis” of the sort described by Suffolk County with regard to this and all other aspects of this contention. Such an analysis is clearly beyond any existing regulatory requirement, is inconsistent with general industry practice and has not been performed for any existing plant (Finding C-19). Furthermore, there is no basis for us

to conclude on this record that comprehensive failure analysis such as that advocated by the County would produce a result significantly more capable of protecting the safety function of valves than present methodologies. The County's witnesses had never performed any such analyses themselves, nor were they aware of any regulatory or other technical papers describing or supporting the need to conduct such vaguely described, broad analyses (Findings C-20, C-21, C-26). On this record, we do not find such a failure analysis to be required for us to be able to find reasonable assurance of the adequacy of LILCO's abilities to detect passive failures of mechanical valves.

We similarly find this record to lack any adequate basis to support the County's assertions that LILCO has not provided adequate justification of the basis for its requests for relief from the ASME Code three-month testing interval for valves. While the County has described the numbers of relief requests filed with both LILCO's January 1982 IST program and its April 1983 revision as being large (*see* Findings C-58, C-65), the County has never set forth, either at hearing or thereafter, particular concerns about individual relief requests nor given any indication as to which relief requests it would not question.

Naked numbers, of course, do not reflect the true nature of the requests for relief. For example, 383 relief requests relate to identical valves in the hydraulic control units (HCU) (Findings C-64, C-65). We take official notice that it is not possible to test many HCU check valves during operation.<sup>14</sup> The County does not take the position that no deviation from the ASME Code specified valve testing may be permitted, however. *See* Suffolk County Proposed Opinion, Volume Two of Two, at 122 (Proposed Finding 11:35) (January 31, 1983).

Effectively the only complaints which the County has raised about the relief requests filed by LILCO is that there are many of them and that they are not supported by a failure analysis which demonstrates that the grant of a relief request will not result in a valve remaining untested for an unsafe period of time (Finding C-66; *see* Findings C-83, C-84). As we have already determined there to be no basis on this record for requiring LILCO to perform failure analyses such as those advocated by the County, this unspecified derivative concern of the County must also fail.

We also conclude that the County's concern about the lack of adequate consideration of passive valves in LILCO's IST program must fail for

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<sup>14</sup> As set forth below, the Board leaves portions of the check valve issue open. Parties will have the opportunity to disagree with this conclusion as a part of the further filings on this issue described below. *See* 10 C.F.R. § 2.743(i).

lack of specification. At no point in the hearings on this contention has the County identified specific passive valves it believes should be included in LILCO's IST program which are not included, nor has it identified kinds of passive valves which it believes to have been excluded. Accordingly, we cannot find the County's concern to be supported by the record.

On the other hand, even though we find that IE Bulletin 83-03 does not support the County's conclusion that a failure analysis must be done for the check valves at Shoreham, we cannot conclude on the present record that LILCO has adequately addressed the concerns raised in that Bulletin. In our view, the significance of IE Bulletin 83-03, beyond its requirement that check valves in raw water cooling systems of diesel generators be included in IST programs, is that it calls into question the ability of normal in-service testing of check valves by forward flow testing only to detect "passive" or "latent" separations of valve discs from valve stems (Finding C-68). Unlike those check valves in the diesel generator raw water cooling systems, for which IE Bulletin 83-03 specifically requires testing either by both forward and reverse flow, or by valve disassembly and inspection or by "other equally effective means of assuring integrity of the valves" (Finding C-71), IE Bulletin 83-03 does not specifically mandate the kinds of testing to be used for other check valves. It does state, however, that

[m]aintenance and IST programs should be reconsidered in light of detecting and preventing gross and multiple check valve failures that can defeat functions of systems important to safety. This includes concerns both for check valve opening and closure.

(Finding C-74.)

LILCO has stated its intention to test all safety-related check valves at Shoreham by either forward and reverse flow, by reverse flow only, or forward flow only, "based upon the required valve response to system flow conditions during system operation" (Findings C-75, C-76). This means that under circumstances such as those in the case of the valves which were the subject of IE Bulletin 83-03, where a valve must pass forward flow and prevent reverse flow for the system to operate properly, LILCO will test the valve by flow in both directions (Finding C-76).

In light of the conclusions in IE Bulletin 83-03 that disassembly and partial disassembly of valve internals "is not effectively found" by only forward flow through check valves, and that it is "doubtful" that such testing would be able to detect such failures, "except by chance" (Finding C-68), it is not clear from any of LILCO's filings why it believes that requiring the vast majority of the safety-related check valves

in LILCO's IST program to be tested for single direction flow testing only (*i.e.*, forward or reverse flow testing only) would be adequate to detect or prevent "gross and multiple check valve failures that can defeat functions of systems important to safety" (Findings C-74, C-75).

It is not clear from the present record whether it is LILCO's position that such single direction flow testing will be adequate to detect the disassembly or partial disassembly of these particular check valves because, (1) flow testing in both directions could or would not be performed for these particular valves and LILCO proposes to adopt other means to prevent or detect disassembly or partial disassembly of these check valves; or (2) whether it is LILCO's position that single direction flow testing of these check valves is adequate because it believes other means already exist which would effectively assure system function even if such failures did occur. We simply lack sufficient information at the present time to conclude whether LILCO has adequately addressed the concerns about the detection and prevention of check valve failures as discussed in IE Bulletin 83-03. Accordingly, as set forth more fully below, LILCO will be required to further supplement the record on this issue before we can deem this contention to be fully resolved.

Although we are retaining jurisdiction over this issue of the adequacy of LILCO's IST program to respond to the concerns expressed in IE Bulletin 83-03 about the detection and prevention of disassembly and partial disassembly of check valve internals, we do not find the gap existing in the present record to be of such significance to preclude our finding reasonable assurance of the adequacy of LILCO's IST program to permit fuel load and operation up to five percent of rated power.

As the record demonstrates the low frequency of undetectable failures of all types (Findings C-24, C-26), we perceive there to be little likelihood of an undetectable check valve failure occurring at Shoreham in the limited time period between the issuance of this decision and our final resolution of this contention. This conclusion is strengthened when we note that the check valve failures which were the subject of IE Bulletin 83-03 were the result of abrasive and corrosive wear of valve internals during normal operation (*see* Finding C-33). We would therefore conclude that the probability of such a failure under the relatively lower temperatures and pressures present during low-power operation would also decrease. Finally, the period of time for this to be resolved before us is unlikely to be much longer, if at all, than the normal three-month IST interval after operation begins. Accordingly, we find reasonable assurance, based upon this record, that LILCO's IST program is adequate to permit fuel loading and operation up to five percent of rated power.

## 6. Conclusion

In this opinion, we have concluded that:

- (a) there is reasonable assurance of adequacy of LILCO's application of the single failure criterion in the design of the fluid systems at Shoreham and that LILCO's analysis of component failures would bound undetected single failures of such components;
- (b) undetected valve failures are possible, although their frequency has been low and they are unlikely to occur;
- (c) while it is possible for valves to fail in an undetectable and unsafe mode, a single undetected valve failure would not jeopardize safe operation of the plant because redundant lines and other systems can bring the plant to a safe shutdown condition;
- (d) there is reasonable assurance that the valves which LILCO has used in constructing Shoreham are highly reliable, although this fact does not preclude the possibility of a valve failing in an undetectable mode at some future time;
- (e) there is reasonable assurance that LILCO has made adequate and reasoned use of position indication devices in constructing Shoreham and that no justification has been shown for requiring the use of position indication for all safety-related valves at Shoreham, particularly in the context of this contention; such devices are generally not capable of detecting valve disc-stem separations, although they may detect the existence of other types of passive failures;
- (f) there is reasonable assurance that LILCO has in place an adequate and reliable system for monitoring and evaluating industry experience and that it will take appropriate corrective actions in a timely manner.
- (g) There is neither a regulatory requirement nor a basis in the record for requiring a "complete" and "systematic" failure analysis as a basis for establishing IST program valve testing frequencies;
- (h) there is reasonable assurance that LILCO's IST program is adequate to permit fuel loading and operation up to five percent of rated power.

The sole issue remaining before this Board is the adequacy of LILCO's IST program, which requires only single direction (forward or reverse) flow testing for certain check valves, to respond to the concerns expressed in IE Bulletin 83-03 about the need to reconsider maintenance



and IST programs "in light of detecting and preventing gross and multiple check valve failures that can defeat functions of systems important to safety."

Essentially what the Board is seeking from LILCO is a statement of its basis for concluding that its current IST program will adequately detect and prevent check valve failures such as those described in IE Bulletin 83-03, even though that Bulletin specifically states that normal forward flow testing may not adequately detect such check valve failures. This statement, in the form of an affidavit or affidavits, shall include a discussion of both whether and why it believes that single direction flow testing will be adequate to detect or prevent "latent" check valve failures, such as those described in IE Bulletin 83-03, and what other methodologies does LILCO intend to use to detect or prevent such failures. LILCO's affidavits shall be filed within two months from the date of service of this decision.

The parties are directed to confer for the purposes of narrowing or settling this issue of testing and surveillance to detect check valve failures. A negotiation status report on behalf of the parties shall be filed not later than the date for filing of LILCO's affidavits.

If the issue is not settled, responsive affidavits from the Staff and County, together with their views as to the need for cross-examination on LILCO's affidavit(s), shall be filed one month after the date of service of the LILCO affidavits.

#### **II-D. Anticipated Transients Without Scram (SC Contention 16)**

Suffolk County's Contention 16 alleges that LILCO and the NRC Staff have not adequately demonstrated that Shoreham meets the requirements of 10 C.F.R. Part 50, Appendix A, GDC 20 relating to anticipated transients without scram (ATWS).<sup>15</sup> The County asserts that the inadequacy results because interim measures being taken, including operational procedures and operator training, will not compensate for the lack of an automatically initiated and totally redundant standby liquid control system (SLCS) which meets the single failure criterion (Finding D-1).

<sup>15</sup> 10 C.F.R. Part 50, Appendix A, GDC 20 states:

*Protection system functions.* The protection system shall be designed (1) to initiate automatically the operation of appropriate systems including the reactivity control systems, to assure that specified acceptable fuel design limits are not exceeded as a result of anticipated operational occurrences and (2) to sense accident conditions and to initiate the operation of systems and components important to safety.

LILCO and the Staff presented a combined witness panel to testify on this contention; Suffolk County presented no witnesses or testimony to support its contention (Finding D-2).

An ATWS is an event in which the reactor trip (scram) system fails to operate as required. This event is the subject of current Commission rulemaking proceedings (Finding D-3). During the interim period, until a final generic Commission rule is promulgated, the Commission believes that the likelihood of severe consequences arising from an ATWS is acceptably small. *See* 46 Fed. Reg. 57,522, col. 2 (1981). Among the measures for reducing ATWS risks at BWRs that were cited by the Commission in its determination were (1) the capability of the recirculation pump trip feature to partially mitigate ATWS events; and (2) the interim steps taken to develop procedures and to train operators. Consequently, the Staff is requiring (1) the installation of a recirculation pump trip (RPT) system to reduce reactor power on signals of either high [reactor] vessel pressure or low [reactor vessel] water level; (2) use of Staff approved ATWS operating procedures; and (3) training of operators on how to respond to ATWS events (Finding D-4).

LILCO has responded to Staff requirements as follows:

### **1. Recirculation Pump Trip (RPT)**

A recirculation pump trip feature has been installed. This automatic system is designed to promptly reduce reactor power to less than 40 percent upon a signal of high vessel pressure or low water level (Finding D-5).

### **2. ATWS Operating Procedures**

The Shoreham operating procedures for mitigating the consequences of an ATWS were based on guidance developed by General Electric and have been reviewed by the Staff. They specify certain immediate actions which are memorized by the operator to ensure his rapid response to the event (Finding D-6). The initial required operator action is to manually scram the reactor by inserting the control rods; this is the most rapid method of decreasing the power level. In the event of failure in the attempt to manually insert the control rods, the procedures give criteria on when to initiate the standby liquid control system (SLCS). Initiation of the SLCS occurs after failure to scram manually, provided the reactor power is above 6 percent, the RPV level cannot be maintained, or the suppression pool temperature reaches 110°F (Finding D-7). Verification

that SLCS has been activated is included in procedures itemized in "Subsequent Operator Actions" (Finding D-8).

The SLCS is an independent back-up reactivity control system with the capability of shutting the reactor down from full power and maintaining it in a subcritical condition at any time during core life. The system includes a tank containing a boron solution (sodium pentaborate) which is piped into the reactor vessel and discharged near the bottom of the core shroud so that it mixes with the cooling water passing through the core. The boron absorbs thermal neutrons and terminates the heat producing fission chain reaction in the reactor fuel. LILCO Ex. 11, 4.2.3.4, at § 4.2-81 *et seq.*

A "key locked" switch is provided for initiation of the SLCS by the operator. To assure that the operator will readily obtain the key to this switch when needed, LILCO has committed to highlight it with a unique color in the key locker which will have a breakable glass door (Finding D-9).

The County has argued that the procedure which directs that the SLCS be initiated if the power level is observed to be above 6 percent is ambiguous (SC Proposed Opinion at 21). The argument is based on the assertion that under a literal reading of the procedure, SLCS initiation may occur prior to attempts being made to manually scram the reactor because in the event of an ATWS the reactor power will normally be above the six percent limit (*id.*).

Our reading of the procedures indicates unequivocally that the first operator action to be taken following an ATWS event is to attempt to manually scram the reactor. The result of this action is to be observed by the operator. Two subsequent conditional procedures are described. *IF* the reactor scrams and all rods insert and power is decaying, then the operator will follow prescribed shutdown procedure SP 29.010.01. *IF*, however, the operator observes (after attempting to manually scram the reactor) that the reactor power is above six percent, then the SLCS is initiated.

Admittedly, the format of the procedure document "Transient with Failure to Scram Emergency Procedure" (SP 29.024.01) could be improved to prevent misreading of the action sequence as has been done by the County. However, LILCO's witness testified that, based on his experience in training operators, the "ambiguity" perceived by the County does not cause any problems in practice. Tr. 9196-97 (Calone). The Board believes that the possibility of misreading by operators is eliminated during training and that operators are taught to manually scram the reactor before initiation of the SLCS. We suggest, but do not require, that this aspect of the procedure be clarified by LILCO in

consultation with the Staff. The need to do so may become moot as a result of possible revisions to the overall operating procedure guidelines (see below and Findings D-11 and D-12).

The reactor can be quickly shut down in the event of an ATWS. As already noted in this decision, the automatic tripping of the recirculation pumps at the beginning of the event provides a reduction of reactor power to less than 40 percent of its initial value within one minute (Finding D-5). It should take less than approximately ten seconds for the operator to begin the prescribed immediate actions starting with manual scram. Insertion of control rods will result in rapid shutdown (Finding D-6).

The Staff review of the Shoreham ATWS procedure included an analysis of human factors implications. A series of Staff comments and LILCO revisions of the draft procedure led to Staff approval of the substance of the final LILCO ATWS procedure (Finding D-10).

The BWR Owners Group is revising its emergency operating procedure guidelines and the revision will include ATWS guidance (Finding D-11). Such changes may include the incorporation of the ATWS procedures into the reactor control procedures and instructions for operator actions which may be less conservative than those currently prescribed. Substantive changes to the procedure guidelines require Staff approval (Finding D-12).

### 3. Operator Training

Shoreham operators receive training on how to respond to an ATWS event. The training consists of classroom lectures and simulator practice. The training program is monitored by NRC's Region I Office (Finding D-13). Before being licensed, each operator at Shoreham must successfully complete the NRC operator examination which includes testing on ATWS operating procedures (*id.*).

The Board notes that the Commission based its judgment that the likelihood of severe consequences arising from an ATWS event is acceptably small in part on "the favorable experience with the operating reactors" 46 Fed. Reg. 57,522, col. 2 (1981). Scram systems at operating reactors are highly redundant and highly tolerant of component failure. Such is the case at Shoreham. Hot shutdown can be accomplished if 50 percent of the control rods are inserted in a checkerboard fashion (Finding D-14). Furthermore, an alternate rod insertion system (ARI) has been installed to automatically insert control rods following a normal trip signal and a failure to scram (Finding

D-15). An additional redundancy is the manually activated standby liquid control system previously discussed in our decision.

The Board finds that Shoreham contains redundant and diverse systems capable of achieving shutdown following an ATWS event. Furthermore, procedures have been developed, and reviewed by the Staff, for mitigating ATWS events. The program for training Shoreham operators includes procedures to be followed in such events.

#### **4. County Complaint**

Suffolk County has contended that the interim measures to be taken will not be adequate. The issue presented by the County is whether the measures implemented at Shoreham to mitigate an ATWS event are sufficient to compensate for the lack of an automatically initiated and totally redundant SLCS which meets the single failure criterion of GDC 20.

The Board has already noted that one of the options being considered by the Commission in its rulemaking is whether to require automatic initiation of the SLCS for BWRs.<sup>16</sup> To discuss, at this time, automatic initiation of the SLCS as a requirement is premature. Rather we adopt the Commission guidance (*see* 46 Fed. Reg. 57,522, col. 2 (1981)) on ATWS interim requirements until issuance of the final rule. The question before us then is whether the plant design and operator actions in place, pending completion of the rulemaking, will compensate for lack of automatic initiation of the SLCS in terms of providing the level of protection required by GDC 20. Our findings, as discussed above, indicate that (1) procedures have been established by LILCO for assuring that mitigating actions can be taken in an ATWS event, (2) sufficient time will be available to take such actions and (3) operators will be trained to implement safety procedures. Therefore, we conclude that the level of protection required by GDC 20 has been achieved.

#### **5. Conclusion**

The Applicant has satisfactorily implemented interim measures, including automatic recirculation pump trip, emergency operating procedures and operator training, to mitigate ATWS events as prescribed by the Commission and is, therefore, in compliance with

<sup>16</sup> See our Memorandum and Order ruling on the admissibility of contentions, LBP-82-19, 15 NRC 601, 613 (1982).

GDC 20 until a final ATWS rule is issued. Accordingly, there is reasonable assurance that the plant can be operated in the interim without undue risk to public health and safety.

## **II-E. Seismic Design (SOC Contention 19(e))**

### **1. Introduction**

SOC Contention 19(e) alleges two inadequacies in the Shoreham seismic design. Specifically, SOC charges that the Shoreham design failed to comply with 10 C.F.R. Part 50, Appendix A, General Design Criterion 2, and 10 C.F.R. Part 100, Appendix A, because (1) the design response spectrum used was not based on the standard in Regulatory Guide 1.60 and (2) a higher damping value than that identified in Regulatory Guide 1.61 was used (Finding E-1). Direct testimony on the contention was provided by the Applicant and the NRC Staff; the Intervenor presented no direct testimony on this contention, relying instead on cross-examination by Suffolk County (Finding E-2).

Design response spectra are used in seismic analyses to assess the adequacy of structural design before construction begins (Finding E-4). They are graphic representations of significant recorded earthquake records, which are then analyzed, evaluated and statistically combined to produce a relatively smooth graphic relationship used to assess the prescribed maximum responses (acceleration, velocity or displacement) of a particular structure to seismic forces<sup>17</sup> (Findings E-3, E-4). The response of a structure depends upon such factors as the natural frequency of the structure, the peak ground acceleration and the damping values which are used (Findings E-4, E-5).

### **2. Damping Factor Used at Shoreham**

“Damping” constitutes the amount of energy dissipated by a system or structure during motion (Finding E-5). Damping constants are

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<sup>17</sup> We note that throughout both the witnesses' testimony and the findings filed by the parties on this contention there is some confusion whether one should describe such a graphic representation as a “design response spectrum” or as “design response spectra.” This confusion appears to have developed because these graphic representations on tripartite graph paper actually plot three parameters, acceleration, velocity and displacement, against frequency (or period) using a single graphic curve. (The confusion was further compounded by the sometimes imprecise use of the singular and plural terms by some of the witnesses.) In referring to the response spectrum in this Opinion we refer to the curve that is plotted on the tripartite plot to represent the three parameters mentioned above.

utilized to adjust seismic response spectra; as the damping factor increases, the response spectrum will be smaller at critical frequencies (*id.*).

There are two basic forms of damping which may be relevant to the development of seismic design response spectra: structural (or material) damping and soil damping (Finding E-6). Structural damping represents a measure of the energy dissipated by a structure under dynamic excitation. Soil damping constitutes the dissipation of energy by the interaction of a structure and the surrounding soil (*id.*). Total system damping is a weighted combination of structural and soil damping, based on the amount of energy stored by each part of the structural system, including the subgrade soil (Finding E-7).

Regulatory Guide 1.61, which concerns only structural damping, recommends that a four percent damping value be utilized for the Operating Basis Earthquake (OBE) analysis of Category I reinforced concrete structures (Finding E-8). At Shoreham, structural damping and soil damping were combined, leading to a total system damping factor of five percent (Finding E-9). The question for decision is whether the additional one percent damping used at Shoreham based upon the contribution of soil damping is appropriate.

The Board concludes that a five percent total system damping value for Shoreham is conservative. Based on simple calculations and engineering judgment, LILCO concluded that Shoreham is a soil site and that the actual soil damping in the horizontal and vertical directions is on the order of 40 percent (Findings E-10, E-11). Shoreham was designed using a 10 percent soil damping value, however, because LILCO knew that the use of this value would be accepted by the Staff as being adequately conservative (Finding E-12). When the four percent structural damping value suggested by Regulatory Guide 1.61 is used in conjunction with a 10 percent soil damping factor, the total system damping value is eight percent (Finding E-13). LILCO's use of a five percent total system damping value is therefore conservative (*id.*).

Although Suffolk County concedes in its proposed opinion and findings of fact that LILCO's use of a five percent total system damping figure was appropriately conservative, it asserts that

on matters as important as the damping factors which are utilized in seismic design, the FSAR should specify in understandable detail the factual bases for the conclusions and the methodology by which the conclusions were reached . . . so that proper review can be pursued.

**“Suffolk County’s Proposed Opinion, Findings of Fact, and Conclusions of Law in the Form of a Partial Initial Decision,” Volume Two of Two,**

at 31 (Opinion) and 165-66 (Proposed Findings 19(e): 12-14) (January 31, 1983) (hereinafter "Proposed Opinion").

The County's Proposed Opinion provides no clue as to what purpose would be served by the Board's requiring LILCO to document in the FSAR the bases for LILCO's use of a total system damping of five percent. LILCO admittedly did not perform any detailed analysis of the amount of soil damping at Shoreham (Finding E-11) nor did the Staff deem such analyses to be necessary to justify LILCO's use of a total system damping value of five percent; while the Staff's witnesses testified that they would have required such a justification had LILCO sought to utilize a large total system damping value, their engineering judgment was that LILCO's use of a five percent total system damping value was sufficiently conservative that no such analysis was necessary (Finding E-14). Indeed, as the County itself concluded on the basis of the present record that LILCO's use of a five percent total system damping value for Shoreham is adequately conservative, we are at a loss to understand what further "proper review" the County believes necessary to pursue.

We are unaware of any regulatory basis which would require LILCO to set forth in its FSAR a detailed analysis in justification of its use of five percent total system damping value, particularly when the uncontroverted testimony of both the Applicant and the Staff concludes that the use of such a value is inherently conservative. Accordingly, we find no reason to require LILCO to prepare such an analysis for inclusion in its FSAR.

### 3. The Shoreham Design Response Spectrum

The Commission's seismic requirements are contained in Appendix A to 10 C.F.R. Part 100. Section VI of Appendix A requires that response spectra be developed for both the Safe Shutdown Earthquake (SSE) and the Operating Basis Earthquake (OBE) (Findings E-15, E-16). Under 10 C.F.R. Part 100, Appendix A, the vibratory ground motion produced by the SSE must be defined by response spectra which correspond to the maximum vibratory accelerations experienced by the facility. 10 C.F.R. Part 100, Appendix A, § VI(a)(1). At issue in SOC Contention 19(e) is whether the SSE response spectrum derived for Shoreham is sufficiently conservative to comply with this regulatory requirement (Finding E-1).

The Shoreham safe shutdown earthquake is a Modified Mercalli Intensity VII (Finding E-17). LILCO used a peak acceleration value of 0.2g for the SSE, which value is the anchor point for the Shoreham SSE design response spectrum (*id.*). The conservatism of LILCO's use of



this peak horizontal ground acceleration is not in issue in this contention. See Tr. 2443-48 (Judge Brenner) (granting the County's motion to strike a portion of LILCO's testimony as being beyond the scope of the contention).

There are essentially two techniques for developing the shape of response spectra for nuclear power plants. One is to use the general shape and amplification factors of the response spectrum in Regulatory Guide 1.60 (Finding E-18). The Regulatory Guide 1.60 design response spectrum was developed so that it could be applied to many sites in the United States (Finding E-19). Accordingly, this spectrum is overly conservative for most sites (*id.*).

Regulatory guides describe an acceptable way of complying with the regulations and leave an applicant flexibility in determining its method of compliance (Finding E-21). LILCO was not required to adopt the Regulatory Guide 1.60 spectrum or to demonstrate that its design response spectrum was as conservative as that contained in the regulatory guide, so long as it was able to demonstrate that its design response spectrum was developed in accordance with the Commission's regulations. See *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-698, 16 NRC 1290, 1298-99 (1982); *Gulf States Utilities Co.* (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760, 772 (1977); *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-179, 7 AEC 159, 174 n.17 (1974).

An acceptable alternative to the Regulatory Guide 1.60 approach is the development of site-specific spectra (Finding E-20). The site-specific design response spectrum for Shoreham was developed prior to the publication of Regulatory Guide 1.60 (Finding E-21). In practice, the NRC Staff encourages the development of site-specific spectra and may request them for certain sites (Finding E-21).

To develop the design spectrum for Shoreham, the Applicant took time history records from four actual earthquakes (Helena 1935, El Centro 1940, Taft 1952, and Golden Gate 1957) and one artificial time history (having properties in between the Taft and El Centro Records), and subjected the records to an amplification analysis in order to reflect the soil conditions at the Shoreham site (Findings E-22 through E-27). The earthquake records selected were primarily from stiff sites that contained a broad frequency content of motion (Finding E-23). Although primary reliance was placed on the four actual earthquake records, the artificial earthquake record was used to ensure that all frequencies were adequately considered (*id.*).

It was determined that a 0.2g Housner spectrum adjusted for frequencies below 2 hertz adequately enveloped the response spectra of the time

history records modified for the Shoreham site (Findings E-28, E-29). Because the Shoreham spectrum coincides with the Housner spectrum, as modified, it is called a "Modified Housner Spectrum," even though it was developed independently of the Housner spectrum (Finding E-30).

LILCO's witnesses testified that it is "meaningless" and "inappropriate" to compare the relative conservatism of the Shoreham spectrum with either the Housner spectrum or the Regulatory Guide 1.60 spectrum as a basis for determining whether LILCO's site-specific spectrum for Shoreham was adequately conservative to comply with the Commission's regulatory requirements (Findings E-30, E-36).

The County, on the other hand, urges that we find that the Regulatory Guide 1.60 spectrum "may be utilized as a general gauge to assess the relative conservatism of the spectra (*sic*) actually utilized by an applicant. *See* Tr. 4259-63 (Wong, Lucks); Staff Ex. 1, ff. Tr. 4171, for a comparison of Regulatory Guide and Shoreham spectra." County Proposed Opinion, Volume Two of Two, at 166-67 (Proposed Finding 19(e):15); *see also id.* at 29-30 (Opinion). The cited testimony of LILCO's witnesses does not quite say this, however. These transcript pages contain the LILCO witnesses' conclusion that the over-conservatism of the Regulatory Guide 1.60 spectrum may be shown by a comparison with the Shoreham site-specific spectrum.

In its Reply, LILCO asserts that this proposition does not work in reverse. It argues that while it is valid to assert that site-specific spectra, which accurately reflect actual site conditions, may demonstrate the conservatism of the Regulatory Guide spectrum for that site, generalized spectra such as those in Regulatory Guide 1.60, which do not bear any intrinsic relationship to the conditions at a particular site, cannot logically provide insight into the degree to which any set of site-specific spectra is conservative for that particular site. "LILCO's Reply to the Proposed Opinions, Findings and Conclusions of Suffolk County and the Staff," Volume One of Two, at 174-76, 184 (February 22, 1983).

The Staff advocated something of an intermediate position between those endorsed by LILCO and the County. While the Staff's witness testified that it is feasible to compare the relative conservatism of the Regulatory Guide 1.60 spectrum with the Shoreham spectrum, he cautioned that such a comparison would have to be justified in some way since different earthquake records, different assumptions and different methods of application were used in the development of these spectra (Finding E-36).

The Staff compared the Shoreham SSE spectrum with both the Housner spectrum and the Regulatory Guide SSE spectrum and concluded that the spectral shape used at Shoreham is somewhat more conservative

than the Housner spectrum, somewhat less conservative than the Regulatory Guide 1.60 spectrum at certain frequencies and somewhat more conservative than the Regulatory Guide 1.60 spectrum at other frequencies (Findings E-31, E-32, E-33).

We are in general agreement with the views of the Staff that it is feasible to make a comparison of the relative conservatism of the Regulatory Guide 1.60 spectrum with the Shoreham spectrum, so long as the person making the comparison bears in mind that a finding that one spectrum is more conservative than the other spectrum in a given frequency range does not necessarily mean that the less conservative of the two spectra is not still sufficiently conservative to comply with the Commission's regulations.

The County apparently seeks to have us find that because the Regulatory Guide 1.60 spectrum exceeds the Shoreham SSE spectrum at certain frequencies, particularly between approximately 2.5 hertz and 9 hertz (Findings E-32, E-33), and because the natural frequencies of vibration of certain structures, systems and components at Shoreham fall within this range (Findings E-34, E-35), then the Shoreham SSE spectrum is not adequately conservative to comply with 10 C.F.R. Part 100, Appendix A. This we decline to do.

Were we to adopt the County's position that LILCO's SSE spectrum is deficient because it is not as conservative as the Regulatory Guide 1.60 spectrum, we would effectively be holding that compliance with this regulatory guide is mandatory for an applicant to comply with 10 C.F.R. Part 100, Appendix A. As we have already described above, LILCO was neither required to adopt the Regulatory Guide 1.60 spectrum nor to demonstrate that its spectrum is as conservative as that contained in the regulatory guide in order to show compliance with the Commission's regulations. See *Metropolitan Edison Company, supra*. Indeed, even though the NRC Staff determined that the Shoreham spectrum was less conservative than the Regulatory Guide 1.60 spectrum for some frequencies, they concluded that the methodology used by LILCO to develop its SSE design response spectrum was acceptable and complied with 10 C.F.R. Part 100, Appendix A (Finding E-40).

Based on the record before us, we conclude that the Shoreham design response spectrum was developed in accordance with the Commission's regulations and is adequately conservative, even though for five percent damping there are spikes at five frequencies where the earthquakes used to develop the Shoreham SSE spectrum exceed it (Finding E-32).

There are several bases for our conclusion that these spikes do not demonstrate any lack of conservatism in the Shoreham seismic design. For example, as LILCO's witnesses testified, during any one

earthquake, the seismic response spectrum may have spikes which exceed the Shoreham SSE spectrum, but substantial portions will be below the Shoreham spectrum for the rest of the frequency intervals (Finding E-38). Typically, the response of a structure is determined by the sum of the contribution from various frequencies. Thus, when considering the overall response of a structure, a small exceedance at an isolated frequency range is insignificant (*id.*).

The spike exceeding the Shoreham spectrum by the greatest amount is the El Centro record at 0.4 hertz (*id.*). This frequency is not of concern for Shoreham, however, because the Shoreham site has a deep soil profile, the response above frequencies of 2 hertz is depressed compared to a standard smooth spectrum, such as that set forth in Regulatory Guide 1.60, which was developed to envelop data from sites including those with conditions that would amplify the accelerations in those frequencies. The deep soil impedes the transition of motions having high frequencies of short duration (Finding E-36).

The uncontroverted testimony of LILCO's witnesses also establishes that even though the Regulatory Guide 1.60 spectrum is more conservative for certain frequencies than is the Shoreham design response spectrum, the two spectra are really in quite close agreement from both a structural engineering and a geotechnical point of view (Finding E-37). Furthermore, the earthquake time histories from which each of these spectra was derived were developed by enveloping the 84th percentile of the data at critical points (Finding E-39). Thus, although there are spikes at certain frequencies where the earthquakes used to develop the Shoreham SSE spectrum exceed it, these spikes exceed the 84th percentile of the data (*id.*). LILCO's witness testified that it would be overly conservative to envelop these time histories at any higher percentile of the data, and the Staff testified that it accepts spectra which are even less conservatively enveloped (*id.*).

Accordingly, the Board finds that the design response spectrum developed by the Applicant for use at Shoreham meets the requirements of 10 C.F.R. Part 100, Appendix A. Records were used from more than one earthquake, these records were modified to reflect the actual site conditions at Shoreham, and a smoothed spectrum enveloping the spectra of the modified records was then used for the Shoreham design. The original records used were appropriate, the amplification analysis used to modify the records was appropriate, and the spectrum used for the Shoreham design adequately enveloped the spectra of the records.

We conclude that the testimony of LILCO and the Staff is credible and convincing and is not controverted by intervenors' assertions to the contrary. For the reasons discussed above, the contention must fail.

## II-F. Mark II Containment (SC Contention 21)

### 1. Introduction

Suffolk County Contention 21 questions whether Shoreham's Mark II containment meets the requirements of 10 C.F.R. Part 50, Appendix A, General Design Criteria 4, 16, 50, 51 and 52. Suffolk County has challenged the adequacy of LILCO's definition of the hydrodynamic loads which would be associated with a loss of coolant accident (LOCA) at Shoreham, and the ability of Shoreham's containment to withstand the simultaneous application of LOCA and transient event loads. The County has also expressed concern whether LILCO has demonstrated the capability or adequacy of its test procedures to measure steam bypass at the drywell floor. Furthermore, Suffolk County has questioned whether LILCO has conducted an adequate and properly controlled experimental testing program, as required by 10 C.F.R. Part 50, Appendix B, §§ III and XI, to establish the hydrodynamic loads from a LOCA (Finding F-1). Suffolk County withdrew subpart (b) of this contention, which dealt with the definition of suppression pool loads resulting from the opening of safety relief valves (Finding F-2). Accordingly, we do not address this matter in this decision.<sup>18</sup>

The Board has examined each of the remaining four subparts which make up Contention 21. For each of these subparts we have examined whether the Shoreham equipment is deficient as Suffolk County alleges. If it was determined that the allegation was valid, we examined: the steps taken by the Applicant to address the concern; the Staff review of the allegation and the Applicant's remedial steps; and the safety implications, if any.

### 2. Suppression Pool Dynamic Loads

On April 11, 1975, the NRC Staff sent a letter to each domestic Mark II owner informing the owner that the Staff was requiring a reassessment of the Mark II containment system design, including the ability of the systems to withstand hydrodynamic loads associated with

<sup>18</sup> We note that counsel for the County did not agree on the record that the County had withdrawn subpart (b) (Finding F-2). The County did not dispute, however, that it had stated its intention to no longer pursue this subpart in response to a LILCO interrogatory. *Id.* In any event, the County filed no findings on this subpart. Therefore, in accordance with our April 20, 1983 prehearing conference order (unpublished) requiring the submission of findings and 10 C.F.R. § 2.754(b), we would have found the County to have defaulted on this contention, had we not previously ruled it to have been withdrawn. See *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-709, 17 NRC 17, 21 (1983).

LOCAs and with the actuation of SRVs occurring simultaneously with earthquakes (Finding F-7). This request that a reassessment of the Mark II containment be performed was prompted by the General Electric Company's identification, during the course of its testing program for its Mark III containment, of certain LOCA loads which had not been included in the original design review of the Mark II containment (Finding F-6). It was this reanalysis of the Mark II containment which was the central focus of the County's contention.

The industry's response to this Staff information request was the formation of the Mark II Owners Group, a cooperative venture begun by the eight owners of the 11 Mark II containment BWRs. LILCO was one of the eight utilities involved in this effort. The Owners Group was formed to reinvestigate on a generic basis those issues that were of common applicability to Mark II containment structures (Finding F-16). It was the intention of the BWR Owners Group that their generic reevaluation be supplemented by separate, plant-specific reevaluations which were to be documented in a design assessment report for each plant. LILCO submitted the Shoreham Design Assessment Report (DAR), Revision 0, to the NRC in January 1976 (Finding F-17), and submitted the final version, Revision 5, in December 1981 (Findings F-26, F-52).

There are four major suppression pool loads which can occur during a LOCA. They are: (1) pool swell, (2) steam condensation oscillation, (3) steam condensation chugging, and (4) steam condensation downcomer lateral loads. Each of these loads generates pressures or vibratory load effects that must be considered in combination with other loading conditions in assessing the adequacy of Shoreham's containment design (Findings F-8 to F-15).

#### *a. Development of Load Definitions*

In conducting its reevaluation of the Mark II containment, the Mark II Owners Group established both a "short-term program" or "lead plant effort" and a "long-term program." The purpose of the short-term program was to demonstrate that a sufficient technical understanding of the pool dynamics phenomena and principles exists to serve as a basis for the licensing of Mark II plants. The primary purpose of the long-term program was to confirm the loads utilized in the short-term program (Finding F-16).

Based on its analysis of the load definitions developed by the Mark II Owners Group, both collectively and individually, the Staff issued NUREG-0487, "Mark II Containment Lead Plant Program Load

Evaluation and Acceptance Criteria" in October 1978 (Finding F-18). Thereafter, based on further testing and analysis of the chugging and condensation oscillation phenomena, the Mark II Owners Group developed two sets of revised load specifications (Findings F-19 and F-20). The first of these sets, which was based on an interim interpretation of the Owners Group's new test data, was adopted for use by the "lead plants" and was accepted by the Staff in March 1981 in Supplement 2 to NUREG-0487 (Finding F-20).

A second set of revised hydrodynamic load specifications was developed for the long-term program to provide a more detailed representation of the phenomena based on all the knowledge of LOCA steam condensation gained during the past several years of investigation. These final load specifications were evaluated and accepted by the Staff in NUREG-0808 in September 1981 (Finding F-21).

To accommodate those plants scheduled to load fuel prior to the final resolution of the NUREG-0808 generic Mark II load definitions, the Mark II lead plants, which included Shoreham, were given the option of either complying with Supplement 2 to NUREG-0487 (by incorporating these NRC recommended interim load definitions into their design bases) or complying with the generic Mark II load definitions to be developed during the long-term program (Finding F-22).

Suffolk County apparently fails to grasp the distinction in the purposes intended to be served by the Staff's approval of both interim load definitions in Supplement 2 to NUREG-0487 and final load definitions in NUREG-0808. In fact, based upon testimony from the Staff that the interim and final load definitions cannot be directly compared and that it is therefore not possible to tell which of the two sets of load definitions is the more conservative, they urge that we find LILCO's confirmatory analysis of the Shoreham containment to be flawed. See "Suffolk County's Proposed Opinion, Findings of Fact, and Conclusions of Law in the Form of a Partial Initial Decision," Volume Two of Two at 41 (Opinion) and 189 (Proposed Findings 21:52 and 21:53) (January 31, 1983) (hereinafter "Suffolk County's Proposed Opinion").

As the Staff testified, however, each Mark II plant is to be assessed as to its capability to withstand the NUREG-0808 final load specifications, regardless of design specifications employed at the time of construction (Finding F-22). The load specifications in NUREG-0487, Supplement 2 and NUREG-0808 were not intended to be compared for "conservatism." While the loads described in each are in many cases identical, the types of loads analyzed for the purposes of NUREG-0487, Supplement 2 were in some cases found, as the result of further

analysis, to be of a different nature than first thought (Finding F-23). The final load definitions in NUREG-0808 therefore are not more or less conservative than those appearing in the interim load definitions (*id.*); the final definitions simply define with greater accuracy the hydrodynamic loads present in the Mark II containment under LOCA conditions. In light of the Shoreham construction schedule, it was therefore understandable that LILCO chose to commit to the NUREG-0808 final load specifications against which the design of the Shoreham containment was to be assessed (Findings F-22, F-25).

In the April 1981 Shoreham Safety Evaluation Report, § 6.2.1.8, based on an assessment of the Shoreham load specifications in terms of the generic acceptance criteria set forth in NUREG-0487, the Staff concluded that the dynamic loads utilized by the Applicant were conservative and therefore acceptable, except in a few areas where the generic criteria had not been finalized or the Staff review had not been completed (Finding F-24). These SER items remained open in large part due to LILCO's decision to commit to the final generic load definitions, which had not yet been accepted by the Staff (Finding F-25). In Supplement 1 to the Shoreham SER, dated September 1981, the Staff determined that LILCO's specifications for assessing all the suppression pool dynamic loads were conservative and therefore acceptable (Finding F-27).

In its Proposed Opinion, Suffolk County criticizes the Staff's acceptance of LILCO's utilization of alternatives to the lead plant load criteria contained in NUREG-0487 and its supplements; it does this, not by questioning the adequacy of the alternative load definitions themselves,<sup>19</sup> but by challenging the weight to be accorded to the opinion of the Staff witness (Dr. Farouk Eltawila) who testified that LILCO's alternative load criteria were all acceptable to the Staff. Suffolk County's Proposed Opinion, Vol. II of II, at 40 (Opinion) and 183-84 (Proposed Findings 21:28 to 21:30) (January 31, 1983). Suffolk County Proposed Finding 21:28 states: "Staff witness Eltawila's review of the Shoreham facility was limited to a review of the load combinations. His review of the Shoreham containment design did not involve any plant-specific review. Tr. 9784 (Eltawila)." Based on this proposed finding, the County concludes, in its Proposed Finding 21:30, that Dr. Eltawila's testimony should be accorded "little weight."

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<sup>19</sup> We note that many of the alternatives to the lead plant load criteria which were used by LILCO and approved by the Staff actually represented LILCO's commitments to the final generic load definitions which were approved by the Staff in NUREG-0808 (Finding F-25). Tr. 9845-46 (Eltawila).



The County's misreading of the record in this instance can only be viewed as being intentional, for the record clearly states Dr. Eltawila's involvement in *both* Mark II generic and Shoreham-specific review. In his prefiled testimony, for example, Dr. Eltawila states that he is responsible for the review and evaluation of those sections of the Shoreham Design Assessment Report for which the Staff's Containment Systems Branch has primary review responsibility. This includes the application of those NUREGs which describe the acceptance criteria for LOCA and SRV hydrodynamic loads and their methods of application. Eltawila, *et al.*, ff. Tr. 9735, at 2.

Indeed, the transcript reference cited by the County comes from the middle of a discussion of Dr. Eltawila's generic work and does not purport to characterize all of his work on Shoreham as having been generic:

Q. You indicate in the answer to the next question that you were involved in two of the Staff's generic activities — A-8 and A-39. Would you tell me what you did with respect to the first of those, A-8 Mark II Containment Pool Dynamic Loads?

A. (WITNESS ELTAWILA) As I indicated, I was part of the review team that consisted of Mr. Cliff Anderson and our consultants at Brookhaven National Laboratory, which includes a review of the data base that came from the 4TC test facility and review of the load specification. That is as far as A-8 is concerned.

Q. *That work* did not involve any plant-specific review, is that right/(sic).

A. (WITNESS ELTAWILA) That's correct. It is generic.

Tr. 9783-84 (Eltawila) (emphasis added). The County's contortion of this quotation is particularly egregious when it is recognized that the quotation immediately follows County cross-examination on the scope of Dr. Eltawila's review of the Shoreham DAR. Tr. 9782-83 (Eltawila).

Following the issuance of Supplement 1 to the SER (Staff Ex. 2B) and NUREG-0808, a Staff consultant questioned the adequacy of the generic chugging load definition set forth in NUREG-0808. The concern raised by the Staff consultant was a possible lack of conservatism in the established chugging load specifications due to the random selection process for the individual vent chug initiation times of both symmetric and asymmetric loading (Finding F-28). Based on further review of the asymmetric chugging load specification by the Staff and the Mark II Owner's Group and comparing the results of confirmatory tests performed at the Japanese Atomic Energy Research Institute (JAERI)

facility to the symmetric loading specification, the Staff and its consultant concluded that the generic chugging load specifications in NUREG-0808 were sufficiently conservative and required no modification (Findings F-29 and F-30).<sup>20</sup>

**b. Vacuum Breakers**

During the course of the proceeding, two concerns were identified regarding the Anderson-Greenwood vacuum breakers. One concern, raised by the Advisory Committee on Reactor Safeguards (ACRS), involved the potential pool bypass from stuck open wetwell-to-drywell vacuum breakers that might be caused by repeated and strong dynamic underpressure in the vent pipe due to intermittent steam condensation (chugging) (Finding F-31).

To address this concern, the Mark II owners, including LILCO, engaged in a joint qualification test program to demonstrate the operability of the vacuum breaker under this intermittent steam condensation loading (Finding F-32). Furthermore, LILCO has implemented a design modification involving the blocking of the downcomers on which the vacuum breakers are installed. This design modification will eliminate the dynamic pressure exerted on the vacuum breaker and, hence, the concern over a potential stuck open breaker is resolved (Finding F-32).

Another concern arose regarding the possible opening of vacuum breakers during the initial pool swell phase of a LOCA at accelerations higher than those used to qualify the valves (Finding F-33). To alleviate this potential problem, LILCO has installed a design modification identical to that which was made at Susquehanna, another Mark II facility utilizing Anderson-Greenwood vacuum breakers (Finding F-34). The Staff has reviewed this modification on a generic basis and has found it to be acceptable. *Id.*

LILCO has further modified Shoreham's vacuum breakers to improve their strength (Finding F-35). Both LILCO and the Staff testified that they believed that this additional modification will further improve valve performance (*id.*). Qualification of the redesigned valve by generic analysis had not been completed by the close of the record on this contention (Finding F-36). The Staff testified, however, that even without completing their review of this generic analysis, they believe the

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<sup>20</sup> The County's criticisms of LILCO's reliance on the JAERI data are discussed in Section II-F.5.a., *infra*.

modified vacuum breakers are adequate, based on the review which they performed for the Susquehanna plant (*id.*).

Suffolk County asserts that "the Staff's conclusion that plant licensing and operation is acceptable prior to this vital qualification step is without appropriate technical or regulatory basis." Suffolk County's Proposed Opinion, Volume Two of Two, at 192 (Finding 21:68) (January 31, 1983). We observe, however, that the County bases this conclusion in part on the assertion that the Staff deemed this further modification to be "necessary" to assure that the vacuum breaker will perform properly. *Id.* at 192 (Finding 21:64). This assertion is not supported by the factual findings of this Board (Findings F-35, F-36) and is even contradicted by the very transcript reference on which it relies for support. Tr. 9811 (Eltawila).

We find no basis on the record for concluding that the additional modification to the Shoreham vacuum breakers will in any way detract from the ability of the Susquehanna-type modification to ensure that these valves will perform adequately. We, therefore, find no reason to regard the Staff's analysis of the generic evaluation to be anything other than confirmatory in nature and find this issue to be resolved.

### ***c. The Humphrey Concerns***

One other issue relative to the adequacy of the Mark II containment was brought out in the record, even though not specifically referenced in the contention. Mr. John Humphrey, a former employee of General Electric, raised a number of concerns related to the Mark III containment design (Finding F-37). Twenty-two of these concerns were potentially applicable to Mark II containments. *Id.*

The Staff's preliminary analysis of the concerns was that even if Mr. Humphrey was correct, there would be no erosion to the safety margin that exists in the plant and no design modification to the plant was expected (Finding F-39). The effect of each concern could be roughly quantified and the margins inherent in the Mark II design were adequate to accommodate the potential effect of the concern. *Id.* The Staff, therefore, viewed the analyses of these concerns, which it had requested from LILCO, to be confirmatory in nature.

The only issue raised by Mr. Humphrey which required detailed analysis for the Mark II design involves the residual heat removal discharge mode when in the steam condensation mode (Findings F-38, F-39). The Staff analysis of this issue requires that if the system should be operated in the steam condensing mode, the effects of the discharge into the suppression pool must not disable any safety-related equipment

(Finding F-39). The Staff lacked sufficient information at the time the record closed on this contention to perform the analysis which it believed to be required. *Id.*

The Staff testified that while it did not believe that the Applicant's confirmatory analysis of this concern would erode the design margins, it believed that adding a quencher at the end of the RHR line would take care of this load if it were found to be excessive (Finding F-40). This could transfer loads to the RHR line, however. *Id.* The Staff did not know at the time the record closed whether a generic or Shoreham-specific resolution of this issue would be necessary. *Id.*

LILCO urges that we find as a basis for resolving this issue both that the ACRS has concluded that none of the Humphrey concerns appear significant and that the Staff has determined only to evaluate LILCO's responses to the Humphrey concerns on a confirmatory basis, based on this ACRS conclusion. LILCO's Proposed Opinion, Findings of Fact and Conclusions of Law in the Form of a Partial Initial Decision, Volume One of Three, at 149-50 (Proposed Findings G-12 and G-13) (January 17, 1983).

We find no basis in the record for concluding that the Staff's decision only to review LILCO's analyses on a confirmatory basis was based on the conclusions of the ACRS. In fact, the Staff testified that the ACRS had adopted the Staff's conclusions. Tr. 9856 (Fields); Tr. 10,008 (Eltawila, Fields). We consider this clarification to be important because we do not believe that Staff testimony on the conclusions reached by the ACRS may serve as a basis for a licensing board to resolve a contested issue.

There is no question that a licensing board may rely upon conclusions of the ACRS on issues that are not controverted by any party. 10 C.F.R. Part 2, Appendix A, § V(f)(1), (2). The Appeal Board has stated, however, that the contents of an ACRS report cannot, of themselves, serve as an underpinning for findings on the health and safety aspects of licensing proceedings. *Arkansas Power and Light Co.* (Arkansas Nuclear One Unit 2), ALAB-94, 6 AEC 25, 32 (1973). This is because ACRS reports are admitted into the record without the sponsorship of an expert who can be examined on the reliability of the factual assertions and the soundness of the scientific opinions found in the documents. See *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-717, 17 NRC 346, 367-68 (1983) and cases cited therein. We do not believe that the Staff's witnesses had any intention to represent themselves as speaking on behalf of the ACRS or as sponsoring the ACRS's findings on the Humphrey concerns. Indeed, we doubt whether such sponsorship would have been appropriate had it

been intended. Accordingly, we decline to rely on the ACRS's conclusions as a basis for resolving the Humphrey concerns.

We also reject Suffolk County's position that all of the Humphrey concerns must remain as open items, at least until the Staff completes its review of LILCO's confirmatory analyses. Suffolk County's Proposed Opinion, Volume Two of Two, at 194. (Proposed Findings 21:75 and 21:77) (January 31, 1983).

Throughout its Proposed Opinion, Suffolk County has apparently adopted the position that this Board may not resolve any contested issue if any form of confirmatory analysis was ongoing as of the close of the record on that issue. Neither the Atomic Energy Act nor the Commission's regulations mandate such a requirement where a licensing board is able to make the basic findings prerequisite to the issuance of an operating license based on the existing record. *Consolidated Edison Co. of New York* (Indian Point Station, Unit No. 2), CLI-74-23, 7 AEC 947, 951-52 (1974); *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-461, 7 NRC 313, 318 (1978).

While, as a general rule, issues should be dealt with in hearings and not left for later, possibly more informal, Staff resolution, those decisions which have addressed this issue generally speak in terms of whether there are "clear courses of action" which the Staff may be directed to follow (see *Cincinnati Gas & Electric Co.* (Wm. H. Zimmer Nuclear Power Station, Unit 1), LBP-82-48, 15 NRC 1549, 1578-79 (1982)), or whether leaving such issues for Staff resolution would constitute a "delegation of decisional authority" to the Staff. See *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-729, 17 NRC 814, 885-88 (1983).

Based on the present record, we can make the requisite finding that there is reasonable assurance that the Shoreham containment is designed with adequate conservatism to protect the public health and safety with respect to all of the Humphrey concerns, except for the operation of the RHR discharge mode in the steam condensation mode. There is no evidence contrary to the Staff's testimony that even if Mr. Humphrey was correct, these other concerns would result in no erosion to the safety margin which exists in the plant and no design modification to the plant is expected (Finding F-38). Accordingly, we find no reason to retain jurisdiction over the Staff's review of LILCO's confirmatory analysis of these issues.

A somewhat different issue is presented by the Humphrey concern relating to the operation of the RHR discharge mode in the steam condensation mode. While the Staff testified that it did not believe that

LILCO's confirmatory analysis of this issue would erode the conservatism of the design margins, the Staff lacked sufficient information at the time the record closed on this issue to determine whether a design modification would be necessary or whether this issue would be resolved on a generic or Shoreham-specific basis (Findings F-39, F-40).

In contrast to the other Humphrey concerns, it is not clear from the record that the Staff believed either the calculation of the loads arising from the operation of the RHR system in the steam condensation mode or the development of criteria for what loads would be acceptable for operation of the RHR in this mode to be straightforward. Indeed, we note that the Staff's own proposed decision on the Humphrey concerns advocates only that we find resolution of the RHR issue to be unnecessary for operation up to five percent of rated power; the Staff is silent as to its views on the final resolution of this issue for higher power operation. NRC Staff's "Proposed Opinion, Findings of Fact, and Conclusions of Law in the Form of a Partial Initial Decision," Volume One of Two, at 21 (Opinion) and 82 (Proposed Finding 21:15) (February 11, 1983).

Based on the information in the record before us, we cannot say that permitting the Staff to resolve this issue informally would not constitute a delegation of our decisional authority to the Staff. Indeed, should the Staff's review of LILCO's analysis demonstrate the need for some corrective action to be taken, such as the addition of a quencher to the RHR line (Finding F-40), the decision on the adequacy of such a corrective action is one which this Board may not delegate.<sup>21</sup> Accordingly, we retain jurisdiction of this issue for such further resolution as future circumstances may dictate.

The record before use indicates, however, that operation of the RHR in the discharge mode in the steam condensation mode is not material during operation at power levels of five percent or less of rated power (Finding F-41). We note that at the time the record closed on this issue, the Staff indicated its intention to complete its review of LILCO's analyses regarding the Humphrey concerns prior to permitting Shoreham to operate at power levels in excess of five percent of rated power (Finding F-42). However, we are unaware of the Staff's current schedule for review of LILCO's submissions (Findings F-42, F-43, F-44).

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<sup>21</sup> In fact, case law suggests that even in cases where a Board resolves an issue in an applicant's favor, leaving the Staff to perform what is believed to be a confirmatory review, the Staff should inform the Board should it discover that corrective action is warranted. See *Three Mile Island, supra*, 17 NRC 886-87.

We take official notice that LILCO has made a commitment not to use the RHR steam condensing mode during normal plant operation until it can be demonstrated that the hydrodynamic loads resulting from operation of the RHR heat exchanger in this mode are acceptable (Finding F-41). Even without this commitment, we do not find the pendency of this issue to create any unresolved health or safety issue which would preclude the issuance of a license for operation of Shoreham at power levels of five percent or less of rated power.

### 3. Steam Bypass Testing

In Suffolk County Contention 21, the County alleges that the capability and adequacy of LILCO test procedures to demonstrate an acceptable leakage rate of leakage paths between the drywell and the wetwell "has not been demonstrated" (Finding F-1).

To determine the leakage rate between the drywell and the wetwell, LILCO is required to perform both preoperational and periodic tests during the lifetime of the Shoreham plant (Findings F-45, F-46). The leakage rate is then compared with the appropriate acceptance criterion to determine acceptability (Findings F-46, F-47). The acceptance criteria are established by the Staff based on both its studies of the phenomena involved and the design of the Shoreham containment structure (Finding F-47). The Staff has required that LILCO demonstrate compliance with the Staff's acceptance criteria prior to fuel load (Finding F-49).

The preoperational high pressure test simulates the pressures seen during a large LOCA, and includes substantial conservatisms, since the test applies high pressure for a long period of time, whereas in a large LOCA, high pressure exists for a very short period of time (Finding F-48). The high pressure test is performed only during the preoperational test period and is not intended to be repeated during the life of the plant (*id.*). This test is intended to show that the drywell seal is functional (*id.*). The periodic low pressure tests simulate a small break LOCA and the pressure differential of a large break following the initial blowdown (Finding F-50). The drywell floor has been designed to accommodate thermal and pressure loads under LOCA conditions without cracking and forming new leak paths (*id.*). Other design features, including seal pressurization and monitoring, complement the pressure tests to ensure proper seal performance (*id.*).

At the hearing on this contention, LILCO testified that it had performed the required preoperational high pressure leakage test and that the results of this test had met the Staff-established acceptance

criteria (Finding F-49). The Staff had not reviewed LILCO's test results at the time the record was closed on this issue (*id.*). As what LILCO had to demonstrate was merely compliance with acceptance criteria, however, the Staff testified that all LILCO had to do was demonstrate that Shoreham had passed the test (*id.*).

Suffolk County's Proposed Finding 21:39 states: "Although the Staff asserted that it has studied the relevant phenomena and design, there was no evidence that the Staff verifies the validity of the drywell-wetwell seal testing. Tr. 9864 (Fields)." Suffolk County's Proposed Opinion, Volume Two of Two, at 186 (January 31, 1983). It is unclear to us what form of "verification" the County believes to be both necessary and lacking from the Staff's review of LILCO's testing. The County proposed no methodology in its findings for correcting this alleged deficiency, as it did for other alleged deficiencies. Nor did it discuss or even reference this or any other of its steam bypass testing findings in its proposed opinion.

Apparently, we are not alone in finding the County's reference to a lack of verification of the validity of the testing program to be unclear. The Staff witness who was asked this question by Counsel for Suffolk County also found this phrase to be ambiguous:

- Q. Have these test procedures been verified in any operating plant in the United States?
- A. (WITNESS FIELDS) Would you be more explicit with your question? What do you mean by "verified?" There has been tests performed (*sic*). There is only one way you can verify absolutely that these tests are valid, and that is to have an accident.

Tr. 9863-64 (Fields). After several attempts to explain what she meant by using the word "verified," Counsel for the County asked:

- Q. What have you done to reach that conclusion that they [the tests] are adequate for detecting leaks?
- A. (WITNESS FIELDS) Basically by studying both the phenomenon and the design of the structure.

Tr. 9864 (Fields). Counsel for the County thereafter asked where these leakage tests had been performed previously, but never questioned the nature of or the adequacy of the Staff's studies of the leakage phenomenon or the design of the structure.

Based on the transcript reference cited by the County, the only "verification" which is shown to be lacking is the so-called "absolute"



verification which would be demonstrated by having an accident. Giving the County every possible benefit of the doubt that this finding was proposed with some degree of seriousness, we need only note that such absolute verification is not required by the Atomic Energy Act.

The appropriate standard is whether the present testing program can reasonably assure protection of the public health and safety. See *Citizens for Safe Power v. NRC*, 524 F.2d 1291, 1297 (D.C. Cir. 1975); *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-729, 17 NRC 814, 827-28 (1983); Atomic Energy Act of 1954, § 182(a), 42 U.S.C. § 2232(a) (Applicant must provide such information to Commission as will permit finding that utilization of special nuclear material "will provide adequate protection to the health and safety of the public").

Based on the findings which we have made, we believe that LILCO's steam bypass testing program provides adequate assurance that the health and safety of the public will be protected. We resolve this issue in LILCO's favor (Finding F-51).

#### **4. Transient and LOCA Loads**

The Shoreham primary containment and associated safety-related structures have been evaluated for the simultaneous occurrence of transient and LOCA events (Findings F-52, F-53, F-54, F-55). Furthermore, LILCO has used a quantitative method of combining the loads from these events which is even more conservative than one which the Staff has approved (Finding F-56).

NUREG-0808 sets forth the generic load specifications for Mark II containments, including load considerations of combinations of transients and LOCA events. The Applicant has evaluated the containment design against the loads specified in NUREG-0808, and, as a result, has modified the design of steel structures in the plant, with the result that the design now meets the requirements of NUREG-0808 (Findings F-26, F-52, F-53, F-58). We have dealt previously with the County's criticisms of the Staff's review of LILCO's reassessment of the Shoreham containment. Accordingly, we find that the evidence on the record demonstrates that the Shoreham Mark II containment design has been shown to be capable of accommodating the combined loads from transients and LOCA events, with sufficient design margin to satisfy the general design requirements of 10 C.F.R. Part 50, Appendix A (Finding F-59).

## 5. Experimental Design Testing Program

### a. *Quality Assurance*

As discussed above, a variety of investigations into LOCA hydrodynamic loads were sponsored by the Mark II Owners Group to reevaluate the adequacy of each of their Mark II containment structures (Finding F-60). In Suffolk County Contention 21(e), the County alleges that LILCO has not conducted an adequate and properly controlled design verification program with respect to Shoreham. As we discuss below, we believe the County's allegations to be unfounded.

The experimental design testing program used during the Mark II assessment program was conducted under the supervision of General Electric, whose quality assurance plan meets the requirements of 10 C.F.R. Part 50, Appendix B (Finding F-61). The quality assurance plan is processed through General Electric and GE's vendors, and this is then checked for consistency with the respective applicant's quality assurance plans (Findings F-61, F-62). While LILCO has apparently not itself done a formal QA audit of each of the tests performed by or for GE, LILCO has reviewed various test programs and procedures (Finding F-61).

In its proposed opinion, the County asserts that the JAERI test data, which were used to confirm the condensation oscillation and chugging load definitions (Findings F-29, F-63), were not reviewed by General Electric for adherence to the Quality Assurance requirements of 10 C.F.R. Part 50, Appendix B. Suffolk County Proposed Opinion, Volume Two of Two, at 187 (Proposed Finding 21:46) (January 31, 1983). While we agree with this proposed finding to the extent that it indicates that GE did not conduct a formal QA audit, we do not attach the same significance to this fact as does the County.

The JAERI test data were not used as the basis for any Mark II generic final load specifications, but were used only to confirm load specifications derived from the CREARE, Inc. and 4TCO test data (Finding F-63). Representatives of General Electric testified that GE's review of the JAERI tests did not disclose any substantive test procedures that it would have performed differently had it performed the test itself. *Id.* In fact, the JAERI project made several changes in their program based on GE's comments, such that their work is now consistent with the practices GE would use. *Id.*

Therefore, while we agree with the County that the Japanese government did not commit to perform the JAERI research in accordance with 10 C.F.R. Part 50, Appendix B, there is no evidence in this record that the procedures utilized during these tests varied in any substantive way

from those procedures which would have been required under Appendix B.

**b. Amplified Response Spectra**

In the course of the confirmatory analysis performed by LILCO to evaluate the plant against the NUREG-0808 final generic load definitions, Applicant performed a dynamic structural reanalysis and generated revised amplified response spectra (ARS) for structures, systems and components throughout the reactor building (Finding F-64). A comparison of the confirmatory program ARS with the design basis ARS demonstrated that the design basis ARS were in some cases exceeded by those generated during the confirmatory load program (Finding F-65).

The County concludes, based on these facts, that LILCO must "perform and submit for Staff review an analysis of those design basis loads that exceed the confirmatory loads and justify the conservatism of the design basis loads in light of the ARS." Suffolk County Proposed Opinion, Volume Two of Two, at 195 (Proposed Finding 21:80). We presume that what the County intended was that LILCO perform an analysis of those confirmatory ARS which exceeded the design basis ARS.

The County's concerns about differences between the design and confirmatory ARS ignore the record on this contention. As LILCO witness Malovrh explained on cross-examination, differences in ARS are not the controlling factors in comparing the confirmatory loads with Shoreham-specific loads. Rather, it is the loads themselves that are important (Finding F-65).

LILCO recognized that the confirmatory spectra exceeded the design spectra in certain frequency ranges, and undertook a program to evaluate structures, piping and other components to determine the significance of the local exceedances (*id.*). The results of this evaluation, which are documented in the DAR, indicate that design stress allowables were not exceeded (*id.*). At the time the record closed on this contention, the Staff was in the process of reviewing the effects of the ARS exceedances (*id.*).

Based on the record before us, we believe there to be adequate evidence at this time to demonstrate that the program instituted by the Applicant to examine the differences between the design and confirmatory ARS provides reasonable assurance that these local exceedances do not represent a design deficiency. We find that LILCO has already undertaken the very analysis of the confirmatory ARS exceedances of the

design basis ARS which the County wishes us to require LILCO to perform. As this analysis indicated that design stress allowables were not exceeded, we find no basis to require the further analysis sought by the County. The Staff, of course, will complete its confirmatory review of this matter.

**c. Piping Analysis**

In the confirmatory analysis of the Mark II containment issues, LILCO selected approximately 30 piping systems of the 200 to 300 systems in the plant as a representative sample for performance of its reanalysis (Finding F-66).

Although the Staff testified that they had not seen any piping system stresses or support loads which exceeded or failed the code allowables, the Staff has requested that LILCO perform a 100 percent evaluation of all piping systems attached to three locations on the containment wall (Finding F-67). The Staff testified that they regarded this analysis to be confirmatory in nature (*id.*). This analysis was not completed at the close of the record (Finding F-68).

In its Proposed Opinion, Suffolk County apparently relies on the Staff's decision to require this further piping analysis as a basis for suggesting that LILCO ought to perform a 100 percent reanalysis of all piping, particularly the piping lines in the NSSS system. Suffolk County Proposed Opinion, Volume Two of Two, at 41. We find no basis in the record for concluding such a reanalysis to be warranted.

The Applicant's confirmatory evaluation of the piping lines in the NSSS system, on which Suffolk County scrutiny centered, consisted of a reanalysis of two of the six piping lines in the system (Finding F-69). LILCO testified that one of the piping lines analyzed was representative of the four similar main steam lines and the other was representative of two similar recirculation systems. *Id.* While the Staff acknowledged that it did not perform any detailed analysis of the similarity of these lines, it testified that it accepted LILCO's analysis of these two piping systems as being representative based on a comparison of the response spectra inside the containment which could affect the piping (Finding F-70).

As the record contains no evidence contradicting LILCO's testimony that those NSSS piping systems it selected are representative, we find no basis for concluding that a 100 percent reanalysis of the NSSS or any additional piping system is warranted. Furthermore, as the Staff testified that the piping reanalysis is confirmatory in nature, we are aware of no reason why we should retain jurisdiction of this issue or require further testimony as the County has proposed. *See* Suffolk County Proposed Opinion, Volume Two of Two, at 195 (Proposed Finding 21:80).

## 6. Miscellaneous Alleged Inadequacies of Staff Review

Suffolk County raises several other allegations in its Proposed Opinion regarding alleged deficiencies or inadequacies of the Staff's review, in addition to those discussed specifically above. *See generally* Suffolk County Proposed Opinion, Volume Two of Two, at 40 (Opinion) and 182-85 (Proposed Findings 21:24 through 21:36). We decline to adopt these findings because we find them to be either unsupported by the record or unnecessary to a decision on this contention.

In particular, we decline to find the Staff testimony deficient based on the alleged lack of knowledge of certain of the Staff witnesses regarding particular aspects of the Staff's review of Shoreham relative to this contention. If the County believed that the witnesses proffered by the Staff lacked the requisite knowledge to either sponsor the conclusions of the Staff contained in the SER or to adequately respond to the questions which they were asked on cross-examination (a belief which we do not find to have been borne out on this record), the appropriate course of action for the County would have been to make an appropriate motion at the time it believed the alleged lack of knowledge to have become evident. *See, e.g.*, 10 C.F.R. § 2.720(h)(2)(i).

Proposed findings that a certain Staff witness lacks knowledge of a particular subject mean very little when a party never sought to pursue a line of questioning beyond asking if the witness had taken part in a particular review. Such findings do nothing to apprise the Board of the significance which a party attaches to this lack of knowledge, nor do they establish that other members of the witness panel lacked sufficient knowledge to sponsor a particular Staff opinion. The significance of a witness' lack of knowledge (or, for that matter, the significance of the fact that he did not require that a specific test be performed) must be clear from the record if a party expects the Board to adopt and rely on its proposed findings.

## 7. Conclusion

We find LILCO to have met its burden of proof on all aspects of this contention, with the exception of the Humphrey concern relating to operation of the RHR heat exchanger in the steam condensation mode at power levels greater than five percent of rated power, over which we retain jurisdiction. The parties are directed to file a joint report on the status of LILCO/Staff efforts to resolve this issue within two months from the date of service of this decision. The report shall also propose further actions, if any, deemed necessary in this proceeding.

**II-G. Safety Relief Valve Tests and Challenges  
(SC Contention 22, SC Contention 28(a)(vi) and  
SOC Contention 7A(6))**

**1. SRV Testing**

SC Contention 22 concerned the Suffolk County allegations that the performance testing of the safety relief valves (SRV) to be used at Shoreham had not been carried out as required by NUREG-0737, Item II.D.1. and that testing of ATWS conditions had not been carried out (Finding G-1).

The Board's opinion is that LILCO has complied with the requirements of NUREG-0737, Item II.D.1 through the BWR Owners Group Program that included the type of valves to be used at Shoreham. The BWR Owners Group contracted with the General Electric Corporation to develop and implement the SRV test program. The test conditions proposed by the Owners Group were developed on the basis of analyses performed by the General Electric Corporation of a number of postulated BWR accident sequences. LILCO's position was that this work fully satisfies the regulatory requirements (Findings G-4 through G-7).

At the time of the hearing, the NRC Staff had not received all the information that it felt was necessary to evaluate fully the applicability of the generic test results to the Shoreham SRV systems. To the extent that the County contends that the work of demonstrating the applicability of the SRV tests to Shoreham had not been completed, the record shows that the County was correct. However, the only outstanding items were six questions from the Staff (Finding G-8).

At the suggestion of the Board, LILCO prepared responses to these six questions and the Staff reviewed the responses without delay so that the Staff witnesses were able to report to the Board the results of their review at the hearing. The substance of the LILCO responses and the Staff evaluations were subjected to extensive questioning on the record by Suffolk County and the Board (Findings G-9 through G-15). It is our opinion that the Staff questions were appropriate and diligent, and that the LILCO answers were straightforward; we were not surprised, in view of the limited technical dimensions of the questions, that the NRC Staff was able to review them completely and promptly at the hearing.

The only detail left open by the Staff was the need to review a straightforward confirmatory analysis by LILCO (Finding G-11). Due to the well-accepted methodology and defined criteria for this analysis, as well as the identified, state-of-the-art, modest modifications which would be made to local pipe hangers, if necessary, this is a matter which

we can and do leave for the Staff to confirm without Board supervision (*id.*). In any event, we note that the Staff's confirmatory review was completed in February 1983. No party has asserted that the results are inconsistent with the hearing record. The Staff's review at the hearing made it possible for the Staff to take the position that the SRV valve systems at Shoreham had been demonstrated to comply with NUREG-0737, I.I.D.1. and our reading of the record affirms the Staff conclusions.

Suffolk County questioned in cross-examination, but not in their direct testimony, whether high pressure liquid flow through the SRV systems needed to be considered. This matter was explored in some detail and it is our opinion that the potential for high pressure water discharge is so low, because of the details of the design of Shoreham, that testing of these conditions is not needed. This view was supported by the County witness during cross-examination (Finding G-16). We also agree with the Staff's position that cycling of the SRV during the alternate shutdown cooling mode of operation is not a matter of concern (Finding G-17).

Suffolk County maintained a position that the low pressure water tests did not bound the conditions that would prevail in an ATWS event. LILCO and the Staff freely agreed that ATWS testing is not required for BWR valves for sound technical reasons and the Board fully concurs. These technical reasons show that the probability of high pressure water and/or water-steam discharge is so low that it is very unlikely that any particular ATWS event would challenge the relief valves with either two-phase or water only flow (Finding G-20).

County witnesses Bridenbaugh and Minor were adamant that ATWS testing should be required for SRV systems in BWR plants (Findings G-18, G-21). The County puts forth a proposed finding which badly distorts NUREG-0737, Item I.I.D.1. on this point (Finding G-18). It is our opinion that SRV testing under ATWS conditions was unequivocally not required by the NRC Staff for sound and sufficient reasons and LILCO, in compliance, did not pursue SRV testing under ATWS conditions. Further, for realistically hypothesized ATWS events, the record shows that the Shoreham SRVs can be expected to operate properly during these "infrequent" events, given the obvious provisos that appropriate maintenance procedures are utilized and that the systems are kept nearly free of foreign material. These provisos were not part of this contention and we do not find sufficient basis to raise them *sua sponte*. Also, we agree with the Staff's view that the issue of valve cycling in realistically hypothesized ATWS events is not a matter for concern. (Findings G-19 through G-23.)

For the reasons discussed above, we find this contention to be without merit.

## **2. Reduction of SRV Challenges**

The issuance of NUREG-0737, Item II.K.3.16, "Reduction of Challenges and Failures of Relief Valves — Feasibility Study and System Modification" provided guidance for reducing the incidence of stuck open relief valve (SORV) events. This guidance directs that a feasibility study be made of methods to achieve this goal and that those measures which do not compromise the performance of the valves should be implemented (Finding G-24). LILCO participated in a BWR Owners Group evaluation of methods available to reduce safety relief valve (SRV) challenges and SORV events (Finding G-25). Three methods were identified and are being implemented. They are (1) the use of Target Rock two-stage SRVs, (2) the use of an operating procedure providing for manual implementation of low-low set relief, and (3) a lowering of the valve reclosure set-point (Finding G-26). The Target Rock two-stage SRV was developed to improve reliability over the Target Rock three-stage design. The two-stage design eliminates the middle stage of the three-stage valve which was the major cause of many SORV failures (Finding G-27). To reduce the number of SRV challenges, LILCO will use an operating procedure which provides for manual implementation of low-low set relief. This procedure directs the operator to manually hold the SRV open beyond the reclosure set-point. Additional depressurization will result from this action and the number of subsequent SRV actuations will be reduced (Finding G-28). The number of SRV challenges will be further reduced by lowering the valve reclosure set-point as proposed by LILCO, which allows the valve to automatically remove more heat on the initial actuation (Finding G-29).

The Staff reviewed the methods proposed by LILCO to comply with NUREG-0737, Item II.K.3.16 and found them to be sufficient. The Staff, however, held open the generic review of Item II.K.3.16 to consider requiring the additional measure of changing the set-point on water level for main steam isolation valve closure. This procedural change would further reduce the number of SRV challenges. On January 7, 1983 LILCO committed to make this change at Shoreham (Finding G-30). The Staff testified that Shoreham will be equipped with an improved pneumatic supply control system to the SRVs. This system will further reduce SRV challenges (Finding G-31).

Suffolk County contends that LILCO has not met the requirements of Item II.K.3.16 because it has not achieved an order of magnitude



reduction in challenges to SRVs by its proposed modifications (Finding G-32). Since incorporation of Target Rock two-stage SRVs at the plant do not reduce "challenges," Suffolk County asserts that their use should not be considered as responsive to Item II.K.3.16 (Finding G-33). The Board believes this interpretation to be too restrictive. The testimony of the Staff's witness, who assisted in the drafting of Item II.K.3.16, was that the objective of the Item was to achieve improved reliability of SRVs (Finding G-34). While the Commission has not formally approved the interpretation that improved reliability of SRVs may be considered in complying with the requirements of Item II.K.3.16, the Board is persuaded, from the testimony given, that the intent of the guidance given in the Item is to reduce SRV failure. Therefore, all modifications to achieve this goal should be included in determining the reduction in valve failure.

The reduction in SRV challenges as a result of the modifications at Shoreham is estimated to be 20 to 30 percent (Finding G-35). The proposed change to the two-stage SRVs is estimated to result in a reduction in the number of SORV events by about a factor of eight (Finding G-36). Together, these modifications achieve an approximate "order of magnitude" reduction in SORV events.

The County argues that the two-stage Target Rock valve should not be considered by LILCO in its responses to Item II.K.3.16 since the decision to use that valve at Shoreham predates this Item (Finding G-37). The BWR Owners Group study, in calculating reductions in SORV event frequency utilized the BWR-4 with Target Rock three-stage valves as a benchmark (Finding G-38). The two-stage design represents a design improvement and should be included in determining compliance with the Item.

The Board concludes that the SRV evaluation performed for Shoreham proceeded from an appropriate benchmark plant configuration, that an approximate "order of magnitude" reduction in SORV events from this benchmark will be accomplished by the design and procedural SRV improvements being implemented at Shoreham, and that this reduction meets the goal described in NUREG-0737, Item II.K.3.16.

**a. Board Notification 82-79 (Set-Point Drift)**

On July 26, 1982, shortly before the hearing on SRV issues, the NRC Staff issued Board Notification 82-79, "Opening Pressure of Two-Stage Target Rock Safety Relief Valves" (Finding G-39). The notification recounts a recent event at the Hatch 1 plant in which eight of eleven

Target Rock two-stage valves did not open at a pressure exceeding the nominal set-points (Finding G-40). The NRC Staff, at the time of the hearing, was still studying the Hatch 1 event to determine its causes. However, it was the Staff's judgment that a more rapid rate of pressurizing the system, or a higher maximum pressure, would have caused most or all of the SRVs which had remained closed to open (Finding G-41).

The Hatch 1 event is an example of a problem known as "set-point drift" which results in a failure of the valve to open at designated pressure. The problem is unrelated to either NUREG-0737, Item II.D.1, or Item II.K.3.16, and therefore does not fall within the scope of either of the two SRV contentions or alter the Board's conclusions on those contentions (Finding G-42).

The evidence heard does indicate that "set-point drift" is a long-standing minor problem generic to all SRVs. All valves, after they have been in service for a period, demonstrate a tendency for the opening pressure to vary from the set-point. However, this variance is not considered to be a design problem. Furthermore, when a variance from conservative technical specification limits is noticed in post-service testing, the valves are required to be repaired, reset, and retested prior to reinstallation (Finding G-42). This provides assurance that set-point drift will not result in a significant safety hazard.

#### ***b. SRV Maintenance and Lubricant Polymerization***

At Shoreham, station procedures will be implemented for operation, maintenance, testing, and surveillance of the SRVs (Finding G-43). This will aid in assuring long-term reliable performance of the valves, and minimization of set-point drift. Furthermore, the Shoreham SRVs will not use lubricants such as castor oil which are subject to polymerization under reactor operating conditions. Such lubricants have been suggested as possible contributors to set-point drift on Target Rock two-stage SRVs (Findings G-44 and G-45).

### **3. Conclusion**

Based on those matters discussed above and set forth in Section III-G of the Findings of Fact, we conclude that LILCO has met its burden of proof on these contentions. We find against the Intervenor.

## **II-H. Post-Accident Monitoring (SC Contention 27/SOC Contention 3)**

This contention reflected the concern of Suffolk County and the Shoreham Opponents Coalition that the *schedule* for compliance and the *designation* of instrumentation for monitoring important variables at Shoreham under postulated accident conditions were indeterminate and, therefore, the LILCO compliance with Regulatory Guide 1.97, Revision 2 (Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident), was deficient. The number of variables at issue was very substantially reduced by commendable negotiations among the parties and only four items were left for consideration before the Board. (Findings H-1 through H-6.)

The NRC Staff testified that, at the time of the hearing (August 1982), the Regulatory Guide had not been implemented by the Staff and that it would be implemented at an unspecified date in the future, in accordance with the recent Commission approval (July 1982) described in SECY-82-111 documents. Although the Staff testified that the Shoreham plant will be required to comply with the Regulatory Guide, the Staff refused to review the LILCO position in the prefiled testimony on the basis that the final Staff position on the variables in question had not been formulated. (Findings H-7 through H-9.) Therefore, we are forced to evaluate the facts, as presented in the testimony of LILCO and Suffolk County, in the absence of Staff testimony on the technical merits of the issues. We agree with much of the County's opinion that in effect the Staff is in default of its obligations to present its technical evaluation of the sufficiency of the present posture for Shoreham of each of the four items remaining in contention, especially so in the face of this Board's discussion of the background of consideration of NUREG-0737 items for contested issues in LBP-82-19, 15 NRC 601, 606-08 (1982).

Subsequent to the hearing on this contention, the Staff has issued Supplement 1 to NUREG-0737 (December 1982) in accordance with SECY-82-111 provisions (Finding H-10). Further, LILCO has filed a response to Supplement 1 in April 1983, in accordance with the required schedule. These actions appear to have ameliorated the County's concerns, which were shared by this Board, that the schedule for developing compliance was indeterminable. (Findings H-8 through H-11.) Furthermore, our decision below finds that the present status of Shoreham with respect to the four items from the Regulatory Guide

remaining in contention is sufficient to achieve the purpose of concern in each item.

At this time, we need only rule on the LILCO substantive testimony that the intent of the Regulatory Guide is being met and that operation of the Shoreham plant is justified in the interim, pending future consideration by the Staff of whether or not LILCO needs to supplement its equipment in order to meet the Regulatory Guide. As noted by LILCO, "the issue is, therefore, whether this Board may make a finding of 'reasonable assurance' while leaving it to the NRC Staff to review Shoreham against the recommendations of Regulatory Guide 1.97 in the future." LILCO Proposed Opinion, January 17, 1983, Vol. 1, p. 56.

The Staff takes the position that Shoreham may be operated with no undue risk to the public in accordance with the Commission's approval documented in SECY-82-111. The record does not refute the Commission's decision and we have no basis for questioning that the Shoreham design provides a degree of public safety that is being achieved at other U.S. nuclear power plants. However, we look to the LILCO and County testimony to see if there are any previously unrecognized technical aspects uncovered in this contention which disclose that the Regulatory Guide and LILCO's proposed compliance are insufficient for the variables in contention. (Findings H-12 through H-15.)

The Regulatory Guide lists variables that need to be monitored, not "devices" as alleged by the County or instruments as asserted by LILCO. (Findings H-16 and H-17.) An important aspect of the Regulatory Guide not testified to by the parties is that the instruments used for monitoring the variables should, to the extent practicable, be instruments which are used during normal plant operation and also directly measure the desired variables. (Finding H-18.) The first group of items of this contention in the Regulatory Guide involve the parameter "Radiation Exposure Rate." LILCO proposes to use the existing area radiation monitors and the noble gas effluent monitor on the reactor building standby ventilation exhaust stack to meet the purpose of detection of primary containment breach as well as detection of significant releases. The County would have the Board find that the purpose of monitoring this variable is to locate the area of leakage from the primary into the secondary containment. There is no such statement of purpose in the guide, and we see no basis for the County's proposed finding. (Findings H-19 through H-21.) The other technical points that the County raises appear to be based on misunderstandings of the Shoreham design (Finding H-22) or unrealistic and illusive speculations

(Findings H-22 and H-23). We conclude that the instruments that LILCO has installed or proposes to install before fuel loading at Shoreham achieve the purposes broadly stated in the guide, subject to Staff review in the future of all monitoring for Regulatory Guide 1.97 variables on an integrated basis that may include details not apparent by analysis of the four items in this contention.

Other items in this contention relate to the measurement of flow rates to monitor operation of the Dry Well Spray and Suppression Chamber Spray. The purpose of these spray systems is to reduce pressure and temperature under postulated accident conditions. LILCO proposed that the performance of these systems is most pertinently observed by the operator by using the pressure and temperature sensors, which are normally used equipment. The County is concerned that because the RHR system has several operating modes, the operator might be unable to activate and confirm correctly the operation of these spray systems. Even in the absence of flow meters in these systems, it is our opinion that the operators must be trained to manipulate the valving in the RHR systems with skill and accuracy, according to procedures that are appropriately prepared, approved and tested. Installation of flow meters would not compensate for inadequate operator training. We have no reservations that a properly trained operator would be able to monitor the operation of these spray flow systems, utilizing the pressure and temperature sensors, in compliance with the guide. (Findings H-26 through H-30.)

The final item in this contention related to monitoring the Standby Liquid Control System Flow. The LILCO position is that existing instruments in the control room are adequate to monitor flow in the SLCS. The County believes the addition of a flow meter is needed; however, we note for the *very* low probability scenario that the County postulates of an ATWS event requiring activation of the SLCS *and* a pipe break in the SLCS system, it would be the output of the pump discharge pressure sensor as proposed by LILCO that would alert the operator and an added flow meter would not provide significant additional information. In view of the multiple instruments available to the operator to monitor the operation of the SLCS, it is our opinion that the County's argument for adding another instrument is not compelling. (Findings H-31 through H-35.)

In sum, it is our opinion that the record supports the LILCO position that the post-accident monitoring equipment, to which commitments have been made, would achieve the purposes stated in the guide for each of the four items remaining in this contention. The decision does not preclude the possibility that the future NRC Staff review of

Regulatory Guide 1.97 items on an integrated basis broader than the contention before us may disclose the need to supplement some instrumentation.

## **II-I. Environmental Qualification (SC Contention 8/SOC Contention 19(h))**

Suffolk County Contention 8 (SC 8) and Shoreham Opponents Coalition Contention 19(h) (SOC 19(h)) question the adequacy of LILCO's program for environmental qualification of equipment (Finding I-1). The parties settled certain aspects of these contentions prior to the hearing (Finding I-2). The allegations which remain for litigation are:

1. The list of emergency equipment to be qualified is inadequate (SC 8(c)/SOC 19(h)(3));
2. There has been an inadequate demonstration that all safety-related equipment has been properly qualified to meet aging and other life requirements (SC 8(d)/SOC 19(h)(4)); and
3. There is insufficient information to evaluate the overall adequacy of Shoreham's satisfaction of environmental qualification requirements for safety-related equipment (SC 8(e)/SOC 19(h)(5)).

LILCO and the NRC Staff presented panels of witnesses to testify on the substantive issues raised by these contentions. Suffolk County also presented witnesses, but no testimony was presented by the Shoreham Opponents Coalition on this contention (Finding I-3).

### **1. Status of Regulatory Requirements**

Regulatory requirements and Staff guidance for environmental qualification of electric equipment important to safety for nuclear power plants are documented in three recent issuances by the Commission. They are:

*Petition for Emergency and Remedial Action*, CLI-80-21, 11 NRC 707 (1980).

NUREG-0588, "Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment."

See 10 C.F.R. § 50.49(k).

10 C.F.R. § 50.49, "Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants."

The history of these requirements is set forth in the statement of considerations for the new rule. *See* 48 Fed. Reg. 2729 (1983).

The Board takes note of the fact that, by its action on June 30, 1983, the D.C. Court of Appeals vacated and remanded for reconsideration the Commission's interim final environmental qualification rule, and in doing so in effect found invalid portions of the final rule codified as 10 C.F.R. § 50.49. *Union of Concerned Scientists v. NRC*, 711 F.2d 370 (D.C. Cir. 1983). We believe that the impact of the court's action on the regulation may only affect the schedule on which compliance will be required for operating reactors for which no interim justifications are required by the rule. *See, e.g.*, 711 F.2d at 376, 377. Applications for new OLs, such as Shoreham's, must perform interim analyses justifying operation for equipment not demonstrated to be fully environmentally qualified under the new rule. Section 50.49(i). Accordingly, we do not believe this recent court decision reaches the substance of the issues in contentions in this proceeding. For this reason, we have used 10 C.F.R. § 50.49 as the regulatory requirement for the evaluation of the environmental qualification of electric equipment at Shoreham.

## **2. The Scope of LILCO's Environmental Qualification Program**

The Commission's rule for environmental qualification of electrical equipment requires that a program be established to evaluate safety-related equipment, nonsafety-related equipment and certain post-accident monitoring equipment (Finding I-4). Electric equipment important to safety located in a mild environment is not included in this rule (Section 50.49(c)). The Shoreham environmental qualification program is documented in the "Environmental Qualification Report for Class 1E Equipment" (Finding I-5).

### ***a. Safety-Related Electrical Equipment***

LILCO has included in its qualification program a list of safety-related equipment based on the guidance of NUREG-0588 (Finding I-6). Equipment was classified into one of four "operability codes" depending upon function and location. Based upon the operability code, all equipment located in a harsh environment which was relied upon to perform a safety function was included in the qualification program (Finding I-7). To provide additional assurance that all required safety-related electrical equipment has been identified, EDS Nuclear is performing a review of Shoreham Emergency Procedures to confirm that all such equipment located in potentially harsh environments has been included (Finding

I-8). The Staff reviewed the list of safety-related equipment supplied by LILCO, both from a system and component perspective, and found it acceptable (Findings I-9; I-10).

Suffolk County contended that the Standby Liquid Control System (SLCS) was improperly excluded from the environmental qualification program. A Staff witness explained that the SLCS does not have to function during an accident that produces a harsh environment and is required to perform its safety function only in a normal operating environment and therefore should be qualified for such. The Staff witness explained that the SLCS components were reviewed. Those components in a harsh environment which perform a safety function, or whose failure could prevent accomplishment of a safety function, will be qualified in the formal environmental qualification program (Finding I-11).

The Board concludes that LILCO has complied with the requirements regarding the scope of the environmental qualification program for safety-related electrical equipment.

#### ***b. Nonsafety-Related Electrical Equipment***

The LILCO environmental program did not explicitly consider nonsafety-related electrical equipment whose failure could prevent safety-related equipment from performing a safety function (Finding I-12). One reason for this omission was that the Commission rule 10 C.F.R. § 50.49(b)(2), requiring that such equipment be considered, was promulgated only shortly before the beginning of hearings on this contention. The rule provides time for applicant submission, and Staff review, of the listing of nonsafety-related equipment which must be qualified. The Staff is requiring that LILCO submit a list of any equipment at Shoreham which falls within this category (Finding I-13).

LILCO testified that in its opinion no nonsafety-related equipment at Shoreham will require qualification under Section 50.49(b)(2) because of the design philosophy of Shoreham which was intended to preclude interactions between safety-related and nonsafety-related equipment (Finding I-14).

The Staff testified that, in theory, the design philosophy of a newer plant such as Shoreham could take care of the requirements of 10 C.F.R. § 50.49(b)(2) by classifying the equipment as Class 1E (Finding I-15). This would be accomplished either by categorizing equipment which would otherwise be covered by Section 50.49(b)(2) as safety-related, or by isolating nonsafety-related equipment from safety-related equipment in accordance with separation criteria as outlined in Regula-



tory Guide 1.75, Rev. 1, "Physical Independence of Electrical Systems" (Finding I-16).

At the time of the hearing, the Staff had not established criteria for reviewing a list of equipment to be qualified under the provisions of Section 50.49(b)(2), because the rule was so new that the Staff was just beginning discussions on implementing its provisions (Finding I-17). While this is not a position in which the Staff may take comfort, nevertheless it is the position in which the Staff was placed as a result of the timing and sequence of events.

Clearly, guidance for the identification of nonsafety-related equipment to be qualified under Section 50.49(b)(2) should be provided. We believe that the Staff must provide applicants with this guidance. We recommend that the Commission consider whether the Staff should do so. Criteria must be available against which the analysis employed to identify 50.49(b)(2) equipment may be judged; otherwise, there can be no meaningful, objective or scrutable review. Notwithstanding the absence of detailed criteria for the identification of nonsafety-related criteria, we are persuaded that, at Shoreham, the design philosophy has been such as to preclude interactions between safety-related and nonsafety-related equipment (Finding I-14) (*see also* our opinion on Contention 7B, Section II-J of this partial initial decision). Consequently, the number of equipment items to be qualified under Section 50.49(b)(2) will be small.

The Suffolk County witness asserted that LILCO must document that its EQ program has taken into account all equipment, the failure of which could mislead the operator (Finding I-18). It was inferred by Suffolk County that such systems and components should be qualified under Section 50.49(b)(2) (Finding I-19). Examples of systems and components which should be included were given by SC as (1) the offgas system, (2) emergency lighting system, (3) emergency communications equipment, (4) parts of Regulatory Guide 1.97 equipment which have not been included, (5) feedwater and condensate system and (6) the remote shutdown panel (Finding I-20). During cross-examination, Suffolk County agreed that, for the examples given, either there is redundant, serial or diverse instrumentation to verify plant status or that the County was uncertain of the extent to which LILCO had already met the concern (Finding I-21).

Although Suffolk County has been unable to provide a persuasive argument based on the explicit language of the regulation to support its assertion, it seems reasonable to the Board that nonsafety-related equipment which by its failure may mislead the operator can endanger plant safety (*i.e.*, "prevent satisfactory accomplishment of its safety

functions”) and therefore deserves careful attention as part of the qualification required by Section 50.49(b)(2). In cases where such equipment exists, due consideration must be given to its ability to function in environments to which it may be subjected. No examples of such equipment at Shoreham have been given which have not been refuted. The Board believes that if items of such equipment do exist, their number will be small and their effects minor because of the design philosophy at Shoreham.

### ***c. Post-Accident Monitoring Equipment***

Certain post-accident monitoring equipment included within the scope of Regulatory Guide 1.97, Rev. 2, “Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident” must be qualified according to 10 C.F.R. § 50.49(b)(3) (Finding I-22). LILCO has stated its intent to comply with these provisions (Finding I-23). Full compliance is not required before fuel loading (Finding I-24). Equipment not required by Regulatory Guide 1.97, Rev. 2 to be in place for fuel load is not in the qualification program because it has not been identified (Finding I-25).

The Staff’s review of the environmental qualification of this category of equipment will not be completed prior to first fuel loading. As the provisions of Regulatory Guide 1.97, Rev. 2 are implemented in accordance with SECY-82-111, additional items of equipment will be qualified (Finding I-26). We infer from LILCO’s position that the post-accident monitoring equipment installed in the plant which this Board relies on in its decision on post-accident monitoring (SC Contention 27/SOC Contention 3), Sections II-H and III-H of this Partial Initial Decision, will comply with Section 50.49(b) or 50.49(i).

### **3. Justification for Interim Operation**

Pending completion of the equipment qualification program required by Section 50.49(b), applicants for operating licenses that are granted on or after February 22, 1983, but prior to November 30, 1985, shall perform an analysis to ensure that the plant can be safely operated in accordance with the requirements of Section 50.49(i).

A Staff review of the Shoreham qualification program concluded that 50 of the 131 equipment qualification packages submitted by LILCO were complete and therefore that the equipment is fully qualified (Finding I-27). For the remaining 81 deficient packages, the Staff is requiring, by license condition, that full qualification be achieved by

startup after the first refueling outage (Finding I-28).<sup>22</sup> LILCO's compliance with the license condition will be monitored by the Staff's regional and resident inspection program (Finding I-29). The Board finds this license condition to be consistent with Section 50.49, which establishes a goal of final environmental qualification of equipment before November 30, 1985 by applicants for operating licenses, provided that the condition includes a provision that this be accomplished prior to the 1985 date. No further Staff action with respect to this license condition is required prior to licensing.

In accordance with the terms of Section 50.49(i), LILCO has been required by the Staff to provide justifications for interim operation (JIOs) for each of the equipment items which will not be fully qualified prior to initial plant startup. The Staff has reviewed the JIOs submitted by LILCO and reported in the December 29, 1982 SER that there are several deficiencies to be corrected prior to fuel load. During the hearings, questions arose concerning (i) administrative controls, (ii) wiring modifications and (iii) failure modes (Finding I-30).

**a. *Administrative Controls***

For Shoreham, approximately ten percent of the interim justifications (less than five percent of the total items in the EQ program) use administrative controls. The administrative controls to be used are explicitly identified in the interim justifications. Although the County asked some questions regarding administrative controls, no particularized concern is evident (Finding I-31).

**b. *Wiring Modifications***

A second area of inquiry dealt with Shoreham's "wiring modifications" to support interim operation. Certain wiring modifications were made to ensure that the failure of a component not fully qualified would not preclude either the safe operation of the system in which it was located, or fulfillment of the system's safety function. This purpose was accomplished by having the component wired in a manner to preclude unacceptable failure modes. In no instance did these modifications eliminate the performance of a safety function (Finding I-32).

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<sup>22</sup> LILCO believed that approximately 30 percent of the 81 types of equipment which were not qualified at the time of the audit by the Staff had been fully qualified by the time of the hearing (Finding I-28).

### **c. Failure Modes**

Other questioning by Suffolk County dealt with two specific justifications for interim operation that were bound into the record. In the first justification two failure modes were discussed in the failure consequence analysis. In the other justification three failure modes were discussed. The County questioned whether a third failure mode should have been discussed for the first justification as well. LILCO explained that a failure of the first instrument could result only in an open or short circuit signal, whereas a failure in the second instrument could result in an open circuit, a closed circuit or an inaccurate pulse-type signal. Thus, it was proper to consider two failure modes for the first item and three for the second item (Finding I-33). No problems were identified concerning the failure modes considered in the consequence analysis portion of the interim justifications.

All the justifications for interim operation have been reviewed by the NRC Staff, and many have been subject to detailed review. There were some outstanding items after the Staff's initial review (Finding I-34). Some of these deficiencies were subjects for cross-examination at the hearing (Findings I-35, I-36). The Staff has requested that LILCO submit further documentation to resolve these deficiencies. The Staff will report on this aspect of the review in a future SER supplement. Although we make no substantive finding, the Board takes notice as an illustration of the ongoing review process that subsequent to the hearing LILCO has submitted a response to the December 29, 1982 SER input in SNRC-838, dated February 18, 1983, purporting to address the JIO deficiencies. We find the items remaining outstanding in the JIO review to be minor and resolvable by the Staff.

### **4. Aging**

Suffolk County and SOC have also contended that LILCO has not met the aging and qualified life requirements for the equipment in its qualification program.

Section 50.49 provides that applicants for operating licenses are not required to requalify electric equipment if the Commission has previously required qualification in accordance with NUREG-0588 (Finding I-37). NUREG-0588 establishes two categories. Category I requirements are based on IEEE STD 323-1974, "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations." Category II requirements are based on IEEE STD 323-1971. Because Shoreham's construction permit safety evaluation reports were issued before July 1974, NUREG-0588, Memorandum and Order CLI-80-21, and 10 C.F.R.

§ 50.49 all require Shoreham to meet Category II requirements for equipment purchased before May 23, 1980. Category I requirements apply to subsequent purchases (Finding I-38).

The aging requirements applicable to Shoreham refer to the degradation of the equipment due to normal environmental conditions during the equipment service life (Finding I-39). The aging effects considered include time/temperature (thermal), radiation, and cyclic where applicable. In evaluating aging effects LILCO used testing and analysis consistent with the NUREG-0588 requirements (Finding I-40). In addition, for all qualified equipment LILCO has established a qualified life using Category I methodology for thermal aging. The use of this methodology exceeds Category II requirements (Finding I-41). Finally, LILCO has developed a surveillance and maintenance plan to ensure that equipment will not degrade sooner than predicted. The Staff has reviewed the plan and found it to be acceptable (Finding I-42).

The Board finds the LILCO program to meet the applicable regulations. Suffolk County and SOC have presented no substantive evidence to controvert this conclusion. The Suffolk County witness did express displeasure with the final rule with respect to the absence of qualified life requirements and the allowance for more "non-type testing." However, this does not prevent the Board from finding the subcontention to be without merit. The validity of the final rule is not a matter properly before us. *See* 10 C.F.R. § 2.758.

## 5. Documentation and Ripeness of the Issues

The Board finds documentation of the Shoreham environmental qualification program incomplete in two respects. First, the impact of the final rule on the scope of the program for nonsafety-related equipment has not been resolved. Second, there are several open items in the JIO review which must be resolved prior to fuel load. Given these deficiencies and the open status of the Staff review, the question before the Board is whether this contention is ripe for decision. The Board is able to conclude that the unresolved aspects of the review do not prevent the Board from making a decision on the contention based upon the existing record.

The Commission has stated that as "a general proposition, issues should be dealt with in the hearings and not left over for later (and possibly more informal) resolution." *Consolidated Edison Co. of New York* (Indian Point Station, Unit No. 2), CLI-74-23, 7 AEC 947, 951 (1974). However, the Commission in *Indian Point* went on to state that "in some instances . . . the unresolved matter is such that Boards are

nevertheless able to make the findings requisite to issuance of the license." *Id.* The example given in the case was a situation in which the Board could find the Applicant's security plan adequate except for "minor procedural deficiencies." The Commission, in such a case, would allow issuance of the license with a direction that the Staff subsequently oversee resolution of the deficiencies.

The Board finds in the present case that the deficiencies in the review are "minor." the deficiencies will be resolved by the Staff subsequent to this Board order, but prior to issuance of a license. The testimony on the scope of qualification program under Section 50.49(b)(2) gives the Board confidence that the impact of the new rule on the Shoreham program will be small or non-existent. With respect to the JIO review, the testimony indicated that the deficiencies were minor and that both the LILCO and Staff witnesses expected them to be resolved shortly. These documentation deficiencies are not so great as to prevent us from concluding that, subject to completion of the documentation, the LILCO program is adequate.

Based on the testimony given, and absent persuasive arguments to the contrary, the Board finds that the list of nonsafety-related equipment falling under the requirements of Section 50.49(b)(2) may contain a small number of items which must be included in the qualification program. These items of equipment must be qualified prior to operation, or the Applicant must submit justification for interim operation in accordance with provisions of Section 50.49(i). Therefore, it is concluded that the environmental qualification program and the intended further revisions to implement Section 50.49(b)(2) are acceptable.

The Board also concludes that there is no need for further litigation of the issue of the scope of 10 C.F.R. § 50.49(b)(2).

## **6. Conclusion**

The Board concludes that LILCO has complied with the requirements of 10 C.F.R. § 50.49 with respect to the scope of the environmental qualification program for safety-related equipment. We find that all safety-related equipment, as well as Regulatory Guide 1.97, Rev. 2 equipment that LILCO has committed to, has been included in the program. Equipment falling within the 50.49(b)(2) category, if any, will be identified and included in the program. The Board requires that the Staff and LILCO resolve this issue prior to fuel load, consistent with our decision above.

The Board also requires that LILCO comply with the qualification rule for post-accident monitoring equipment as that equipment is installed.

The Board concludes that LILCO has complied with the requirements of 10 C.F.R. § 50.49 with respect to aging.

Finally, the Board concludes that, subject to completion of the JIO review prior to fuel load, LILCO has supplied adequate documentation of its qualification program.

## **II-J. Systems Interaction and Safety Classification (SC Contention 7B/SOC Contention 19(b))**

### **1. Introduction**

SOC Contention 19(b) was combined with this SC Contention 7B for litigation.

Litigation of this contention was lengthy, hearings being held on some 26 days. It was further complicated by the subsequent disavowal of previous testimony by one of the Staff witnesses. The contention, itself, is broad and general. Proposed opinions and findings of fact by Suffolk County, LILCO and the Staff differ markedly in format and emphasis. LILCO, in our opinion, comes closest to an objective treatment of the entire record; the Staff effort is directed primarily to its own testimony; and the County limits its product to that which it believes supports its position. The County, in particular, has been far less than diligent in reflecting the record fully and accurately.<sup>23</sup> These factors have led to an unnecessarily difficult and unwieldy task for the Board in reaching its opinions on the issues raised. We have had to reexamine the record carefully to reach our own findings rather than relying upon or adopting uncritically those proposed by the parties. We have, however, adopted many of the proposed findings, particularly LILCO's, after such reexamination.

To make our task somewhat more tractable, and hopefully our decision more scrutable, we have addressed the contention in parts, by posing constituent questions. This procedure necessarily has produced some repetition of discussion which perforce would have been protracted in any event. Finally, our ultimate conclusion cannot be based on crisp analysis of a few evidentiary facts, but must be based on the overall assessment of LILCO and Staff performance in a very wide sphere of activities. For our reasoning to become apparent and the bases therefor adequately provided, this part of our decision has become extensive, indeed.

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<sup>23</sup> The County's paraphrases of the transcript are frequently inaccurate and sometimes, by selective choice, do not represent the complete facts of the actual situation.

## 2. Summary

This contention encompasses a broad area of methodology used by LILCO and the Staff in the safety analysis of the design of the Shoreham plant with respect to systems interaction and the safety classification of structures, systems and components (SS&Cs) in the plant (Findings J-1 and J-2). Specific questions were raised with respect to the adequacy of completeness of the analyses made and allegations were made that more systematic techniques are available and were not used. A common thread throughout the controversy has been the difference in definition and use of the terms "safety-related" and "important to safety" by LILCO, the Staff and Intervenors. As a result, Intervenors question whether the Shoreham plant complies with NRC requirements, particularly certain specified design criteria.

To assist ourselves in reaching our conclusions on this contention we have approached them by considering eleven constituent questions that we believe fairly represent the issues implicit or explicit in the comprehensive contention admitted for litigation. We have examined each such question from the standpoint of (a) what is required by the NRC, (b) what has been done by LILCO and the Staff and (c) have LILCO and the Staff met the requirements.

We conclude that the contention is without merit. LILCO and the Staff have met NRC requirements on each aspect of the contention. This is true despite the fact that LILCO has refused to accept the Staff's and Intervenors' definition of "important to safety." We find that the definition and use of this term by the Staff and the Intervenors is correct, *i.e.*, 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. The reason that we conclude that LILCO has complied with NRC requirements is that with respect to the treatment of structures, systems, and components, whether for classification and qualification, quality assurance or safety analysis, such treatment may and should be effected commensurate with the items' importance to safety. LILCO has applied this latter treatment to every structure, system, and component in the Shoreham design, notwithstanding the fact that it used only two classification classes, *i.e.*, safety-related and nonsafety-related.

Having carefully considered LILCO's defense of its position, we nevertheless agree with the Staff that LILCO should adopt and implement the correct definition of "important to safety," as discussed in this decision, and order that this be a condition of any license issued for the Shoreham plant.



### **3. Questions to Be Addressed**

The contention raises questions of whether, in their analysis of the Shoreham facility, LILCO and the Staff have applied an adequate methodology. Certain types of methodology are alleged not to have been used, resulting in noncompliance with specified General Design Criteria. We proceed to discuss the details of the contention in the context of eleven questions we pose as defining the parts of the contention that need to be addressed.

The eleven questions are:

- a. Have LILCO and the Staff taken into account systems interaction in their analysis of the reliability of systems to determine whether there is reasonable assurance that the Shoreham design adequately protects (the public) from credible accidents?
- b. Have LILCO and the Staff taken into account classification and qualification of systems important to safety in their analysis of the reliability of systems to determine whether there is reasonable assurance that the Shoreham design adequately protects (the public) from credible accidents?
- c. Have LILCO and the Staff determined which sequences of accidents should be considered within the design basis of the plant?
- d. Have these determinations of sequences of accidents taken into account systems interactions?
- e. Have these determinations of sequences of accidents taken into account classification and qualification of systems important to safety?
- f. Have LILCO and the Staff determined whether the design basis of the plant adequately protects against every such sequence (determined as defined by question c, above)?
- g. Have LILCO and the Staff taken into account systems interactions in the determination of the adequacy of protection of the design basis?
- h. Have LILCO and the Staff taken into account classification and qualification of systems important to safety in the determination of the adequacy of protection of the design basis.
- i. Have LILCO and the Staff applied proper systematic methodology, such as the fault tree and event tree logic approach of the IREP program, to analyze the reliability of systems to determine whether there is reasonable assurance that the Shoreham design adequately protects (the public) from credible accidents?

- j. Have LILCO and the Staff applied proper systematic methodology, such as systematic failure modes and effect analysis, to analyze the reliability of systems to determine whether there is reasonable assurance that the Shoreham design adequately protects (the public) from credible accidents?
- k. Absent a methodological approach, taking into account systems interaction and classification and qualification of systems important to safety and applying 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, to define the importance to safety of each piece of equipment, is it possible to identify the items to which General Design Criteria 1, 2, 3, 4, 10, 13, 21, 22, 23, 24, 29, 35 and 37 apply and to demonstrate compliance with these criteria?

***a. Question a. Have LILCO and the Staff Taken into Account Systems Interaction?***

***1). Definition of Systems Interaction***

There is no uniformly accepted, or officially promulgated, definition of "systems interaction" (Findings J-10 to 15). There is no uniformly accepted, or officially promulgated, methodology for conducting systems interaction analysis (Findings J-17, 30 to 36, 38 to 40, and 43). There is, however, at least general agreement on the objective of systems interaction analysis, which may be expressed as an attempt to provide assurance that the independent functioning of safety systems is not jeopardized by preconditions in the plant design (particularly dependencies hidden in supporting and interfacing systems) that cause faults to be dependent<sup>24</sup> (Finding J-16). Also, there is general agreement, at least, on some of the techniques that may be used in the analysis. These include the fault tree and event tree logic approach, systematic failure modes and effect analysis, and variations and combinations of these (Findings J-17, 38, 39). Some believe that

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<sup>24</sup> General categories of systems interactions also are described sometimes as functionally coupled, spatially coupled or human coupled (Finding J-12, for example). LILCO believes that systems interaction may be considered a subset of dependent failures (common-mode or common-cause) (Finding J-12). One definition of dependent failures is given in the Probabilistic Risk Assessment Procedures Guide (NUREG/CR-2300, § 3.7.2, January 1983) and such failures are classified as common-cause initiating events, functional dependencies, intersystem dependencies, physical interactions, human-interaction dependencies, and intercomponent dependencies (Findings J-13, 14).

systems interaction analysis techniques are sufficiently developed that they can and should be applied independently of other analyses (Findings J-149, 150). Others believe that systems interaction analyses are more properly included in a probabilistic risk assessment (PRA) (Finding J-38).

## 2). *Requirements for Systems Interaction Analysis*

There is no direct, explicit NRC regulatory requirement for LILCO to perform a systematic systems interaction analysis for Shoreham (Findings J-20, 28 to 33). Intervenors and Staff witness Conran nevertheless would have this Board impose such a requirement (Findings J-190, 191, 200, 201).

There is no question that increased attention to the need for developing and applying systems interaction analysis techniques has developed and that such analyses have been made since the Three Mile Island Unit 2 accident (Findings J-165, 167 to 171). The Staff currently requires, in effect, applicants (including LILCO) to perform several types of systems interaction studies through application of its Standard Review Plan. These studies include, for example, development of fire protection and flood protection requirements (Finding J-30). A generic study of the systems interaction issue is under way as defined by the action plan for Unresolved Safety Issue (USI) A-17, "Systems Interaction in Nuclear Power Plants" (See § III-J.2.d.4).a).

The Staff, and Mr. Conran in his original testimony, agreed with the statements in a letter from the NRC's Executive Director for Operations to the Chairman of the Advisory Committee on Reactor Safeguards affirming that compliance with existing Staff requirements provides reasonable assurance that potential adverse systems interaction presents no undue risk to public health and safety (Finding J-32).

Intervenors identify no NRC requirements for more than what the Staff has required with respect to Shoreham, but assert that the design basis analysis used by LILCO and the Staff is deficient with respect to the identification of potential systems interaction and that probabilistic risk assessment, various types of dependency analysis, and a review of emergency operating procedures *must* be applied in order to demonstrate compliance with the regulations (emphasis added) (Finding J-37). Lengthy testimony and cross-examination provided by the Intervenors attempted to support this position, by sheer weight if not merit. We have considered Intervenors' arguments in detail in reaching our decision.

Staff witness Conran, in his testimony at the reopened hearing on this contention in April 1983, took the position that the Staff's programs in support of the resolution of USI A-17 had declined to such an extent over the previous several months that these programs could no longer provide the basis for the finding required by case law that reasonable assurance existed that Shoreham could be operated safely despite the pendency of the unresolved safety issues involved in A-17 (Finding J-179). Mr. Conran's arguments are discussed in detail in Section III-J.2.d.4).a).

In brief, we conclude that there are no requirements for systematic systems interaction analysis beyond those required by the Staff; that LILCO has, in fact, gone beyond that which is required by the Staff; that there is reasonable assurance that Shoreham can be operated safely despite the pendency of USI A-17; and that LILCO and the Staff have, in fact, applied adequate methodology to assure that the Shoreham design adequately protects (the public) from credible accidents.

### 3). *Implementation of Systems Interaction Analysis*

The parties agreed that there are a number of techniques that can be used to identify systems interaction. They include failure modes and effect analysis (FMEA), dependency analysis, systems interaction analysis, plant walkdowns, and probabilistic risk assessment (PRA) (Finding J-38). These various techniques have strengths and weaknesses with respect to their abilities to identify different types of interactions. The parties agreed that the most effective way of identifying systems interaction is through a combination of the various techniques (Finding J-39).

Within the existing NRC regulatory framework (for individual plant reviews), the systems interaction concern is addressed by evaluating plant designs against well-established deterministic requirements and criteria embodied in existing regulatory guidance documents (e.g., regulatory guides and the Standard Review Plan). These requirements are founded on the principle of defense-in-depth, and they include provisions for design features such as physical separation and functional independence of redundant safety systems, as well as other measures that provide protection against hazards such as pipe ruptures, missiles, seismic events, fires and flooding (Finding J-43). There is a connection between systems classification and systems interaction analyses. By classifying systems properly (*see* Section III-J.3.b.) and by clearly identifying those that are safety-related, adverse interactions can be avoided, to the extent that adverse interactions are those that lead to

unacceptable consequences to the health and safety of the public (Finding J-45). Nevertheless, many nonsafety-related systems are examined for interactions as well (Findings J-43, 51, and 53). (See also Section III-J.2.d., generally).

General Electric has performed the following activities that are related to systems interaction analysis:

- a). Design documents are distributed to affected design organizations for information, review and coordination to assure interface compatibility and to minimize opportunities for adverse interactions between and among systems (Finding J-46).
- b). Independent design verifications consider interfaces with other systems. Complex design changes affecting multiple design groups are reviewed by a standing Change Control Board to assure that interfaces are properly addressed. Extensive assessment of systems interaction is made throughout this process by virtue of the knowledge and experience of the engineers involved (Finding J-48).
- c). High energy line break studies.
- d). PRAs relating to plants other than Shoreham with generic similarity.
- e). Protection systems studies using FMEA.
- f). Scram reliability studies using FMEA.
- g). Common mode failures in protection and control instrumentation studies.
- h). Water level instrumentation studies, including a reference leg break interaction.
  - i). TMI-2 implications studies.
  - j). BWR control system failure studies using FMEA.

Finding J-51. See also, Section III-J.2.d.1).

Stone & Webster has performed the following activities that are related to systems interaction analysis:

- a). Pipe failure and internal flooding studies for nonsafety-related piping both inside and outside the primary containment.
- b). Studies of the potential for, and effects of, both internal and external missiles.
- c). Fire hazard analysis, with and without active fire protection.
- d). Cable separation studies.
- e). Failure modes and effects analyses of interactions between redundant trains of safety-related systems and of each balance of plant safety-related control circuit. The study also covered

the interfaces between safety-related and nonsafety-related systems.

- f). Electrical bus failure studies.
- g). Control system failure studies.
- h). Heavy loads.

See Section III-J.2.d.1).

LILCO has established an Independent Safety Engineering Group (ISEG) among whose responsibilities has been and will be review of the Shoreham PRA and continuing review and application of data from licensee event reports (LERs), significant event reports and significant operating experience reports, in part to identify and evaluate incidents involving systems interactions (Findings J-95 to 100).

Consideration of systems interaction is an integral part of the preoperational and power ascension programs (Findings J-101 to 105):

Staff activities related to its program for resolution of USI A-17 have included:

- a). A study by Sandia National Laboratory of the Watts Bar 1 facility.
- b). Systems interaction studies at Diablo Canyon 1 & 2 and San Onofre 2.
- c). An assessment of methodologies based on surveys by three national laboratories (Sandia National Laboratory, Brookhaven National Laboratory and Lawrence Livermore National Laboratories).
- d). Review of an ongoing broad scope evaluation of the Indian Point 3 facility by the Power Authority of the State of New York.

Findings J-146 to 148.

Related to USI A-17 is USI A-47, Safety Implications of Control Systems, which concerns the potential for transients or accidents being made more severe as a result of control system failures or malfunctions. The final Task Action Plan for A-47 has not been approved. With respect to Shoreham, the Staff will assure that the effects of power supply, sensor, and sensor impulse line failures on several control systems at the same time will be acceptable. Also, the Staff evaluation will assure that the effects of high energy line breaks and the resulting harsh environment will not cause control system malfunctions resulting in consequences more severe than those of the Final Safety Analysis Report (FSAR) accident analyses (Findings J-208 to 211, 215, 218).

A probabilistic risk assessment (PRA) was commissioned by LILCO for the Shoreham plant. That part of the PRA which identified frequencies of accident sequences and developed the radioactive releases and in-

plant conditions that would occur or be associated with certain accident sequences was performed by LILCO's consultant, Science Applications, Inc. (SAI), under the leadership of Dr. Edward T. Burns. Dr. Burns was also the lead analyst for the PRA performed for the Limerick plant by SAI (Finding J-129). Limerick is also a boiling water reactor (BWR), similar in design to Shoreham. A draft report of this part of the PRA for Shoreham was available at the time of the hearing (Finding J-913). It had been reviewed by a peer group consisting of Dr. Norman C. Rasmussen of MIT, who was the director of the Reactor Safety Study, WASH-1400, Dr. Vojin Joksimovich of NUS, and Dr. Walton Rodger of Nuclear Safety Associates (Finding J-924). LILCO witnesses testified that they expected no significant changes would be made in the draft report and that the PRA did not identify any risk outliers due to hidden systems interactions (Finding J-138). The Shoreham PRA included application of event tree/fault tree analysis, plant walkdowns and dependency matrices (Findings J-921, 927, 929 to 931). When complete, the Shoreham PRA will be a Level 3 PRA, *i.e.*, it will consider systems, containment and consequence analysis (Finding J-909). The Interim Reliability Evaluation Program (IREP) is a Level 1 PRA program, *i.e.*, it considers only systems analysis (Finding J-947).

#### 4). *Conclusion*

It is abundantly clear that LILCO and the Staff have indeed taken into account systems interaction in their analysis of the reliability of systems to determine whether there is reasonable assurance that the Shoreham design adequately protects (the public) from credible accidents.

Arguably, what remains of this issue is whether these efforts were adequate and what constitutes reasonable assurance. We are persuaded that despite the County's position to the contrary, LILCO has far exceeded any regulatory requirements for systems interaction analysis and that the totality of these analyses, although not performed as a dedicated, single exercise, nevertheless represents the equivalent of such an exercise, performed in a thoroughly professional manner. The County has failed to identify any systems interaction that has not been considered and has failed to identify any structure, system or component that is improperly classified.

With respect to reasonable assurance of protection (of the public) from credible accidents, it continues to be the Staff position that it is confident that *current* regulatory requirements and procedures (*e.g.*, as evaluated according to the Standard Review Plan) provide an adequate degree of (protection of) public health and safety (Finding J-31). This is

fully consistent with the Commission policy that the Staff should continue to use conformance to regulatory requirements as the exclusive licensing basis for nuclear power plants.<sup>25</sup>

As a practical matter, the systems interaction analyses performed by LILCO are an important aspect of its overall safety evaluation of the Shoreham design. To the extent that the NRC regulations and the Standard Review Plan permit much less, the importance of timely resolution of USIs A-17 and A-47 is emphasized.

Although progress has indeed been delayed on the resolution of USI A-17, we agree with the Staff that actions taken by the Commission (e.g., the individual studies performed and the national laboratory surveys) have most likely taken care of the main systems interaction issues. In addition, we agree that the studies already performed by LILCO would have identified any systems interaction that may or may not have been important. The nature of the action plan for A-17 is different than most USIs in that it is looking for undetected problems rather than a solution to a specific problem. We agree with the Staff that there is no undue risk to the public from operation of Shoreham notwithstanding lack of resolution of A-17 at this time. (Tr. 20,877-80 (Thadani, Coffman).) Finally, we cannot disagree with the Staff that there currently exists no well-defined, documented methodology for systematic analysis of plant designs for systems interaction (Findings J-220, 221). We see no basis for requiring anything more of LILCO on this USI at this time.<sup>26</sup>

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<sup>25</sup> Policy Statement on Safety Goals for the Operation of Nuclear Power Plants, 48 Fed. Reg. 10,772, at 10,775, col. 3 (1983).

<sup>26</sup> Judge Brenner, while agreeing with the Board's opinion and findings on the consideration of systems interaction at Shoreham, notes the following:

My agreement should not be taken as an endorsement of the NRC Staff's progress in pursuing USI A-17. To the contrary, if it had been material to determine that Staff progress to date had been reasonable and proper, I would not have so found. I am, however, convinced by the combination of factors enumerated above and in the detailed findings, including the nature of USI A-17 (Findings J-38 to 42, 159, 160, 189) and the studies performed by and for LILCO (Findings J-51 *et seq.*; see also J-203), that the apparent lack of a well-defined Staff program being pursued on a reasonable schedule does not prevent the finding that there is no need to require anything more of LILCO at this time.

In particular, the apparent willingness of the Staff to defer work pertinent to USI A-17 without a careful analysis of the effect of such deferral in the face of the high priority initially given this task (after the apparently careful consideration of the categorization of all USIs) is distressing (Findings J-155 to 158, 161 to 177). I respectfully recommend that the Commission, which is in a position to gauge and, if necessary, reorder Staff priorities, inquire into whether present and realistically projected future progress and management by the Staff of USI A-17 is proper.

Finally, I emphasize that my findings on systems interaction and USI A-17 is limited to the temporal and substantive circumstances of this case. Absent a Commission decision downgrading the importance of USI A-17, continued absence of Staff progress in the near future of the next year or so could prevent a finding that a reactor can be licensed despite the existing posture of USI A-17. Of course, the independent efforts made by a particular applicant, as in this case, would be material to consideration of the issue.



We find that the Staff position on USI A-47 is acceptable, *i.e.*, the Staff will review the analyses to be supplied by LILCO on the effect of power supply sensor and sensor impulse line failures on several control systems and the effect of high energy line breaks on the control system to assure that they do not represent an undue risk to the public health and safety (Findings J-215 and 218).

For the reasons discussed above, this part of the contention must fail.

**b. Question b. Have LILCO and the Staff Taken into Account Classification and Qualification of Systems Important to Safety?**

This question, and the general concern with the meaning of "important to safety," arises from the opening sentence of *General Design Criterion 1 — Quality standards and records*, of 10 C.F.R. Part 50, Appendix A, "[s]tructures, 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."

**1). Definitions**

**a). Important to Safety**

The meaning of the concept "important to safety" was a key source of controversy in this proceeding. As it turns out, the differences in meaning, primarily between LILCO and the other parties, are not crucial to reaching our conclusion on this part of the contention, but are important for understanding the issue.

Structures, systems, and components (SS&C) that provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public are "important to safety." 10 C.F.R. Part 50, Appendix A, General Design Criteria for Nuclear Power Plants, Introduction.

Staff elaboration on the definition of "important to safety" is provided in a memorandum from the Director of the Office of Nuclear Reactor Regulation (NRR), November 20, 1981, the "Denton Memorandum." Goldsmith, *et al.*, ff. Tr. 1114, Attachment 1 (Finding J-223). In addition to the definition given in the Commission regulation, this memorandum states that "important to safety" "encompasses the broad class of plant features, covered (not necessarily *explicitly*) in the General Design Criteria, that contribute in [an] important way to safe operation and protection of the public in *all* phases and aspects of facility operation (*i.e.*, normal operation and transient control as well as accident mitigation)." Also, it states that "important to safety" includes safety-grade (or safety-

related)<sup>27</sup> as a subset. This is the way the Staff and the Intervenors have used the terms (Findings J-222, 223). LILCO, however, has used the term "important to safety" as being equivalent to "safety-related." LILCO disagrees that the class "important to safety" is bigger than the class "safety-related." LILCO thinks it is not a distinction that has been made in the past — either by the Staff or the industry — but one that may come in the future (Findings J-231, 234, 235, 248, 257).

The Appeal Board recently had occasion to examine the definition of "important to safety." *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-729, 17 NRC 814, 873 *et seq.* (1983). It also noted the definition given in 10 C.F.R. Part 50, Appendix A. Further, the Appeal Board observed that in its view the Standard Review Plan and Regulatory Guide 1.29 support the Staff's assertion, and the TMI-1 Licensing Board's finding, that equipment "important to safety" may include both safety-grade and nonsafety-grade equipment, depending on the function and degree of reliance placed on the equipment. Also, it found, "[i]n sum, nothing in the regulations supports [the TMI-1 intervenor's] assertion that the term 'important to safety' must be read as equivalent to 'safety-grade,' " in the sense that all structures, systems, and components "important to safety" must be fully qualified to safety-related requirements. *Id.* at 876.

#### b). Safety-Related/Safety-Grade

Until recently, neither "safety-related" nor "safety-grade" were defined in the regulations. *Id.* at 873-74. The Staff, however, equates "safety-related" identically with "safety grade" (Denton Memorandum).

The Staff defines "safety-related" in the Denton Memorandum, using the words from 10 C.F.R. Part 100, Appendix A, "Seismic and Geologic Siting Criteria for Nuclear Power Plants," §§ III(c), VI(a)(1), and VI(b)(3). The Board notes that neither the term "safety-related" nor the term "safety-grade" appears in these sections. What the regulations do state, however, is the following from 10 C.F.R. Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," *Introduction*, in part:

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<sup>27</sup> The Denton Memorandum defines "safety-related" as describing those structures, systems and components which are 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.

Nuclear power plants and fuel reprocessing plants include structures, systems, and components that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public. This appendix establishes quality assurance requirements for the design, construction, and operation of those structures, systems, and components. The pertinent requirements of this appendix apply to all activities affecting the *safety-related functions* of those structures, systems, and components; these activities include designing, purchasing, fabricating, handling, shipping, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, repairing, refueling and modifying. (Emphasis added.)

The Board notes that this is the only use of the term "safety-related" in Appendix B. Its use here is not in respect to a definition of which structures, systems, and components should be designated "safety-related." Rather, it is in respect to the *functions* of those structures, systems, and components that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public. The *pertinent* quality assurance requirements are to apply to all activities affecting those *safety-related functions*. Insight into the scope of safety functions is provided by 10 C.F.R. Part 100, Appendix A.

a. From 10 C.F.R. Part 100, Appendix A, § I, Purpose, in part:

General Design Criterion 2 of Appendix A to Part 50 of this chapter requires that nuclear power plant structures, systems, and components *important to safety* be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunamis, and seiches without loss of capability to perform their *safety functions*. It is the purpose of these criteria [*i.e.*, seismic and geologic siting criteria] to set forth the principal seismic and geologic considerations which guide the Commission in its evaluation of . . . the suitability of the plant design bases established in consideration of the seismic and geologic characteristics of the proposed sites. [Emphasis added.]

b. From 10 C.F.R. Part 100, Appendix A, § III, Definitions, in part:

(c) The "Safe Shutdown Earthquake" . . . is that earthquake which produces the maximum vibratory ground motion for which certain structures, systems, and components are designed to remain functional. These structures, systems, and components 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 this part. [Footnote omitted.]

The same designation of those structures, systems and components to which the seismic and geologic criteria apply is contained in sections VI(a)(1) and (b)(3) of Appendix A to 10 C.F.R. Part 100.

Recently, as part of its new rule on environmental qualification of electrical equipment, 10 C.F.R. § 50.49(b)(1), the Commission defined safety-related structures, systems and components in the same terms as those used to define the SS&C's to which the seismic criteria of 10 C.F.R. Part 100, Appendix A apply, as quoted above. *See also* the Statement of Considerations, 48 Fed. Reg. 2729, 2730, col. 3 to 2731, col. 1 (1983). The Statement of Considerations also indicates, albeit briefly and in passing, that safety-related is a sub-class of the important to safety classification of equipment. *Id.* at 2730, col. 3.

### *c. Use of the Terms*

The record reflects no doubt that there have been differences in the use and application of the terms "important to safety" and "safety-related" by the Staff and by the nuclear industry. The very fact that the Denton Memorandum was directed to all NRR personnel attests to this. There is no evidence, however, that the definitions therein ever were adopted by the Staff or even distributed outside NRR. Region I of the Office of Inspection and Enforcement did not inspect against it (Findings J-252, 314, 315). Nevertheless, since NRR presumably was implementing memorandum no later than after its issuance on November 20, 1981, it is surprising that the staff of NRR did not discover its disagreement with LILCO on the use of the terms "important to safety" and "safety-related" prior to this hearing (Finding J-332).

Despite the differences and despite what appears to have been widespread practice in the industry of focusing only on two equipment classes, *i.e.*, the safety-related class and the residual nonsafety-related class, and with the limited assistance we can derive from the ambiguous regulations, and assigning little weight to the Denton Memorandum, we can, at least, easily endorse the following conclusions of *Three Mile Island*, ALAB-729, *supra*:

- We believe that the [General] [D]esign [C]riteria must be read together and that, so read, they do not support [the] argument that "important to safety" and "safety-grade" are synonymous. 17 NRC at 874.

- [T]he General Design Criteria do not require that all structures, systems and components important to safety meet safety-grade [safety-related] requirements.<sup>28</sup> 17 NRC at 873.
  - "Important to safety" is defined in the regulations to include those structures, systems, and components necessary to meet the statutory requirement of providing reasonable assurance that the facility can be operated without undue risk to the public health and safety. *Id.*
  - General Design Criterion 1 plainly contemplates a range of safety requirements dependent on function, rather than a single requirement to which all structures, systems and components must conform. 17 NRC at 874.
  - Appendix A to 10 C.F.R. Part 100 illustrates the concept established in GDC 1 (*i.e.*, gradations in quality level corresponding to relative safety importance) by identifying explicitly a select sub-class of structures, systems, and components (from the broad class of those "important to safety") that is required for the performance of specific, critical safety functions (*e.g.*, safe shutdown, accident prevention and consequence mitigation). *Id.*
  - [A]ll structures, systems and components encompassed by the term "important to safety," including the "safety-grade" sub-class, are necessary to meet the broad safety goal articulated in the GDC, *i.e.*, to provide reasonable assurance that a facility can be operated without undue risk to the health and safety of the public, as required by statute. 17 NRC at 875.
  - Only "safety-grade" structures, systems and components, however, are relied upon to meet critical safety functions, such as those identified in 10 C.F.R. Part 100: accident prevention, safe shutdown, and accident consequence mitigation. In short, not all equipment that may play some safety role at a plant need meet safety-grade criteria. *Id.*
  - To be considered safety-grade, a system must be able to remain operative after a design seismic event and to function in any harsh environment which may be expected at its location after an accident. 17 NRC at 876.
  - In [the Appeal Board's] opinion, however, GDC 1 requires even more. GDC 1 states:
 

Where generally recognized codes and standards are used, they shall be identified and evaluated to determine their applicability, adequacy, and sufficiency and shall be supplemented or modified as necessary to assure a quality product in keeping with the required safety function.
- Id.*

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<sup>28</sup> We, like the Appeal Board, do not distinguish between safety grade and safety related. 17 NRC at 874, n.280.

- The standards or codes (IEEE, ASME, etc.) that must be met by safety-grade structures, systems or components have been reasonably identified by the staff. In addition, comprehensive standards for equipment of lesser importance to safety should be established or, if only portions of a system should be safety-grade, some criteria for the level of upgrading should be formulated (footnote omitted). 17 NRC at 876-77.

While we are not here concerned with the question of upgrading, *per se*, we note that the Staff is actively pursuing a program to consider requirements for a graded quality assurance program which, if brought to fruition would result in modification of 10 C.F.R. Part 50, Appendix B. This Board endorses this effort and believes it would be helpful in removing vagueness in the pervasive concept in both Appendices A and B, of "in keeping with the required safety function" or "to an extent consistent with their importance to safety," that we find applies to both important to safety and safety-related equipment. (Findings J-268, 294, 296, 330, 338, 672.)

## 2). *Requirements for Classification and Qualification of Systems Important to Safety*

There is no *regulatory* requirement, as such, for classification and qualification of systems important to safety; *i.e.*, there is no requirement for a list of such systems (Findings J-259, 265, 266, 272, 286, 331).

Appendix A to 10 C.F.R. Part 50, Criterion 1 (GDC 1), *Quality standards and records*, requires a quality assurance program to be established and implemented in order to provide adequate assurance that structures, systems and components important to safety will satisfactorily perform their safety functions. 10 C.F.R. § 50.55a, Codes and standards, requires that components of the reactor coolant pressure boundary be designed, fabricated, erected, and tested in accordance with the requirements for Class 1 components of the ASME Boiler and Pressure Vessel Code or equivalent quality standards. Regulatory Guide 1.26, Revision 3, *Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants*, describes a quality classification system related to specified national standards that may be used to determine quality standards acceptable to the NRC Staff for satisfying GDC 1 for *other* (than components of the reactor coolant pressure boundary) safety-related components containing water, steam, or radioactive material in light-water-cooled nuclear power plants.

GDC 2, *Design bases for protection against natural phenomena*, requires that nuclear power plant structures, systems and components important

to safety be designed to withstand the effects of earthquakes without loss of capability to perform their functions.

Appendix B to 10 C.F.R. Part 50, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants, establishes quality assurance requirements for the design, construction and operation of nuclear power plant structures, systems, and components that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public. The pertinent requirements of Appendix B apply to all activities affecting the *safety-related functions* of those structures, systems, and components.

Appendix A to 10 C.F.R. Part 100, Seismic and Geologic Siting Criteria for Nuclear Power Plants, requires that all nuclear power plants be designed so that if the Safe Shutdown Earthquake (SSE) occurs, safety-related structures, systems and components remain functional.

Regulatory Guide 1.29, Revision 3, Seismic Design Classification, describes a method acceptable to the NRC Staff for identifying and classifying those features of light-water-cooled nuclear power plants that should be designed to withstand the effects of the SSE.

It is the Staff's position that Appendix B as written and interpreted applies only to safety-related items (Finding J-270).

Design criteria and quality standards for structures, systems, and components important to safety are required to be addressed in the Final Safety Analysis Report (FSAR) (Finding J-260).

There has been no formalization of items important to safety by the Staff. There has not been nor is there now a requirement to compile a list of items important to safety but not safety-related. Such a list is not a licensing requirement (Finding J-265). There are exceptions, *e.g.*, fire protection systems. Intervenor's witness concurred that Appendix B applies only to safety-related items as a regulatory requirement (Finding J-271).

The Staff does not normally review the quality assurance program for nonsafety-related items. The Staff does not have criteria to be used in preparing or reviewing such a program and the Applicant is not required to describe its specific program (Finding J-282).

Appendix B allows the grading of quality assurance applied to safety-related items consistent with an item's importance to safety (Finding J-268).

With respect to inclusion in FSAR Table 3.2.1-1 of equipment upon which the operators will rely in response to accidents outlined in the emergency operating procedures, we must note first the ambiguity of the question. Equipment that must be relied upon (is essential) in response to accidents is classified safety-related. Equipment that is used,

in conformity with emergency operating procedures, includes both nonsafety-related and safety-related equipment. As discussed in Section III-J.3.c., there is no requirement to list nonsafety-related equipment in Table 3.2.1-1. Thus, there is no requirement to list in Table 3.2.1-1 all equipment outlined in the Shoreham emergency operating procedures. (Finding J-638.)

3). *Implementation of Classification and Qualification of Systems Important to Safety*

By putting an FSAR together and addressing the systems that the Staff requires to be addressed through the regulations and regulatory guidance, an applicant identifies items important to safety (Finding J-261).

In response to the guidance of Regulatory Guide 1.70, Standard Format and Contents of Safety Analysis Reports for Nuclear Power Plants, § 3.2, Classification of Structures, Components, and Systems, LILCO has included in its FSAR, Revision 26, Table 3.2.1-1, Equipment Classification, which is a summary of the equipment LILCO designates as safety-related. Goldsmith, *et al.*, ff. Tr. 1114, Attachment 2 (Findings J-475 to 478, 481):

A number of the items in LILCO's Equipment Classification list were challenged by the Intervenors as improperly classified. Similarly, a number of systems alleged not in LILCO's list were identified by the Intervenors as being required to be classified as safety-related (Finding J-668). The Board heard lengthy testimony on each of these items and has considered each carefully. *See* Section III-J.3.c.2). In particular, we have considered LILCO's and the Staff's use of Regulatory Guide 1.26 and 1.29 in construction of Table 3.2.1-1 of the FSAR, and the classification of the Standby Liquid Control System, the Turbine Bypass System, the Reactor Core Isolation Cooling System, the Rod Block Monitor System, the Water Level Indication System (including systems interactions and the Pilgrim Nuclear Power Station Flashing/Boiloff Event, the "Michelson Concern," Separation of Control and Protection Systems, Water Level System Redundancy and additional events listed in Appendix A to the "Michelson Memorandum"), the High Water Level (Level 8) Trip System of the Main Turbine and Feedwater Pumps, the Reactor Water Cleanup System, the County's review of emergency operating procedures to identify safety-related equipment and Intervenors' argument that existing methodologies for classification need to be supplemented.



#### 4). *Conclusions*

##### a). **Quality Standards and Requirements Generally**

LILCO is committed to Section 3.1 of its FSAR to comply with GDC 1 (Finding J-670). Because of the obvious disagreement by LILCO with the definition of "important to safety" meaning that this class of equipment is larger than the class of safety-related equipment, and our conclusion, together with the similar conclusion reached by the Appeal Board in ALAB-729 and the Staff in its proposed findings, that this difference is real, regardless of past practice or misunderstanding, we impose a condition on any operating license for Shoreham that this distinction be acknowledged and adopted by LILCO, insofar as the classification and qualification of structures, systems and components are concerned. Use of the term "important to safety" in other contexts is not affected by this condition.

LILCO's objection to this requirement was based primarily on what it considered to be the open-endedness of the requirements to which it would be subject. It was concerned about the fuzzy distinction between items not important to safety and important to safety and also between important to safety and safety-related. Finally, it was concerned about the ramifications of this requirement on activities other than with respect to classification and qualification (Findings J-711, 712, 731).

With respect to the fuzzy distinctions, we are convinced that the regulations and Staff practice both permit and encourage the use of a range of safety requirements dependent on (safety) function, rather than a single requirement to which all structures, systems, and components must conform. LILCO has, in effect, actually done just this, for nonsafety-related, safety-related and important to safety structures, systems and components (Findings J-713 to 716).

Thus, we conclude that LILCO meets all of the requirements of the NRC with respect to classification and qualification except the explicit adoption of the terms "important to safety" and "safety-related" (Findings J-681, 719, 721, 726). We do not believe that LILCO's adoption of the Commission's meanings will impose undue hardship and notwithstanding past practice or misunderstanding, we do not view this requirement as a "backfit" situation. We were not given any examples of the addition, elimination or modification of structures, systems or components that would result and therefore believe that such actions, if any, would be minimal at best. The main purposes of the condition, then, are to: (1) confirm the Commission's regulatory authority over SS&Cs and related activities beyond those which are safety-related, and (2) to assure, as a regulatory requirement, the continuation by LILCO

of the application of quality assurance important to safety SS&Cs and related activities, commensurate with their safety function. In the absence of specific requirements for specific SS&Cs, there may arise differences of opinion between the NRC and any licensee over what quality treatment is appropriate for a particular SS&C which is not safety-related. This would be the case regardless of whether a licensee professed to agree with the Commission's definitions of safety-related and important to safety which we are imposing on LILCO as a license condition, primarily because "important to safety" is a broad residual category in which a range of safety importance will be represented by different SS&Cs.

b). Specific Systems

Intervenors identified a number of systems in which they alleged equipment had been misclassified (Finding J-698). They also argued that there were instances where quality assurance categories were inconsistent with seismic categories (Finding J-699). Finally, Intervenors had problems with the completeness and scrutability of the FSAR Table 3.2.1-1, Equipment Classification (Finding J-700).

With respect to the classification listing in Table 3.2.1-1, LILCO witnesses pointed out that this Table is not a design control document, rather it is a summary of the classification of plant equipment included in the FSAR for NRC information (Finding J-700).

LILCO and the Staff addressed each of the Intervenors' concerns. Using the Standard Review Plan, the Staff systematically reviewed the design of Shoreham and determined that a systematic methodology was used to identify systems, structures, and components important to safety, but not safety-related. This assured the Staff that LILCO properly addressed the nonsafety-related items that the Staff considers important to safety (Finding J-695).

General Electric, Stone & Webster and LILCO have applied quality standards and quality assurance to *all* plant systems, commensurate with the function of the system in the reliable and safe operation of the plant (Finding J-694).

No member of the NRC panel was aware of any area in which the difference in usage of the definition of important to safety has made a substantive difference in the design, construction, or quality assurance at Shoreham (Finding J-691).

We conclude that the evidence provided by LILCO and the Staff is credible and convincing and is not controverted by that of the Intervenors. LILCO and the Staff have, indeed, taken into account

classification and qualification of systems important to safety in their analysis of the reliability of systems to determine whether there is reasonable assurance that the Shoreham design adequately protects (the public) from credible accidents.<sup>29</sup>

For the reasons discussed above, this part of the contention must fail.

***c. Question c. Have LILCO and the Staff Determined Which Sequences of Accidents Should Be Considered Within the Design Basis of the Plant?***

***1). Requirements for Determination of Which Sequences of Accidents Should Be Considered Within the Design Basis of the Plant***

Each application for a license to operate a nuclear power plant shall include a final safety analysis report (FSAR). 10 C.F.R. § 50.34(b).

Applicants conduct analyses of specific "anticipated operational occurrences" and "accidents" and document these in Chapter 15 of their FSARs. Staff review procedures for these "design basis" analyses are delineated in Chapter 15 of the Standard Review Plan (NUREG-0800). (Finding J-879.) Many of the transient and accident sequences, or their effects, are identified in the General Design Criteria. These include loss-of-coolant accidents, loss of power to coolant recirculation pumps, turbine generator trip, reactor isolation from the heat sink, loss of offsite power, continuous control rod withdrawal, control rod drop, cold water addition, fuel handling events, stuck control rod, steam line rupture and reactor coolant temperature and pressure changes (Finding J-889). The General Design Criteria do not prescribe a particular methodology or methodologies to be used in the design and analysis of nuclear power plant structures, systems and components. Rather, criteria are established and the task is left to an applicant to demonstrate its compliance with these criteria (Finding J-885).

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<sup>29</sup> To the extent that this contention implies inadequate review by the Staff, we reject it, in accord with the general principal that, in an operating license proceeding (with the exception of certain NEPA issues), the applicant's license application is in issue, not the adequacy of the Staff's review of the application. An intervenor in an operating license proceeding may not proceed on the basis of allegations that the Staff has somehow failed in its performance (at least when the evidence showed that any such allegedly inadequate Staff review did not result in any inadequacies in the analyses and performance of the applicant). *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-728, 17 NRC 777, 807 (1983).

## *2). Implementation of Requirements for Determination of Accident Sequences*

The design basis accidents for Shoreham were determined through investigation of a spectrum of possible events. For each case, an evaluation was made to establish the highly unlikely accident to be used as the design basis, to establish engineered safety features required to maintain the consequences of the accident within the limits of 10 C.F.R. Part 100. These hypothetical enveloping accidents are essentially the same for all boiling water reactor (BWR) plants, even though analyses unique to Shoreham were performed (Finding J-891). Conservative initial plant conditions, core physics parameters, equipment availability and instrumentation setpoints are assumed. Conservative core parameters (such as heat fluxes, temperatures, pressures, and flows) also are assumed. Among the specific set of "anticipated operational occurrences" and "accidents" analyzed are the limiting events resulting from both mechanistic and non-mechanistic equipment and system failures. The conservative bounding analyses performed are used to demonstrate that the potential consequences to the health and safety of the public are within acceptable limits for a wide range of postulated events even though specific actual events might not follow the same assumptions made in the analyses. This is required even when only safety-related equipment and systems are used to mitigate the consequences of the postulated events (Findings J-880 to 882).

General Electric performed a comprehensive, systematic examination of the safety aspects of a BWR, called the Nuclear Safety Operational Analysis. This effort systematically identified the sequences of events that must be considered for a BWR using event sequence diagrams that assumed sequence initiating transients and accidents and identified the mitigating and backup equipment needed to terminate the events (Findings J-892 to 894).

## *3). Conclusion*

The Staff's use of the Standard Review Plan ensures that an applicant has properly addressed the plant items the Staff considers important to safety. Compliance with the Standard Review Plan is used to demonstrate compliance with the regulations (Finding J-897).

Shoreham plant systems design was reviewed against the criteria and requirements of approved regulatory guidance such as applicable Regulatory Guides and Standard Review Plan sections. The Staff concentrates its review effort on structures, systems, and components which are most important in achieving the critical safety functions of 10 C.F.R. Part

100, Appendix A (*i.e.*, the safety-related items). A substantial fraction of the Staff's review effort, however, is applied to items whose proper operation can help prevent accidents or emergency conditions and, in fact, whose operation is important in assuring public health and safety even if there is never an accident (*i.e.*, the important to safety but not safety-related items) (Finding J-900).

New techniques, such as probabilistic risk assessment, failure modes and effect analyses, systems interaction analyses, and dependency analyses, are not required by either the regulations or Staff practice in the safety classification of structures, systems, and components. These techniques have been used, however, in some cases to look for weak points in plant systems designs or to evaluate the risk of particular event sequences (Finding J-902).

It is abundantly clear that LILCO and the Staff have, indeed, determined which sequences of accidents should be considered within the design basis of the plant. This has not been an *ad hoc* exercise, thus subject to "growing pains" type of initial error, but has been a systematic and comprehensive review, by the Applicant, its contractors and the NRC Staff, drawing on the very extensive experience of each in this specific area. We conclude that the evidence of LILCO and the Staff is credible and convincing. Intervenors' evidence does not controvert this conclusion.

For the reasons discussed above, this part of the contention must fail.

**d. Question d. Have These Determinations of Accident Sequences Which Should Be Considered Within the Design Basis of the Plant Taken into Account Systems Interaction?**

**1. Requirement for Taking into Account Systems Interaction in the Determination of Accident Sequences**

We have discussed the requirements for systems interaction analyses in Section II-J.3.a.2), above. We need not repeat any of that general discussion here. It is enough to say that those requirements that do exist are contained in the guidance of Regulatory Guide 1.70, Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants (LWR Edition), other regulatory guides and the Standard Review Plan. (And *see*, for example, Findings J-220, 221.)

2). *Implementation of Requirements for Taking into Account Systems Interaction in the Determination of Accident Sequences*

Implementation of requirements for performing systems interaction analysis also has been discussed at some length, in Section II-J.3.a.3). To the extent that systems interaction is required to be taken into account in determination of accident sequences which should be considered within the design basis of the plant, this has been done (Findings J-220, 221).

3). *Conclusion*

Bearing in mind that new techniques, including systems interaction analyses, are not required by either the regulations or Staff practice, except as specifically identified in Commission regulations, the Regulatory Guides and the Standard Review Plan, these techniques nevertheless have been used in some cases to look for weak points in plant systems design or to evaluate risk of particular event sequences (Finding J-902). Again, as we noted in Section II-J.3.a.4)., with respect to reasonable assurance of protection (of the public) from credible accidents, it continues to be the Staff position that it is confident that *current* regulatory requirements and procedures provide an adequate degree of public health and safety.

We conclude that LILCO's and the Staff's determinations of accident sequences which should be considered within the design basis of the plant have taken into account systems interaction, both prudently and properly, and provide reasonable assurance for the protection of public health and safety. To be sure, as a result of further generic safety interaction studies that may be pursued, including further work by the Staff on USI A-17, new potential systems interaction may be discovered, for which additional prudent measures should be taken. Nevertheless, we can and do make the finding of required reasonable assurance at this time.

We conclude that LILCO's and the Staff's testimony on this part of the contention is credible and convincing. Intervenors' testimony does not controvert this conclusion.

For the reasons discussed above, this part of the contention must fail.

***e. Question e. Have These Determinations of Accident Sequences Which Should Be Considered Within the Design Basis of the Plant Taken into Account Classification and Qualification of Systems Important to Safety?***

***1). Requirements for Taking into Account Classification and Qualification of Systems Important to Safety in Determination of Accident Sequences Which Should Be Considered Within the Design Basis of the Plant***

We have discussed the general requirements for classification and qualification in Section II-J.3.b.2)., above. We noted there that there is no specific regulatory requirement, as such, for classification and qualification of systems important to safety. Nevertheless, design criteria and quality standards for structures, systems, and components important to safety are required to be addressed in the FSAR (Findings J-259, 260). More recently, in January 1983, the Commission issued a new regulation, 10 C.F.R. § 50.49, Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants, which pertains to certain nonsafety-related as well as safety-related electrical equipment.

***2). Implementation of Requirements for Taking into Account Classification and Qualification of Systems Important to Safety in Determination of Accident Sequences***

LILCO has submitted and the Staff has reviewed an FSAR for the Shoreham plant that addresses the systems that the Staff requires to be addressed, through the regulations and regulatory guidance, and which identifies items important to safety (Finding J-335). This includes a Table which is a summary of the equipment LILCO designates as safety-related (Finding J-359). Consequently, equipment not summarized in this Table is considered by LILCO as nonsafety-related. LILCO, nevertheless, applies quality standards and quality assurance to *all* systems, structures, and components at the Shoreham plant commensurate with their importance to the safe and reliable operation of the plant. In this extensive record, Intervenors have failed to show by example, as alleged, that any structure, system, or component has not received quality assurance treatment commensurate with its importance to safety functions (Findings J-347 to 349, 350, 351, 353, 354, 356, 357).

LILCO's and the Staff's methodology for determination of which sequence of accidents should be considered within the design basis of the plant is discussed in Section II-J.3.c., above.

### 3). *Conclusion*

Notwithstanding the differences in the use and application of the terms "important to safety" and "safety-related" by the Staff and LILCO, we conclude that LILCO has applied quality assurance to both the safety-related class and the larger important to safety class of equipment, in compliance with Commission requirements (see Section II-J.3.c.2)., above), commensurate with the safety function to be performed. It follows that determinations of accident sequences considered within the design basis of the plant take into account the quality assurance applied to the design, fabrication, erection, construction, test, and inspection of the structures, systems, and components that are involved in these accident sequences. Thus, despite the difference in terminology, LILCO has, in effect, taken into account classification and qualification of systems important to safety in determination of accident sequences which should be considered within the design basis of the plant.

We conclude that LILCO's and the Staff's testimony on this part of the contention is credible and convincing and is not controverted by that of the Intervenors.

For the reasons discussed above, this part of the contention must fail.

#### ***f. Question f. Have LILCO and the Staff Determined Whether the Design Basis of the Plant Adequately Protects Against Every Such Sequence (i.e., Sequences of Accidents That Should Be Considered Within the Design Basis of the Plant)?***

##### ***1). Requirement That LILCO and the Staff Determine Whether the Design Basis of the Plant Adequately Protects Against Every Such Sequence***

We have discussed the requirements for determining which sequences of accidents should be considered within the design basis of the plant in Section II-J.3.c.1)., above. We noted there that many of the transient and accident sequences to be analyzed are identified in the General Design Criteria. Nowhere in Commission regulations and regulatory guidance is it ever suggested that every accident sequence be specifically considered. See also Finding J-450.



**2). *Implementation of the Requirement That LILCO and the Staff Determine Whether the Design Basis of the Plant Adequately Protects Against Every Such Sequence***

The FSAR Chapter 15 design basis analyses do not include all possible accident sequences. It is not possible to analyze or even to define *all* possible accident sequences for any nuclear power plant (Finding J-882).

**3). *Conclusion***

Although no attempt was made by LILCO or the Staff to consider *every* accident sequence in determining whether the design basis of the plant adequately protects against every such sequence, not only is this not required, but LILCO considered a spectrum of possible events to establish for each one the highly unlikely accident to be used as the design basis. These hypothetical enveloping accidents are essentially the same for all BWR plants, even though analyses unique to Shoreham were performed (Finding J-891).

Not only is there no requirement to meet this part of the contention, but it would not be possible to do so. Implementation of the defense in depth concept, requirements for redundancy and diversity, conservatism in design margin and accident modeling, for example, make analysis of *every* accident sequence unnecessary, even if it were possible.

For the reasons discussed above, this part of the contention must fail.

**g. *Question g. Have LILCO and the Staff Taken into Account Systems Interaction in the Determination of Whether the Design Basis of the Plant Adequately Protects Against Every Such Sequence?***

**1). *Requirements for Taking into Account Systems Interaction in the Determination of Whether the Design Basis of the Plant Adequately Protects Against Every Such Sequence***

We have discussed the requirement for systems interaction analysis in Section II-J.3.a.2)., and the requirements for considering *every* accident sequence in Section II-J.3.c.1).

There is no explicit requirement that a dedicated, systematic systems interaction analysis be performed. There are certain specific interaction analyses that are performed in response to requirements and guidance provided in the Commission regulations, Regulatory Guides and the Standard Review Plan.

2). *Implementation of Requirements for Taking into Account Systems Interaction in the Determination of Whether the Design Basis of the Plant Adequately Protects Against Every Such Sequence*

No evidence was provided that would indicate that LILCO or the Staff took into account systems interaction in determining whether the design basis of the plant adequately protects against *every* accident sequence.

As discussed above, LILCO did, however, conduct systems interaction analyses beyond those specific analyses that are required by the Commission's regulations or identified by Staff guidance. Systems interaction was taken into account in the determination of which accident sequences should be considered (*see* Section II-J.3.d., above).

3). *Conclusion*

As concluded before, there is no requirement for LILCO or the Staff to consider *every* accident sequence, nor would it be possible to do so.<sup>30</sup> LILCO not only has complied with Staff requirements and guidance, with respect to systems interaction analyses, but has done more. Intervenor have not shown any credible accident sequence indicating a need for classification changes as a result of consideration of systems interaction. (*See also* Section II-J.3.e., above.)

*h. Question h. Have LILCO and the Staff Taken into Account Classification and Qualification of Systems Important to Safety in the Determination of Whether the Design Basis of the Plant Adequately Protects Against Every Such Sequence?*

1). *Requirements for Taking into Account Classification and Qualification of Systems Important to Safety in the Determination of Whether the Design Basis of the Plant Adequately Protects Against Every Such Sequence*

Again, we emphasize that there is no requirement for LILCO or the Staff to consider *every* accident sequence, nor would it be possible to do so. (*See* Section II-J.3.f.1), above.) Requirements for classification and qualification of systems important to safety have been discussed in Section II-J.3.b.2), above.

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<sup>30</sup> In fact, in the Board's opinion such a requirement would be patently absurd, because in a realistic, rigorous manner it would be impossible to demonstrate that no conceivable or possible sequence had not been omitted. Further, time and effort are much better spent on generic, conservative, blanketting accident sequences, rather than on variations of, or perturbations in, details of potential sequences.

2). *Implementation of Requirements for Taking into Account Classification and Qualification of Systems Important to Safety in the Determination of Whether the Design Basis of the Plant Adequately Protects Against Every Such Sequence*

No evidence was provided that would indicate that LILCO or the Staff took into account classification and qualification of systems important to safety in the determination of whether the design basis of the plant adequately protects against every such sequence.

As discussed above, LILCO has applied a quality assurance program for all plant systems, regardless of classification, which would be considered in the determination of whether the design basis of the plant adequately protects the public health and safety. (See Section II-J.3.b.3), above, and Findings J-257, 693 and 839.)

3). *Conclusion*

Again, there is no requirement for LILCO or the Staff to consider every accident sequence, nor would it be possible to do so. Despite the terminological differences between LILCO and the Staff, LILCO has complied with all of the requirements of the NRC with respect to classification and qualification. (See Sections 1). and 2)., immediately preceding.)

For the reasons discussed above, this part of the contention must fail.

i. *Question i. Have LILCO and the Staff Applied Proper Systematic Methodology, Such as the Fault Tree and Event Tree Logic Approach of the IREP Program, to Analyze the Reliability of Systems to Determine Whether There Is Reasonable Assurance That the Shoreham Design Adequately Protects (the Public) from Credible Accidents?*

1). *Requirements for Application of Proper Systematic Methodology Such as Fault Tree and Event Tree Logic to Analyze the Reliability of Systems*

There is no NRC requirement nor regulatory guidance for application of fault tree and/or event tree logic to analyze the reliability of systems (Finding J-902). Moreover, Commission policy dictates that the Staff should continue to use conformance to regulatory requirements as the

*exclusive* licensing basis for plants<sup>31</sup> (emphasis added). While this dictum is in the context of safety goals and probabilistic risk assessment, fault tree and event tree logic normally are a major part of PRAs applied to nuclear power plants.

2). *Implementation of Requirements for Application of Proper Methodology Such as Fault Tree and Event Tree Logic to Analyze the Reliability of Systems*

Although fault tree, event tree and probabilistic risk assessment analyses are not required, LILCO has, in fact, used all of these methodologies. In particular, LILCO initiated a Level 3 PRA,<sup>32</sup> of which a draft report of Level 2 analyses was available at the time of the hearing (Finding J-909). The technique used was to evaluate system response during postulated accidents by the event tree/fault tree methodology. The PRA involved the assessment of the plant far beyond the design basis (Finding J-921). It also incorporated systems interaction analyses, intercomponent dependencies, human interactions, operating experience, systems walkdown, containment event trees, failure modes and effect analyses, the logic used in developing commonality diagrams, dependent and independent multiple failures of systems, but did not consider external events, such as earthquakes and floods, because these external events had been deemed not a dominant contributor to risk at Shoreham (Findings J-929 to 944). The methodology treated all systems regardless of whether systems or components were safety-related or nonsafety-related (Finding J-943).

The methods used for the PRA and the results obtained were subjected to peer review by a group of three recognized experts which ensured that the evaluation was performed using state-of-the-art techniques and that the scope, limitations, and assumptions were treated adequately and credibly (Finding J-924).

The Shoreham Level 3 PRA will provide additional information to LILCO (and the Staff) regarding the safety of the plant beyond that which would be obtained from the NRC Interim Reliability Evaluation

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<sup>31</sup> See note 25, *supra*.

<sup>32</sup> Briefly, a Level 1 PRA is an assessment of plant design and operation focused on the accident sequences that could lead to core melt, their basic causes and frequencies. A Level 2 PRA is an assessment of the physical processes and the response of the containment in addition to the scope of a Level 1 PRA. It predicts the time and mode of the containment failure as well as the inventories of radioactive nuclides released to the environment. A Level 3 PRA assesses the transport of radioactive nuclides through the environment and assesses the public health and economic consequences of the accident in addition to the tasks of a Level 2 PRA. Burns, *et al.*, ff. Tr. 4346, at 74-75.

Program (IREP) study, which is only a Level 1 PRA effort (Finding J-947).

3). *Conclusion*

Although not required, there is no doubt that LILCO has applied proper methodology, beyond that of the fault tree and event tree logic approach of the IREP program, to analyze the reliability of systems to determine whether there is reasonable assurance that the Shoreham design adequately protects (the public) from credible accidents (Finding J-958).

The Staff review of the PRA is expected to take one year from the time the final Shoreham PRA is submitted. This review, while not required, will be done (Finding J-914).

The Board finds the testimony of LILCO and the Staff to be credible and convincing and not controverted by that of the Intervenors.

For the reasons discussed above, this part of the contention must fail.

***j. Question j. Have LILCO and the Staff Applied Proper Systematic Methodology, Such as a Systematic Failure Modes and Effect Analysis, to Analyze Reliability of Systems to Determine Whether There Is Reasonable Assurance That the Shoreham Design Adequately Protects (the Public) from Credible Accidents?***

***1). Requirements for Application of Proper Systematic Methodology Such as a Systematic Failure Modes and Effect Analysis to Analyze Reliability of Systems***

The record discloses no regulatory requirements for LILCO or the Staff to perform failure modes and effect analyses (Finding J-902). Nevertheless, a number of such analyses were performed.

***2). Implementation of Requirements for Application of Proper Systematic Methodology Such as a Systematic Failure Modes and Effect Analysis to Analyze Reliability of Systems***

Although not required, General Electric and Stone & Webster conducted a number of failure modes and effect analyses (FMEAs). These included studies of interaction between redundant trains of safety-related systems; each balance-of-plant safety-related control circuit; pressure control, feedwater control, and recirculation control systems; the instrumentation system, and the reactor protection system (Findings J-77 to 80, 86 to 88, 106, 110).

### 3). *Conclusion*

Although there is no requirement for LILCO or the Staff to apply systematic failure modes and effect analysis to analyze reliability of systems, several such studies have, in fact, been made.

With respect to what constitutes proper systematic methodology to analyze reliability of systems to determine whether there is reasonable assurance that the Shoreham design adequately protects (the public) from credible accidents, we conclude that this methodology is defined by the Commission's rules, regulations, and Staff guidance. Where there is only a general contention raising a question of adequacy, even though suggesting areas of inadequacy, and there is no substantiated failure to comply with Commission requirements on the part of either the Applicant or the Staff, particularly after litigation of the general issue, there is no basis for finding validity of a contention.<sup>33</sup>

We conclude that LILCO and the Staff have not failed to apply proper systematic methodology to analyze reliability of systems to determine whether there is reasonable assurance that the Shoreham design adequately protects (the public) from credible accidents. We so conclude notwithstanding the fact that there has not been a *systematic* application of FMEA (in the sense of a single, across the board, dedicated FMEA analysis of all plant systems), because there is no requirement for this and because a number of FMEAs actually have been conducted by LILCO and reviewed by the Staff.

We find that the testimony of LILCO and the Staff is credible and convincing and that it is not controverted by that of the Interveners.

For the reasons discussed above, this part of the contention must fail.

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<sup>33</sup> See, e.g., *Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2)*, ALAB-728, 17 NRC 777, 807 (1983).

**k. Question k. Absent a Methodological Approach Taking into Account Systems Interaction and Classification and Qualification of Systems Important to Safety and Applying Systematic Methodology Such as the Fault Tree and Event Tree Logic Approach of the IREP Program or Systematic Failure Modes and Effect Analysis, to Define the Importance to Safety of Each Piece of Equipment, Is It Possible to Identify the Items to Which General Design Criteria 1, 2, 3, 4, 10, 13, 21, 22, 23, 24, 29, 35 and 37 Apply and to Demonstrate Compliance with These Criteria?**

1). *Requirements to Identify the Items to Which the General Design Criteria (listed above) Apply, Absent the Definition of Importance to Safety of Each Piece of Equipment*

Nowhere in the record before us is there any evidence that suggests that "each piece of equipment" must be reviewed to determine its importance to safety (nor is there any definition of "each piece of equipment") (Findings J-967 to 979).

2). *Implementation of the Requirements to Identify the Items to Which the General Design Criteria (listed above) Apply, Absent the Definition of Importance to Safety of Each Piece of Equipment*

There has been no specific effort to define the importance to safety of each piece of equipment, since it is not required.

3). *Conclusion*

We have discussed above the requirements for systems interaction analysis, classification and qualification of systems important to safety, proper systematic methodology such as the fault tree and event tree logic approach of the IREP program, and systematic failure modes and effect analysis. To the extent that requirements exist, there is no doubt that they have been met or exceeded. (See Sections II-J.3.a.3)., II-J.3.b.2)., II-J.3.i.1)., and II-J.3.j.1).)

Classification of structures, systems and components has been discussed at length. We previously concluded that, despite the terminological differences between LILCO and the Staff, such classification has met Commission requirements. (See Sections II-J.3.b.4). and II-J.3.h.3)., above.) We do agree with the Staff, however, that acceptance and implementation of the Staff's definitions of "safety-related" and "important to safety," are required for classification and qualification purposes, as

discussed in this decision, and order that this acceptance and implementation be a condition of any operating license for Shoreham.

The question of the possibility of identification of the items to which the General Design Criteria listed above apply, absent the definition of importance to safety of each piece of equipment, is irrelevant. General Design Criterion 1 and 10 C.F.R. Part 50, Appendix B require application of quality assurance commensurate with the importance of the safety functions to be performed. As we discuss at length in this decision, Shoreham meets the classification and quality assurance requirements of the NRC. Intervenors have failed to show, by example, any instance of improper classification or failure to comply with the General Design Criteria.

For the reasons discussed above, this part of the contention must fail.

## **II-K. Quality Assurance and Quality Control (SC/SOC Contention 12, SC Contentions 13-15)**

### **1. Introduction**

Four contentions related to quality assurance (QA) and quality control (QC) were admitted for litigation. These contentions relate to the quality assurance program for the design and installation of structures, systems, and components for Shoreham (SC/SOC-12), the QA program description for the operation of Shoreham (SC-13), the adequacy of the NRC Staff's Inspection and Enforcement (I&E) Program to verify LILCO's implementation of LILCO's QA program (SC-14), and the adequacy of review and physical inspection to verify compliance with 10 C.F.R. Part 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants (SC-15). These four contentions were litigated together. A glossary of terms used in the opinion and findings on these contentions is included at the end of the QA/QC findings, Section III-K (unpublished).

By an agreement dated March 31, 1983, and subsequently accepted by the Board, the parties resolved SC Contention 13(d) (Operational QA Staffing). On June 20, 1983, the parties reported the results of settlement negotiations on Contention 13(a) (Operational QA Procedures). As a result of these efforts, SC Contention 13(a) was resolved, except to the extent it deals with (1) the structure of LILCO's QA organization and the independence of the operating QA Section, and (2) the application of the QA program and QA documents (as defined in the resolution agreement) to the items and activities



“important to safety.” Joint Status Report on SC Contention 13(a) (OQA Procedures), June 20, 1983.

Once again, the Board, in reaching its conclusions on these contentions, is faced with a massive record, based on 55 days of hearing, extensive written testimony and exhibits, and voluminous proposed findings of fact and opinions by the parties that are disparate, at least. The difficulty of our task, trying to be objective in consideration of each of the parties’ submissions, is further compounded by the County’s misrepresentation of the complete record — by omission, selective citations and distortion of recorded testimony.<sup>34</sup>

In reaching our decision on the very broad Contention SC-7B/SOC-19(b), Systems Interaction and Safety Classification, we found it useful to propound eleven separate questions (which we believe fairly represented the questions implicit or explicit in that single contention) and to discuss them individually. This procedure unavoidably led to a certain amount of repetition and overlap in the discussion. Such was the nature of that contention. A similar approach to these four contentions would lead to individual discussion of about 30 constituent questions. The advantages of focusing on more narrowly defined issues in this instance are persuasively outweighed by the disadvantages of the bulk and needless repetition involved.

The record on these four quality assurance contentions is necessarily large because, while no one disputes the existence of quality assurance programs of LILCO and the Staff, the County does challenge the adequacy of these programs. Further, while the County admits that no program is perfect, nor needs to be, the County alleges that there has been a “pattern of breakdowns” at Shoreham. The County has sought to show this pattern, and other deficiencies, by bringing to the attention of the Board a large number of instances of apparent or alleged failures to comply with NRC or LILCO requirements or to apply methodologies that would be more appropriate in the view of the County.

This Board is not about to become involved in a “numbers game” of counting beans of different colors in viewing the examples of QA failures relied on by the County. Rather, we have kept foremost in our minds the intent of the NRC requirements and the actual and practical measures taken to meet these requirements to assure no undue risk to the health and safety of the public. We seek a solid foundation for finding reasonable assurance of adequate protection of the health and

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<sup>34</sup> Our view of the County’s performance is strictly our own. Our conclusion, however, is not without independent, if biased, corroboration. LILCO, on its own initiative, took the trouble of analyzing all 732 proposed findings of the County. It found 365 (50%) of them inaccurate, for 439 reasons (157 out of context, 110 with no citation, 105 with unjustified inference and 67 refuted on the record).

safety of the public. We do not seek evidence of a sterile application of ritualistic methodology.

## **2. Summary**

The four QA/QC contentions are related to the design, installation, operation, review and physical inspection of Shoreham and the Staff's I&E program to verify LILCO's QA/QC program. Some aspects of operational QA (OQA) were resolved by settlement among the parties (stimulated at least in part by Board urging). The central theme of the County's contentions, however, was that the existence of numerous examples of failures to implement specific details of the QA/QC program, and I&E's alleged inability to prevent these events, constituted a "pattern" of "breakdowns," thereby amounting to failure to comply with Commission requirements, specifically 10 C.F.R. § 50.34(a), Part 50, Appendix A, General Design Criterion 1 and the 18 criteria of Part 50, Appendix B.

This Board wholeheartedly supports the Commission policy and attitude toward implementation of QA/QC in the design, construction and operation of nuclear power plants. We provided ample opportunity to the County to present its evidence of failures on the part of LILCO and the Staff to comply with the Commission's requirements. The County did, indeed, point to many specific failures (breakdowns, in the County's usage of the term) to implement details of the QA/QC/inspection/audit/surveillance/observation programs. In our consideration of the many matters, it was useful that the County and LILCO assigned these examples to general categories and groups within the categories. These included:

LILCO QA programs for engineering and design, procurement, construction, operation, audit and surveillance, engineering calculation, drawings, document control, engineering and design coordination reports (E&DCR), storage, housekeeping, manuals updating, FSAR control, electrical separation and welding.

Review of the Staff's programs included:

the Construction Assessment Team (CAT), the Readiness Assessment Team (RAT) and the Systematic Assessment of Licensee Performance (SALP) reviews, as well as numerous individual inspection findings.

Finally, we reviewed the Torrey Pines Technology independent verification effort, commissioned by LILCO at the urging of the Staff.

Design, construction and installation at Shoreham has been affected by the long period of construction and the changing requirements of the

AEC and NRC during this period. Stepping back from the details of errors made, we have focused on the overall performance of LILCO and the Staff at Shoreham. Our perception is that neither has been perfect, nor could it have been with realistic use of resources. Nor is perfect performance expected by the Commission. We do conclude, however, that both LILCO and the Staff have had effective programs for identifying and correcting deficiencies. We also conclude that LILCO's and the Staff's programs for operation of Shoreham meet the Commission's requirements and will provide adequate protection of the health and safety of the public. We have found LILCO's and the Staff's testimony credible and persuasive. The County's testimony and cross-examination have not controverted our conclusions and opinion.

For the reasons discussed, the four Quality Assurance and Quality Control contentions must fail.

### 3. Background

These contentions assert that LILCO does not comply with 10 C.F.R. Part 50, Appendix B, Criteria I through XVIII; and Appendix A, General Design Criterion 1. The County provided a list of alleged breakdowns, by grouping findings documented in inspection reports by the NRC Region I Inspection and Enforcement Staff with respect to Criteria II, III, and V through XVIII of Appendix B to show the pattern.

A "breakdown" was defined by the County as every surveillance finding and every audit finding (Finding K-953). That is, a breakdown is a failure to meet a requirement. Tr. 15,412 (Hubbard).

"Pattern" was not defined during the course of this proceeding. Based on the dictionary definition and the use made of the term in this proceeding, we take it to convey the meaning of something pervasive and of similar nature. One, or even a very few similar events, would not establish a pattern.

Since a "breakdown" according to the County's usage applies to a single occurrence of noncompliance, such an event does not in itself constitute a breakdown of the QA/QC program itself. Thus, neither do isolated instances of "breakdowns" constitute noncompliance with Appendix B. A QA/QC program that did not uncover "breakdowns" would be suspect indeed (Findings K-21, 22). What we are concerned with here is whether the LILCO and Staff programs, as applied to Shoreham, have resulted in a plant design and projected operation that will provide reasonable assurance of no undue risk to the health and safety of the public, regardless of the obvious history at Shoreham of numerous in-

stances of apparent failures to adhere to the QA/QC program in its detailed implementation.

The County's listing of breakdowns, taken as it is from LILCO's and the Staff's own inspection and audit findings is unarguably lengthy. To judge the significance, one must not only look at the nature of each finding, but judge the overall significance in terms of the totality of the programs. What was done, or will be done, to assure that potential deficiencies do not and will not affect overall plant performance adversely?

This decision does not take into account the ongoing NRC Staff investigation into allegations of improper construction practices at Shoreham, by a former construction worker. See "Board Notification No. 83-107 — Allegations Concerning Construction QA at Shoreham" (August 2, 1983); "Order Regarding Notification by NRC Staff of Allegations Concerning Construction QA at Shoreham" (unpublished) (August 9, 1983); and Letters, NRC Staff counsel to Licensing Board (August 16 and 18, 1983). In light of the preliminary but limited information from the Staff, we conclude that there is no present basis to delay our decision on the QA/QC contentions or to withhold any licensing authorization which might otherwise occur until completion of the investigation. However, it is possible that the results of the Staff's investigation of the allegations, when issued, could provide a basis for reopening the record. Our decision at this time is subject to that possibility.

We proceed to discuss in summary fashion the LILCO and Staff programs, as applied to Shoreham. We return later to the question of whether, in the light of the County's contention, Shoreham complies with NRC requirements.

#### **4. LILCO's QA Program for Design, Construction and Testing**

LILCO developed a QA program for Shoreham prior to the formal NRC requirements for such and prior to construction at the site (Findings K-15 through 18). Since that time the QA program has been updated and subject to continuing Staff review (Finding K-18). LILCO's QA program addresses all aspects of the design, construction and testing of Shoreham, including design control, procurement and construction control, according to each of the 18 criteria of Appendix B (Finding K-19). This program, in accordance with Appendix B, applies only to safety-related structures, systems and components. Quality assurance is applied, however, to nonsafety-related structures, systems and components, but not under the formalized QA program. See Section

III-J (Contention 7B), Systems Interaction and Classification and Qualification. (Findings K-23 through 28, 32.)

Both General Electric and Stone & Webster have had QA programs that also have been subject to NRC review and approval (Findings K-29 through 31). The combination of LILCO, Stone & Webster and General Electric has provided QA programs for engineering and design that include design verification, design change control, engineering audits, procurement and construction (Findings K-33 through 76). In addition, special programs related to quality assurance included:

- a. Final Stress Analysis Review Program. *See* Section III-K.7.a.
- b. Fuel Load Drawing Update Program. *See* Section III-K.7.b.
- c. Engineering and Design Coordination Report (E&DCR) Implementation Verification Program. *See* Section III-K.7.c.
- d. As-built Piping Program. *See* Section III-K.7.d.
- e. Electrical Raceway Qualification Program
  - 1). Conduit Qualification and Inspection Program (CONQUIP). *See* Section III-K.7.e.1).
  - 2). Conduit Support "As-built" Program (CONSAP). *See* Section II-K.7.e.2).
  - 3). Cable Tray Support Analysis Program (CAB TRAP). *See* Section III-K.7.e.3).
- f. Final "A" Release Program. *See* Section III-K.7.f.
- g. Third Party Audit of Reactor Pressure Vessel Quality History and Preservice Inspection. *See* Section III-K.7.g.
- h. LILCO Audits. *See* Section III-K.7.h.

## 5. LILCO's Operational QA Program

LILCO has established and already is implementing a quality assurance program for the operational phase of Shoreham, in accordance with 10 C.F.R. Part 50, Appendix B. This program is applied to safety-related and also to some nonsafety-related structures, systems and components.

The County's remaining particular concern, after settlement negotiations and partial resolution (*see* Section II-K.1 of this Opinion), with respect to LILCO's operational QA program is the organizational freedom and independence of the Operating Quality Assurance (OQA) Section from cost and schedule concerns when opposed to safety considerations, and application of the program to items and activities "important to safety" (Finding K-78). The OQA engineer reports directly to the Shoreham Plant Manager, who has both administrative and functional authority over the OQA Engineer (both of whom are located at the plant site) (Finding K-80).

To assess the independence of the operational QA function, which is more important than the particular organization chart, we have considered all aspects of the operational QA program (the NRC Standard Review Plan permits the organization structure used by LILCO) (Findings K-92, 95). These aspects have included the LILCO organization and functional authorities (Findings K-79 through 95), materials and parts important to safety (Findings K-100, 101), procurement (Findings K-102 through 106), installation (Findings K-107 through 111), inspection, testing and documentation (Findings K-112 through 118), the Independent Safety Engineering Group (ISEG) (Findings K-120 through 152), the Review of Operations Committee (ROC) (Findings K-153 through 159), the Nuclear Review Board (NRB) (Findings K-160 through 168), advisors to LILCO management (Findings K-169 through 175), LILCO's treatment of equipment failures (Findings K-176 through 185) and statistical methodology (Findings K-186 through 204).

A separate observation on statistical methodology is in order. The County argued both in the context of the QA contentions themselves and with respect to the Torrey Pines Study that, in effect, rigorous mathematical extrapolations to the total population could not be made on the basis of a non-random sample of a non-homogeneous population. It argued that homogeneous populations could be obtained by stratifying the total population. The County misses the mark, as LILCO and the Staff correctly observed. The kinds of audits that are practical, generally practiced and acceptable for their purpose in nuclear power plant application are not intended to provide the mathematical rigor the County would like to see, but which are certainly not required. The Board explicitly notes that the audits, including the Torrey Pines study, allow conclusions no more and no less than what they actually did show (more about this in Section II-K.9.c., Torrey Pines, below). For those specific things looked at, they complied or they did not comply with LILCO or NRC requirements. Any conclusion that because, for the sample chosen, no noncompliances were found, no noncompliances for the total population now exist or will exist in the future is totally unjustified. We certainly don't draw that conclusion, nor need we. We do need to conclude that the QA program in general meets NRC requirements and, despite whatever lack of mathematical rigor there may be in sampling and overall evaluation, there remains reasonable assurance of no undue risk to the health and safety of the public. This we do, not on the basis of individual noncompliances or lack of rigor, but on the basis of the sum of all factors that contribute to acceptable design, construction and operation. These factors include NRC requirements, professional experience, organization

and management, training and procedures and continuing dedication by all concerned.

We conclude, based on consideration of the foregoing (including the referenced findings), that LILCO's overall program for operational QA does indeed provide sufficient organizational freedom and independence from cost and schedule concerns when opposed to safety concerns.

## **6. LILCO's Audit and Surveillance Program**

LILCO maintained overall responsibility for auditing and surveillances, including portions of the program carried out by General Electric and Stone & Webster (Finding K-252). The audit program looked at detailed administrative control matters, construction and inspection processes, supplier activities and technical accuracy and adequacy (Finding K-253). Formal surveillances also were performed at Shoreham, mainly oriented toward hardware and in-process work in the welding, mechanical, electrical and instrumentation disciplines. Surveillances were conducted similarly to audits, *i.e.*, checklists were used, results were documented, reports were issued and required corrective action was followed up and verified as complete (Finding K-265).

LILCO's Quality Assurance Department, since 1973, conducted over 1400 Field Audits of Stone & Webster, General Electric and LILCO departments, including subsuppliers (Finding K-267).

The Stone & Webster Quality Assurance Cost and Auditing Division of the S&W Quality Assurance Department performed quarterly audits of construction site activities, annual audits of site contractors' activities, annual audits of ASME Boiler and Pressure Vessel Code Section III activities, and annual program audits (Findings K-270 through 275).

Stone & Webster's Engineering Assurance Division conducted internal audits of the engineering and design activities of S&W's Engineering Department, including the Site Engineering Office. The audits not only looked at the programmatic and administrative aspects of the design process, but also at the adequacy of the design itself. This included evaluation of the technical adequacy of design changes. Over 53 internal audits, each including several activities, were performed since 1970 (Findings K-276 through 284).

In addition to field quality control audits performed by LILCO's QA Department and S&W's QA Cost and Auditing Division, S&W's own Field Quality Control (FQC) Division performed over 130 audits and approximately 400 surveillances of S&W activities at Shoreham and ap-

proximately 30 audits and 200 surveillance inspections of contractor activities (Findings K-285, 286).

LILCO's QA Department and S&W's Procurement QA Division, assisted at times by S&W's Engineering Assurance Division and Nondestructive Test Division, audited each supplier's procurement QA program and suppliers of procured engineering services. Some 134 QA program reviews, 152 surveys of suppliers and 193 audits and corrective action audits were performed. LILCO made approximately 163 visits to supplier facilities and S&W issued approximately 6400 inspection reports while performing supplier inspections (Findings K-287 through 291).

General Electric performed both internal and external audits. Internal audits were performed by the Nuclear Energy Product and Quality Assurance Operation of GE Nuclear Energy Business Operations (NEBO) and by NEBO division level organizations, including the Nuclear Reliability Engineering Operation. External audits were conducted by NEBO (Findings K-292 through 295).

The LILCO and S&W audit programs required that observations be reported to appropriate management, that the conditions be corrected and that the action taken to resolve the conditions be verified as complete and satisfactory (Findings K-301 through 306).

Each of the 18 criteria of 10 C.F.R. Part 50, Appendix B is addressed in such documents as the LILCO QA Manual, the LILCO Engineering QA Manual and the S&W QA Program Manual. The Shoreham QA Program more than meets the criteria of Appendix B (Findings K-307 through 322).

We conclude that LILCO's Audit and Surveillance program was effective and generally timely in the detection and follow-up of deficiencies in design, construction and installation at Shoreham.

## **7. Specific Subjects**

The County referenced a large number of specific inspection and audit findings and observations made by LILCO and S&W to support its allegation of a pattern of breakdowns in the Shoreham QA program. These were divided into groups, each group containing findings or observations of a similar nature. Most, but not all, of these findings and observations were considered explicitly in the course of this proceeding, the Board having encouraged the examination on QA/QC to focus on examples of alleged deficiencies in QA implementation rather than on the description of LILCO's QA program (Finding K-10). The specific subjects included:



## **a. Calculations**

Under Appendix B, Criterion V, Instructions, Procedures, and Drawings, a licensee must prepare documented instructions, procedures and drawings for activities affecting quality. S&W's Engineering Assurance Procedure (EAP) 5.3, Control of Computerized and Manual Calculation, establishes methods for the preparation, review and storage of calculations. These methods were updated over the years to improve the process (Findings K-323 through 331). We conclude that deficiencies identified in this area were minor and were readily corrected without impact on the adequacy of the Shoreham design, construction and installation.

### **1). Ready Traceability**

There were 29 audit observations in this category. All were similar in that they deal with detailed identification of input information. S&W asserted that there always was traceability, but that in S&W's own view there was not positive ("ready") traceability of the kind that S&W procedures required. In some instances it took as much as 10 hours to find the input for a given analysis. The observations did not indicate that the input used was incorrect or that the calculation reviewer failed to review the corrections of the input. Nevertheless, S&W, through its audit program, ensured that action was taken to correct the conditions identified by each observation in this category (Findings K-332 through 347). We conclude that any deficiencies in this area had no adverse impact and have been satisfactorily corrected.

### **2). Documentation of Review**

There were eight observations in this category that involved instances where a review was performed but was not properly documented. These observations were minor implementation concerns and were not significant to the integrity of the plant design. All were corrected (Findings K-348 through 352).

### **3). Miscellaneous Important Concerns**

There were five observations in this category, each of which was more than an administrative problem. Two observations addressed the use of calculation results prior to a documented review of the calculations. All of the calculations were reviewed, as revised after the receipt of updated

input, and found to be correct (Finding K-362). One observation reported that a non-qualified computer program was used. Subsequently the computer program was qualified, confirming the correctness of the results (Finding K-363). One observation concerned the use of preliminary vendor data in a calculation. Investigation showed there were no problems with the adequacy of the analysis or the correctness of the inputs; the earlier calculations had not indicated the need for verification (Finding K-364). One observation dealt with inconsistencies between pipe support calculations and issued pipe support drawings, primarily as a result of approved field changes to the pipe support configurations. The auditor questioned whether these changes should have been accepted without performing a documented reanalysis. Approximately 1800 pipe support calculations were redone, resulting in minor modifications to approximately one percent of the 1800. There were no cases where pipe support failure would have occurred had this condition gone uncorrected (Finding K-365). *See also* Findings K-366 and 367. We conclude that the deficiencies in this area have been satisfactorily resolved.

#### **4). *SAR Related***

There were three observations in this category, related only because they involve reference to the FSAR. None was significant and appropriate corrective action was taken in each instance (Findings K-368 through 372).

#### **5). *Indexing and Filing***

There were seven observations in this category, similar in that they deal with details of the implementation of administrative indexing/filing requirements. They included calculations in the preparation process not listed in an index, the redundant control file of calculations not up to date and the status of calculation input information not marked on the index. Each of the administrative concerns was identified by the audit program and corrected and these conditions did not recur (Findings K-373 through 377).

#### **6). *Other***

There were 15 observations in this category. Three observations addressed the apparent uncontrolled use of unqualified computer programs. In each case the programs were qualified but not completely documented (Findings 378 through 382).

Three observations dealt with general management concerns with completing calculations in a timely manner. While there could have been an impact on scheduling work, there would have been no impact on the quality or the integrity of the plant design (Findings K-383, 384).

Nine observations dealt with miscellaneous matters, such as the preparer of calculations not initiating changes made by a checker to document concurrence, inconsistencies and omissions in the work sketch used in pipe stress analysis, and use of incorrect terminology associated with a correct input value. None of these observations had an impact on the integrity of the design and construction of the plant (Findings K-385, 386). *See also* Finding K-387.

### ***b. Drawings***

These S&W audits and observations also were grouped by the LILCO witnesses according to similarity as follows:

#### ***1). Early Pilot Audits***

The four audits in this category identified approximately 132 detailed drawing discrepancies, 130 of which related to checking, not design, concerns. Two discrepancies had potential design implications: (1) valves not shown on a drawing and (2) a pH indicator shown incorrectly. The drawing discrepancies reported in these earlier pilot audits were not significant, considering the nature of the audits, the time frame and the conceptual nature of the drawings. Nevertheless, the program was modified to consider the conceptual nature of the work, *i.e.*, to specify what details actually needed to be complete at this stage of the work. (Findings K-388 through 392).

#### ***2). Important Concerns***

One observation in this category involved lack of review by the Operation Design Review (ODR) group, a review imposed by S&W to provide an added layer of assurance with respect to operability and maintainability considerations. Project Engineering apparently did not understand that even minor changes in the three flow diagrams in this observation did require a review by ODR. S&W required preventive action in addition to complete corrective action and there were no recurrences (Findings K-393 through 398).

### *3). Checking Concerns (Not Design Review)*

Three observations related to minor drafting discrepancies not corrected during the checking process prior to design review. These discrepancies included spelling errors, incorrect symbols, inconsistent drawing line thicknesses and reference to an out-of-date S&W standard. They were not relevant to the review or adequacy of the design (Finding K-398).

### *4). Miscellaneous Unrelated*

There were six observations in this category relating to a structural drawing used prior to completion, for bid purposes only, a flow diagram audited before it went through the review process, an audit of interim information (not controlled design) documents, lack of the degree of detail needed to document the extent of changes made, drawing checklists not signed and inability to promptly locate a drawing checklist. None of these would have had any impact on the integrity of the plant design. Although the discrepancies were not significant, preventive action was taken (Findings K-399 through 403).

### *c. Document Control*

#### *1). Procedure Related*

There were nine observations in this category. Seven were related to recommendations to improve an already adequate procedure. Two were invalid in that there was no nonconformance. Although not necessary, some of the recommendations were adopted and some procedures were improved (Findings K-404 through 410).

#### *2). Legibility*

There was one basic observation concerning legibility of certain drawings and seven audit follow-ups, addressing solely the legibility of reproduced drawings. None of the deficient reproductions was used by the end users or the construction departments charged with performing work in accordance with the documents. LILCO and S&W audits ensured that corrective action was taken, in full compliance with Criteria XVI and XVIII of 10 C.F.R. Part 50, Appendix B, although much time was required in obtaining enhanced documents from vendors (Findings K-411 through 416).

### *3). Miscellaneous*

There were a total of 26 observations relating to indices, logs, files, manuals, procedures and instructions, 13 of which dealt with individuals not keeping their manuals up to date. None indicated a concern with the adequacy of the engineering work being performed on the project. Even though the observed conditions were not considered significant, preventive action was taken (Findings K-417 through 425).

### *4). Drawing Revisions in Files*

Ten observations involved instances of a wrong revision of a drawing being in a drawing holder's files at the time of the audit, reflecting scattered implementation difficulties. The audit program identified these difficulties and corrective and preventive actions were taken (Findings K-426 through 432).

### *d. Engineering and Design Coordination Reports (E&DCRs)*

E&DCRs are used as a formal mechanism for controlling changes to a design document. The purpose of the E&DCR program is to ensure that installation and inspection activities are performed in accordance with the latest approved design. Thousands of E&DCRs have been generated for Shoreham and copies are widely distributed. During the 1976-77 time period, concerns were raised about the timing of distribution and the job management aspects of the E&DCR system (Findings K-433 through 451).

Despite these concerns and even though an extensive program of corrective and preventive measures was instituted, the NRC Staff confirmed that the overall E&DCR distribution and control system was satisfactory (Findings K-452 through 454).

### *1). Logging and Posting*

Logging and posting assist in identifying and tracking the E&DCRs applicable to design documents. In this context, logging means identifying on various logs all E&DCRs that have been authorized as changes to specific documents. Posting means writing the E&DCR number on the affected document (Findings K-469, 470, 471).

**a). Significance Generally**

Though LILCO was concerned with the number of observations regarding logging and posting, and though vigorous action was taken to reduce the number of such findings, both NRC Staff and LILCO witnesses concluded that any difficulties with logging and posting have not affected the safety of the plant (Findings K-472 through 477).

**b). Reasons Why Logging and Posting Difficulties Were Not Significant**

E&DCRs are distributed to a large number of people who have installation and inspection responsibility. All of these people would have to be omitted from distribution, or ignore an E&DCR in order for the report to be missed. Additionally, every safety-related E&DCR is included in the Stone & Webster FQC final inspection program. There was only one case where an E&DCR was not implemented in the field; that case was identified during the final FQC inspection and the situation corrected. As a result of multiple levels of checks, it is extremely unlikely that an E&DCR could escape being discovered and incorporated into the plant (Findings K-478 through 483).

**c). Specific Logging and Posting Difficulties**

A variety of logging and posting difficulties was described during the hearing. In Field Audits conducted in 1977, auditors found unsatisfactory attributes in the range of 17-24 percent. Again in early 1980 and in mid-1981 there were more problems, though not as severe, with E&DCR control. Some specific problems uncovered during those audits were:

- Drawings were missing the applicable E&DCRs.
- Certain specifications were not prefaced by all their pertinent E&DCRs.
- Some sampled drawings were not the latest applicable revisions.
- A drawing log did not reflect the fact that certain drawings had been sent to the field nor that certain outdated drawings had been returned or voided.
- One drawing was found in a different location than the records indicated while another drawing found in the field had been superseded.
- Home office change records did not list a large fraction of E&DCRs generated in the field.

- Not all E&DCRs were listed in the weekly summary.
- In a November 1977 audit (FA 654), 39.4 percent of the E&DCRs related to the Courter Company (a piping installation subcontractor) specifications or procedures were missing. (They were not actually missing, they just had not been posted.)
- In the same audit, 37.5 percent of a sample of field drawings were incorrect per the latest available information.
- In a March 1978 audit (FA 718), of 53 Courter drawings reviewed, 56.6 percent had errors.

(Findings K-484 through 500 and 530).

On January 1, 1978, Courter assumed the first line QA responsibilities and Code responsibilities for the direction of the ASME piping on the site. By June 1979, the control of E&DCRs at the site was considered to be generally satisfactory except that the Courter control of E&DCRs affecting specifications was only 91 percent effective. In June 1981, there were some additional Courter problems with logging of E&DCRs (Findings K-531, 536, 552).

Certain Engineering Audits (EAs) also uncovered some E&DCR problems. Some of the special problems were:

- A specification file did not include the required E&DCRs.
- Some specification changes were not listed in the change records.
- A need was identified to revise project procedures to provide for maintaining a change record for E&DCRs which affected manufacturers' drawings.
- The project was not distributing E&DCR change records on a weekly basis as required.

(Findings K-537 through 551).

#### d). Corrective and Preventive Action

Extensive action has been taken to correct the difficulties identified in these observations. In some cases, basic responsibilities were changed. In others, updating of record keeping systems was required. Special training programs also were instituted. Through October 4, 1982, there were 69,946 E&DCRs on the Shoreham project. Not all of these required physical work, but a large number did. The E&DCR implementation program, which was started in July 1976, had verified all but 7886 of the 69,946 by October 4, 1982 (Findings K-501 through 517, 568 through 572).

#### e). Effectiveness of Program

The quality assurance program and the procedures used by LILCO and its agents in these audits and inspections indicate that these types of logging and posting difficulties were and are being captured by the program. Thus, the program is effective and there has been no breakdown. LILCO's and Stone & Webster's audit programs identified these conditions, appropriate management attention was given, and extensive corrective action was implemented (Finding K-573).

#### 2). *Additional Uses and Clarifications*

The E&DCR system also is used to document or control certain unique situations which previously had not been procedurally addressed. For example, the system has been employed to control changes and provide feedback to manufacturer documents such as drawings and instruction manuals (Findings K-574 through 581).

#### 3). *Missing from Files*

Audits uncovered three instances where E&DCRs or specifications were missing from the files. The probable reason they were missing is that someone was using the documents to perform work. There were no significant conditions adverse to quality and this situation does not constitute a pattern of programmatic significance (Findings K-582 through 588).

#### 4). *Timeliness*

Three audits contained observations concerning the timeliness of receipt of certain E&DCR documentation. The items involved here were the master computer log, the change records, and incorporation of E&DCRs into the parent documents. Appropriate action was taken for each item.

Though timeliness may be important in that field work may be delayed or not completed in the preferred sequence, it is not significant from a safety standpoint for a variety of reasons (Findings K-589 through 594).

#### 5). *Miscellaneous Construction and Engineering Items*

The observations in these categories involve several random events, spread over time, which occurred at both the construction site and



within Stone & Webster's Boston organizations. These events include items such as a failure to cross-reference one E&DCR to another, E&DCR change records not being sent to Procurement Quality Assurance, a resident engineer approving changes beyond his authority, and a review of the status of the E&DCR implementation verification program. The conditions observed in these observations and recommendations had no effect on the integrity of the design or construction of the plant nor do the events reflect any concerns of programmatic or safety significance, since they are random (Findings K-595 through 600).

*e. Storage*

*1). Background*

10 C.F.R. Part 50, Appendix B, Criterion XIII sets forth basic requirements for storage, receiving and handling of materials and equipment during the construction phase. ANSI N45.2.2, 1972, as endorsed by Regulatory Guide 1.38, provides further guidance on storage, receiving and handling. As stated in Appendix 3B of the FSAR, Shoreham complies with ANSI N45.2.2, 1972, with the exception of some items and procedures which predated Regulatory Guide 1.38 (Finding K-601).

LILCO identified seven audit findings in the storage/housekeeping area where, in its opinion, damage was sustained. The damage in these cases was caused by things that happened during the construction process, and it is not reasonable to expect that there will not be some such damage (Finding K-603).

Beginning in 1976, LILCO QA management decided to review the major safety-related activities at Shoreham more frequently than just as provided in the audit program. Accordingly, LILCO instituted a formal surveillance program related to welding, mechanical, electrical and instrumentation disciplines. As a result, more than 9000 attributes were verified, with the program identifying about 160 unsatisfactory items (Finding K-605).

The LILCO surveillance program also covers electrical cable installation, electrical terminations, welding material control, welding performance, pressure testing, welding procedures and welder qualification. In the storage area relating to electrical, mechanical and instrumentation items, 2500 attributes were looked at. Of the 2500 storage attributes, 108 unsatisfactory items were found. Fifty-two unsatisfactory items were identified and verified in verifying the other 7000 attributes (Finding K-607).

With respect to all storage surveillances, combining electrical, mechanical and instrumentation, the following results were achieved:

<b>Category</b>	<b>Percentage of Attributes Unsatisfactory</b>
Environmental Protection	9.85
Storage History Card	6.04
Dunnage	15.21
Internal Heaters	11.90
Visible Damage	4.71
Tubing Free from Damage	9.23
Identification	2.99
Openings Cap	12.64
Other	0.50
Total	4.33

(Finding K-619)

Audits related to the storage program fell into the four general categories: (1) storage history cards, (2) protection against weather, (3) covers and caps for material and equipment and (4) environmental protection (Finding K-612).

## 2). *Storage History Cards*

LILCO's storage history cards are part of a program to comply with the following ANSI N45.2.2 requirement, "[w]ritten records shall be prepared that will include such pertinent information as storage location, inspection results, protection, and personnel access." These cards are also part of LILCO's overall program designed to comply with Appendix B, Criterion XIII (Finding K-621).

During construction of Shoreham, there were more than 2500 storage history cards. Twenty-three audit observations selected by the County involved these cards. No identifiable pattern of problems was found in these observations; the observations identified random discrepancies (Findings K-623 through 627).

Concerning the storage history card problems reported in the field audits and FQC audits, LILCO testified that corrective action had been taken (Findings K-628 through 630, 634).

The audit observations in the storage history card category did not identify any damage or suspected damage (Finding K-635).

### **3). *Protection Against Weather***

LILCO has procedures to ensure that potential deterioration due to water is prevented, or is minimized to the extent possible (Finding K-636).

Thirty-two observations selected by the County involved protection against weather. For each instance identified, corrective action was taken and in no case was any equipment damage reported (Findings K-638 through 645).

### **4). *Covers and Caps***

During plant construction, a number of instances of missing covers and caps on equipment were noted, especially by Staff I&E inspectors. The purpose of these covers and caps is to prevent entry of dirt and moisture and to protect the equipment from physical damage. Forty-one observations by the County involved this area of covers and caps. Audit follow-up and the experience of LILCO witnesses indicated that the covers and caps were not properly in place generally because work was being performed on the particular materials or equipment. However, even for those which might have gone undetected in audits, there would have been no effect on the quality or integrity of the plant since other audits and inspections would have detected problems. There were no overall or recurring patterns of missing caps and covers, particularly in view of the numbers of such caps and covers at the site. Corrective action was taken where appropriate for each instance identified in the observations relating to covers and caps (Findings K-646 through 672).

### **5). *Environmental Protection***

Quarterly QA Reports for Management from May 1980 through December 1981 identified problems related to environmental protection of installed equipment. Twelve observations selected by the County involved environmental protection. Half of these involved temporary heaters for stored equipment. For each instance identified in the 12 observations, corrective action was taken. The NRC Senior Resident Inspector reported that though he believes LILCO could have expended more effort in this area and could have had a more effective program, LILCO's effort was adequate from a regulatory and QA standpoint (Findings K-673 through 702).

## ***f. Housekeeping***

Numerous instances of unsatisfactory housekeeping situations (e.g., debris, construction worker lunch litter) were discussed during the hearing. Some of these situations resulted in violations of 10 C.F.R. Part 50, Appendix B. Though the LILCO witness testified that the housekeeping conditions were typical of such a large-scale nuclear construction project, the NRC Staff witness felt that the amount of dirt and the disorderly nature of the Shoreham facility were somewhat greater than the Staff would have expected. Both the NRC Construction Assessment Team (CAT) and the Senior Resident Inspector had concerns, sometimes repeated concerns, in this area. Despite these concerns, Staff witnesses testified that unsatisfactory housekeeping conditions did not directly affect the operability of plant equipment, and the NRC inspectors have not encountered any situations where cleanliness conditions have resulted in a safety problem. The Staff concluded that in general LILCO's housekeeping is adequate (Findings K-703 through 750).

Late in plant construction, the NRC Readiness Assessment Team (RAT) inspected the project. Their report listed several unacceptable conditions and indicated that housekeeping was not acceptable at Shoreham. As a result of the RAT inspection, LILCO committed to NRC to undertake specific measures regarding correction and prevention of housekeeping deficiencies (Findings K-751 through 759).

The County attempted to establish the existence of a poor management attitude by LILCO with respect to QA (Finding K-763). The County's consultant, Mr. Hubbard, was asked by the Board why the housekeeping deficiencies discussed by the County during cross-examination of LILCO are significant from a QA/QC point of view. He thought the findings related to litter and debris are significant because of the potential for damage to plant equipment resulting therefrom. He also found the deficiencies significant because they constitute repeated violations of regulatory provisions. Regarding housekeeping/storage-related deficiencies, Mr. Hubbard stated that these are indicative of management failure to ensure full implementation of the Shoreham QA/QC program (Findings K-760 through 766).

The Board notes that on January 19, 1983, the NRC Staff issued a Confirmatory Action Letter to LILCO requiring it to improve the site housekeeping conditions. CAL No. 83-01. As a direct result of this order, LILCO, in a letter of February 25, 1983, committed to making the necessary improvement in its program to resolve the questions raised and to meet the requirements of the CAL.

The Board was concerned, during the course of the hearing on QA matters, that LILCO's policy on housekeeping, deferring until near con-

struction completion serious efforts to control debris, litter, etc., would lead to potential safety questions. In the light of recent Staff and LILCO actions to improve this policy, and in the absence of any identified safety questions, we find the housekeeping problems at Shoreham to be adequately resolved.

***g. Manuals Updating***

According to 10 C.F.R Part 50, Appendix B, Criterion V, activities affecting quality must be prescribed by documented instructions, procedures or drawings. LILCO's requirements are that the latest revision of documents be used for work and that the final inspections and procedures developed for the plant must use the latest information. The Staff cited LILCO for violation of Criterion V because, in 1979, six engineering QA procedures had not been updated for more than one year, a failure to follow LILCO's own internal procedures. The Staff witness reported that there was no recurrence of this problem (Findings K-770 through 775).

Similar type problems were also experienced in 1981 with the Startup Manual. Follow-up by the Staff in 1982 resulted in the finding of another violation related to the Startup Manual. With respect to keeping manuals up to date, Appendix B, Criterion VI is relevant. Though there seems not to be agreement between LILCO and the Staff on whether there was an actual violation of Criterion VI, the Staff commented that the problems resulted in no adverse effects on the conduct of the startup program (Findings K-776 through 786).

Taking into account unavoidable delays in keeping documents current and the lack of current problems in the area, the Board concludes that LILCO complies with Commission requirements in this area.

***h. FSAR Control***

The FSAR contains LILCO's commitments regarding regulatory requirements and also contains a significant amount of descriptive material in addition to those commitments. As design changes are effected during the construction phase, LILCO has a requirement to keep the FSAR current as to regulatory commitments. Both SWEC and LILCO have specific procedures (SWEC procedures are called project procedures) by which changes that are involved in the design process, after submittal of the FSAR, are identified and tracked for inclusion in the FSAR (Findings K-787 through 789).

A variety of opinions on this subject was expressed by the various parties during the hearing. For example, the County's consultant, Mr. Hubbard, considers the FSAR to be part of the design control process while the Staff stated that the FSAR is not the detailed design document from which plant features are actually installed, but it does set forth design criteria and commitments (Findings K-790 and 791).

SWEC Audits and Staff inspections identified discrepancies between the FSAR and the actual situation (Findings K-792 through 795).

To bring the descriptive detail of the FSAR to the level of accuracy requested by NRC, LILCO is using a program called the Shoreham Plant Configuration Review Program (SPCRP). The NRC Staff intends to review the results of this program and will perform final walkdowns to compare actual as-built plant with the system which has gone through the SPCRP review. This final Staff review is expected to take place before fuel load. Any deviation between the as-built plant and the FSAR which is identified and which is not already included in a scheduled change to the FSAR would be considered by the Staff to be a deviation from an FSAR commitment (Findings K-796 through 818).

Recognizing the nature of the FSAR and LILCO's additional efforts to comply with Staff requirements, the Board concludes that LILCO does, or will prior to fuel loading, comply with Commission requirements.

#### *i. Electrical Separation*

Questions of adequate separation of Class IE and non-Class IE electrical cables go back to I&E Report 77-05 dated April 7, 1977. The separation criteria require one-inch horizontal and one-foot vertical separation between the two types of cables. Violations of these criteria were found by NRC Inspectors on several occasions. Under questioning by the Board, Staff witnesses agreed that if the specifications were not complied with, this would be a violation of Appendix B. However, the Staff agreed there was some question as to which QA criteria should be applied to the inspection of cables and raceways (Findings K-833, 836 through 839, 844).

NRC inspectors noted problems with another aspect of the cable separation question. That was in the area of nonconformance repetitions. This seemed to be a violation of Appendix B, Criterion XVI, Corrective Action. This constituted a design control problem (Findings K-840 through 843).

According to Staff witnesses, the QA/QC problems in the electrical separation area ended with I&E Inspection Report 82-24. Even though

an additional nonconformance is described in that report, it was not considered to be a violation since the item was involved in the overall final program that was still taking place (Finding K-845).

According to Staff testimony, the electrical separation problem is one that is found at essentially all construction sites. However, these witnesses were divided on whether Shoreham problems were normal or greater than at the average site (Findings K-846, 847).

Noting the lack of current problems in electrical separation and LILCO's several programs in this area, the Board finds LILCO to comply with Commission requirements.

#### ***j. Welding***

An increase in welding violations in early 1978 that continued into July 1979, prompted I&E to ask LILCO to review its welding activities (Finding K-852).

As of May 1982, the Staff had inspected welding during 38 inspections and 2 investigations and found 16 violations. The Board questioned whether any of these 16 violations would have been considered to produce an unacceptable weld if the violation had not been discovered. The Staff discussed four specific items and commented in general that it did not appear that any subsequent licensee program would have identified the violations. Nor could Staff tell whether the violations would have led to a nonacceptable situation. Later, the Staff commented that it is very improbable that an unacceptable weld will escape detection (Findings K-853, 854). We also note that structural steel welds are usually far oversized compared to what is necessary for the loads. Tr. 16,942 (Gallo).

Despite the number, and acknowledging the wide diversity and relatively minor nature of the deficiencies discussed in this section, the Board concludes that the LILCO and Staff QA/QC programs as applied to Shoreham have resulted in plant design, construction and installation that will provide reasonable assurance of no undue risk to the health and safety of the public.

### **8. The Staff's Inspection of Shoreham**

#### ***a. General***

The County's witness questioned the comprehensiveness of Staff review of the QA program to see that the program has been implemented in accordance with PSAR requirements. He also expressed concerns

about the adequacy of the Staff's Systematic Assessment of Licensee Performance (SALP) review of Shoreham, especially in terms of having baseline criteria with which one plant can be compared to another (Findings K-858, 859).

The Staff commented that the NRC inspections during the period 1973-82 showed no pattern of QA/QC breakdowns and that the primary areas of concern identified in the inspections as requiring management attention have been storage, welding, and design controls (Findings K-860, 863).

#### ***b. I&E Program Description***

The NRC Inspection and Enforcement (I&E) program is a predefined and systematic program for inspecting the major phases of a nuclear plant construction project. These major phases include the construction and preoperational phases. Inspection of the construction phase was conducted by a project inspector and by technical specialists. Inspection of the preoperation phase also was conducted by a project inspector until September 30, 1979, when a resident inspector responsible for preoperational program inspections was assigned to the site in line with a nationwide program for assignment of resident inspectors. Technical specialists also inspected preoperational activities during this period (Finding K-864).

Inspection findings are documented in inspection reports. Findings classified as violations of regulatory requirements are reviewed by NRC Region I management to verify that the proposed enforcement actions are appropriate. Inspection of licensee activities found to be acceptable are intentionally reported briefly, while violations and other concerns requiring resolution are reported in much more detail. Many activities inspected and found to be acceptable are not reported at all in the inspection reports (Finding K-865).

The I&E Program from 1973-82 included 146 inspections and 3 investigations. Each major plant activity was inspected a number of times. For example, welding was examined during 40 inspections, electrical work during 18 inspections and instrumentation during 20 inspections (Finding K-866).

In addition, Region I of NRC annually reviews and evaluates each licensee's performance in important functional areas through the SALP process to determine if any patterns or programmatic breakdowns exist (Finding K-869).

If violations are serious enough at a facility under construction, the work in the affected area will be stopped by NRC. This action has not



been required at Shoreham. All violations are reviewed with licensee management and follow-up is reported in subsequent inspection reports (Finding K-870).

With respect to the Shoreham QA/QC program, NRC inspections are designed to verify that this program is effective. The NRC inspection program has identified no pattern of QA/QC breakdowns (Finding K-871).

A number of inadequacies in the quality assurance/quality control program have been discovered at the Diablo Canyon, Zimmer, Midland and South Texas plants. No similar inadequacies or deficiencies have been found to exist at Shoreham. Nevertheless, the NRC has taken actions relative to the quality assurance concerns faced at these other plants (Finding K-872).

The NRC I&E program continues throughout the life of the facility and includes physical inspection of operations, structures and components, thus providing continuing assurance of compliance with regulatory requirements (Finding K-875).

The NRC inspection effort is the last in a series of inspections performed by many different groups. The NRC examination is to determine that the licensee and contractor quality assurance programs are properly implemented. By this technique, a relatively small sampling inspection by the NRC can provide timely insights into the performance of the licensee and contractor quality assurance programs in assuring the quality of the nuclear power plant. Additionally, the NRC I&E program relies on experienced and highly trained professionals using sound technical judgment to select suspected licensee weak areas for review.

The NRC employs specialist inspectors to conduct inspections in specialized areas at construction and operating sites. The project inspector or resident inspector is normally more of a general inspector who probably is involved in all of the areas, but does not necessarily have quite the same depth of experience in any particular area. County witness Mr. Hubbard agreed that the I&E personnel who audit Shoreham are competent and dedicated. He had no evidence to indicate they were not well trained (Findings K-877 through 879).

Quality assurance programs of architect-engineers and other vendors are reviewed by other people within NRC, specifically those assigned to Region IV (Arlington, Texas). Region IV provides a periodic summary of its findings to Region I. Most management personnel in Region I review this summary and, if something specific or significant appears, it is brought to the attention of the SALP board. NRC witnesses were not aware of any significant issues from these Region IV inspections that affect Shoreham (Findings K-881, 882).

With respect to design reviews, the majority of these are performed by the NRC Office of Nuclear Reactor Regulation (NRR). NRR reviews primarily the FSAR but also asks questions of the licensee to support its review. Staff witness Higgins testified that he has performed reviews of the design areas on site, including review of E&DCRs, some review of the site Engineering Office and review of system designs from a system standpoint. Also, NRC I&E has particular inspection requirements for resident inspectors to inspect or review particular systems' as-built status against FSAR design (Findings K-887 through 891).

In addition to inspections, at the time the record was closed NRC I&E personnel have conducted three investigations of public allegations at Shoreham. These investigations were vigorous and thorough in order to satisfy the NRC I&E and the public concerning the validity or invalidity of the allegations. None of the allegations in any of the investigations were substantiated (Finding K-895).

Suffolk County witness Mr. Hubbard testified that in his opinion there was virtually no in-depth review of the implementation of the design process at General Electric and Stone & Webster, the designers of Shoreham's safety features, and that this was a significant omission in the Staff's NRR and I&E program reviews. NRC I&E distinguishes between control of design and implementation of the design and has separate inspection procedures for these two areas. Significantly more inspection procedures exist in the design implementation area than in the design control area. Staff witness Gallo testified the gap in this area referred to by the County has been closed, particularly by NRR in-depth review of particular codes and standards and by NRR review of design detail (Findings K-874 through 876).

NRC Staff witnesses testified that inspections at Shoreham showed no pattern of QA/QC breakdowns. Review of the violations cited in these inspections also revealed no such pattern. Although NRC encourages licensees to strive to achieve 100 percent compliance with regulatory requirements, that is extremely difficult to achieve. The NRC expects to find nonconformances and noncompliances. Review of all violations from Construction Permit issuance until June 1982 revealed that proper corrective actions were generally taken, and that there was no cause for concern or additional investigation (Findings K-901 through 904).

County witness Mr. Hubbard contended that a major concern raised from the review of I&E findings at Shoreham was the fact that the majority of the violations fell into a few concentrated areas. That is, they were repeated violations of the same criteria of 10 C.F.R. Part 50, Appendix B, indicating a failure of LILCO and I&E to take appropriate actions once deficiencies were found. The NRC Staff has looked at many

different ways of counting violations, and has found such "bean" counting to be essentially meaningless (Finding K-910).

The NRC has used at least three systems of defining violations of Appendix B by licensees. The current system is the enforcement policy in 10 C.F.R. Part 2, Appendix C, which defines five severity levels with Severity I being the most severe and Severity V the least severe. Severity Level I and II violations are of very significant regulatory concern. Severity Level III violations are cause for significant concern. Severity Level IV violations are less serious but of more than minor concern and Severity Level V violations are of minor safety significance. LILCO had never been charged with a Severity Level I, II, or III violation under this enforcement policy at the time of the hearing. The NRC had never imposed an escalated enforcement action or civil penalty with respect to Shoreham at the time of the hearing (Findings K-912, 918).

On April 12, 1983, however, the NRC-Staff issued a "Notice of Violation and Proposed Imposition of Civil Penalty," EA 83-20, involving the performance of a preoperational test of a diesel generator. This was designated a Level III violation and a civil penalty of \$40,000 was proposed.

When I&E identifies a condition that requires management attention, the utility is formally notified in an inspection report transmittal letter and requested to describe the actions taken or planned to resolve the concern. If necessary, an enforcement meeting is held with the utility's management to discuss the problem and the proposed corrective action. Implementation and results of corrective actions are followed up by I&E during subsequent inspections. Various types of escalated enforcement actions are available if needed. These include civil monetary penalties, orders to modify, suspend or revoke a license, orders to cease and desist from a given practice or activity and orders to take such other action as may be proper (Finding K-915).

Of the 73 violations cited at Shoreham from April 1973 to June 1, 1982, 37 were isolated deficiencies in diverse disciplines controlled by a number of separate organizations. They showed no evidence of repetitive or programmatic failure, nor was there a concentration of violations in any one discipline.

The 36 remaining violations cited at Shoreham through June 1, 1982, were identified to be in four areas: equipment storage conditions with 11 violations, welding with 16 violations, design control with 7 violations and Startup Manual control with 2 violations. These areas did require and receive additional management attention. Gallo, *et al.*, Staff Ex. 8, at 12. Nineteen additional inspection reports were issued from June 1, 1982, to December 1, 1982, including eight additional violations. Only

one of these fell into the above four areas, that being design control (Findings K-919 and 921).

A detailed analysis of all violations issued to Shoreham through December 1, 1982, reveals no pattern of quality assurance/quality control breakdowns. Each violation was reviewed by I&E at the time it was issued to determine its significance and any aspects of recurrence. Periodic reanalysis was also performed by I&E to determine if any patterns existed which had not been detected at the time of any given violation. Only four individual areas were identified over the last nine years which required further management attention. These areas were not indicative of a pattern of quality assurance/quality control breakdowns. A further review performed by I&E in preparation for the Shoreham hearing revealed no other problem areas (Finding K-940).

The NRC I&E program has reviewed a broad spectrum of activities at Shoreham and has found the great majority of activities inspected to be acceptable. The simple identification of violations does not imply a pattern of breakdowns. When viewed in the context of the total number of activities reviewed, the violations clearly become isolated instances or problems (Finding K-941).

The County alleged, as examples, that NRC Inspection Reports 50-322/79-05, 80-03, 80-06, 80-08, 80-14 and 81-02 do not indicate what changes were made to correct for failures that have occurred, and thus it is not possible to judge the adequacy of the corrective actions. The NRC witnesses testified that this type of information is included in subsequent inspection reports (Finding K-942).

### *c. CAT Inspection*

The purpose of the NRC Staff's Construction Assessment Team (CAT) inspection in February 1982 was to compare the completed construction and physical installation at Shoreham with regulatory commitments and engineering and design documents. The CAT inspection did not attempt to systematically verify that the design documents were consistent with the design criteria. The inspection involved physical inspection of the residual heat removal (RHR) system, comparing the as-built installation flow diagrams, logic diagrams, construction diagrams and other design and engineering information against the plant's as-built condition (Finding K-944).

In the CAT inspection, the NRC Staff identified many items as violations of Appendix B criteria, deviations from FSAR commitments, observations regarding weaknesses and other observations about nonconformances and discrepancies which were observed by the CAT

inspectors. Mr. Hubbard testified that CAT identified 43 problems which he termed to be QA/QC "breakdowns." As mentioned earlier, there was considerable discussion during Mr. Hubbard's examination concerning what he meant by the term "breakdown." In this context, the word "breakdown" means a failure to meet a requirement. For example, if someone does not follow a particular step in a procedure and is cited in an audit for said nonperformance, that would constitute a breakdown. Every audit finding or surveillance finding would be a breakdown as Mr. Hubbard uses the word. Breakdowns, as used in Mr. Hubbard's testimony, have varying degrees of significance (Findings K-945, 946).

Mr. Hubbard believes that the CAT inspection is important because it provides a sample of the plant that has already had normal inspections, audits, surveillances and I&E review. In a sense, that sample of plant operation has passed through many "gates." Nevertheless, he asserts many items passed through undetected. If the proper QA/QC program had been established and implemented prior to this time, according to Mr. Hubbard, many of these deficiencies should have been detected earlier. However, the Staff testified that it did not consider that as a result of the CAT findings there were major problems with the FSAR. In fact most of the FSAR design details were correct and accurate and, during the CAT inspection, were simply in the process of being updated by Applicant (Findings K-947, 949).

The CAT inspection involved system walkdowns of essentially 100 percent of the residual heat removal system. The RHR system was selected because it was one of the most safety-significant systems. This system is the largest in the plant, containing 30-40 percent of all plant piping (Finding K-954).

The inspection results were summarized by the inspectors as follows: The RHR system and those portions of support systems inspected were built as described by drawings and specifications, with only minor discrepancies between drawings and piping. The inspection identified four apparent violations of requirements of Appendix B, the Commission's quality assurance regulations. These are the only violations of Appendix B alleged in the inspection report. There were, in addition, eight items noted as deviations from FSAR commitments but not violations of Appendix B, four observations on areas of weakness in LILCO's Quality Assurance Program as applied to the RHR system, and six unresolved items (Finding K-957).

These results were reviewed as part of the 1982 Systematic Assessment of Licensee Performance (SALP). The SALP inspection report

reviewed the CAT inspection as one of 12 principal areas of licensee activity within its scope. The SALP report summarizes the findings of the CAT inspection, and then characterizes them as follows:

Management involvement in assuring quality was evidenced by explicitly stated procedures and policies, well-maintained and available records, a working corrective action system, decision-making with adequate management review and design activities well controlled and verified by QC inspection. The installed piping and wiring conformed to drawings and specifications. Documents, drawings and technical materials were readily available and carefully controlled. No inferior workmanship was observed. The NRC inspection team identified very few exceptions to this assurance of quality. Several minor discrepancies and two of the violations were corrected by the licensee prior to completion of the inspection.

(Finding K-958).

Of the four apparent violations observed by the CAT inspection team, two were in Severity Level IV and two in Severity Level V (Finding K-959).

The first apparent violation in the CAT inspection report involves a one-inch diameter high pressure coolant injection steam drain line penetrating primary containment and connecting directly to the containment atmosphere with only two simple check valves outside containment for isolation. General Design Criterion 56, 10 C.F.R. Part 50, Appendix A, requires, in pertinent part, that each line that connects directly to containment atmosphere and penetrates primary containment shall be provided with containment isolation valves, and that simple check valves may not be used as the automatic isolation valve outside containment (Finding K-960).

LILCO noted that the valves in question were correctly depicted on a figure in the FSAR, although not incorporated correctly into the text. LILCO pointed out that this particular deviation from the literal terms of General Design Criterion 56 was found on many other BWRs as well and found acceptable on them, and argued that the question was one of design rather than a quality assurance violation. The question of the design was referred to NRR, which found LILCO's design acceptable (Finding K-961).

The second apparent violation cited by the CAT team involves an alleged failure, also regarding Criterion III of 10 C.F.R. Part 50, Appendix B, to translate regulatory standards into specifications, drawings, procedures and instructions. It involves implementation of the requirement that protection systems include means for manual initiation of each protective action at the system level. The question involves the sufficiency of the manual initiation circuitry for the Low Pressure Coolant Injection (LPCI) system and the Reactor Building Closed Loop Cooling Water

(RBCLCW) system to fulfill the FSAR commitment to meet the provisions of Regulatory Guide 1.62. The CAT inspection team believed that the manual initiation circuitry for the LPCI was deficient in that it did not start and assure correct valve position for certain LPCI auxiliary systems, and in that the RBCLCW system did not contain any system level manual initiation. This was characterized as a Severity Level IV violation. The matter was referred to NRR for disposition. The Staff agreed that this apparent violation involved a disagreement at a "fine level of detail in one particular area" of Regulatory Guide 1.62, and not a QA failure of LILCO to take the provisions of the regulatory guide into account (Findings K-962, 963).

The third apparent violation reported by the CAT inspectors involved the observation that one of the struts for a pipe support in the RBCLCW system was at least five and one-half degrees out of vertical alignment, in excess of the design tolerance of four degrees. This was perceived to be a violation of 10 C.F.R. Part 50, Appendix B, Criterion II, and was labeled a Severity Level V violation. The violation was corrected prior to completion of the inspection (Finding K-964).

The fourth CAT violation involved the observation of fire hazards in the fuel oil transfer rooms and in the emergency diesel generator rooms, and the accumulation of excess material and dirt in the screen well pump house. These conditions were seen as examples of inadequate housekeeping and fire protection and were cited as apparent violations of 10 C.F.R. Part 50, Appendix B, Criterion V, and of established cleanliness procedures. They were given a Severity Level V classification. The conditions observed were corrected prior to completion of the inspection (Finding K-966).

The other items from the CAT inspection, *i.e.*, eight deviations, four areas of QA weakness, and six unresolved items, were also discussed during the hearing. Appropriate action was or will be taken on each of these items (Findings K-967 through 980).

In Mr. Hubbard's view, the asserted breakdowns at Shoreham cast substantial doubt on the safe design and construction of Shoreham though he agreed that under his definition of breakdown every plant in the country has had QA breakdowns "literally by the tens or hundreds." Mr. Hubbard also stated his belief that the NRC concurred in his belief that every plant in the country has had QA breakdowns using Mr. Hubbard's definition of the term. Staff witnesses did not agree with Mr. Hubbard's characterization of the results of the Shoreham CAT inspection. The Staff witnesses stated that they did not believe that any of the 43 items listed by Mr. Hubbard in his testimony are quality assurance/quality control breakdowns. The only items for which LILCO was

cited for violation by the NRC Staff were the four items listed in Appendix A to the CAT Inspection. None of these violations was more severe than Severity Level IV and thus none of them corresponded to a "QA breakdown" as defined by the Commission's regulations at 10 C.F.R. Part 2, Appendix C, which are confined to Severity Level II and I events. The Staff disagreed with Mr. Hubbard's characterizations of items cited in the CAT report as "QA breakdowns" (Findings K-981 through 984).

Mr. Hubbard, on questioning by the Board, agreed that his factual knowledge base generally started with the facts found by the Staff in the CAT inspection, and he had no factual information that would have led him to doubt the Staff's findings. Tr. 15,642 (Hubbard). By contrast, the discussion of the significance of CAT findings in the questioning of Staff witnesses is rife with reference to technical circumstances including design features, stage of construction, and the like, indicating that quality assurance judgments cannot be made in a vacuum (Finding K-985).

#### *d. NRC Design Review*

The County's consultant, Mr. Hubbard, expressed the opinion that the problems with I&E's program for inspection of vendors and architect-engineers are two-fold. First, I&E does not inspect frequently enough and, second, I&E primarily looks at implementation procedures rather than actual calculations or implementation (Finding K-991).

The Staff reviewed their inspection program for vendors and architectural engineers. I&E Region IV does the inspections of GE and SWEC. In the course of these inspections, the inspectors review audits performed, for example, by SWEC's Boston office. These reviews are performed several times yearly and the inspection results are provided to and reviewed by Region I (Findings K-995, 996).

In the design area, I&E also monitors and audits the Engineering and Design Coordination Reports (E&DCRs). Details of this I&E effort were also provided (Findings K-997, 998). *See also* Section II-K.8.b., above.

Judgments as to emphasis and scope of the NRC inspection program are matters of professional opinion. The County has failed to demonstrate that the I&E inspection program does not meet Commission requirements.

#### *e. Statistics*

The County believes that NRC's I&E program should provide verification that systems, structures and components (important to safety) are



designed, manufactured, installed and operated in strict accordance with applicable QA/QC requirements (Finding K-1020).

The County also believes that the NRC Staff's expenditure of 7,000-10,000 man-hours on the project was not structured to allow for extrapolation from the I&E data to conclude that the program had been effectively implemented. Mr. Hubbard testified that he is more concerned that the I&E program focuses almost entirely on safety-related activities. Accordingly, he believes: (1) the scope of the program is too narrow, (2) the I&E program is not based on random sampling, (3) the program does not use statistical methodologies for extrapolation, and (4) the program might have been adequate if the program scope were broadened and statistical methodologies utilized (Findings K-1025, 1029).

LILCO testified that its audit program does not audit 100 percent of the QA items and records but that the program audits a sample of items to develop conclusions about the overall effectiveness of the QA/QC program. In LILCO's view statistical sampling techniques are not appropriate with respect to an audit program. Under LILCO's auditing methods, audit findings or observations are based on judgment sampling techniques (Findings K-1030, 1031).

The Staff, like LILCO, believes that the use of such statistical methodology (as proposed by County) is not required. The Staff does not use statistical methods for selecting samples for audit or inspection (Finding K-1035).

The Board notes that there were some semantic difficulties among the parties on this subject since judgment sampling also is an accepted technique in the field of statistics. In any event the Board agrees that LILCO and Staff methods are appropriate and clearly meet the Commission's requirements.

#### ***f. RAT (Readiness Assessment Team) Inspection***

##### ***1). Introduction***

On January 10-15, 1983, NRC I&E Region I conducted a special unannounced Readiness Assessment Team (RAT) inspection of Shoreham in the areas of construction, preoperational testing, operations, plant operational staffing, NRC Staff bulletins and circulars, organizational interfaces, facility tours, housekeeping, physical condition of the plant and LILCO's action on previous inspection findings. Daily tours of the plant were conducted during the inspection. The purpose of the inspection was to determine the operational readiness status for Shoreham.

The RAT inspection, involving 465 inspector hours on site, was conducted by eight NRC inspectors, the NRR Project Manager and IE managers. Following this inspection, the Staff concluded that a number of areas required resolution by LILCO before it could be determined whether Shoreham is ready for an operating license (Findings K-1038, 1039).

Based on the RAT inspection, four Severity Level IV violations and unacceptable housekeeping conditions were identified (Finding K-1045).

LILCO's response to the RAT inspection report had not been reviewed by the Staff at the time of the hearing. Therefore, no evidence was presented by the Staff regarding the response (Finding K-1046).

2). *LILCO Reliance on the QA/QC Final Inspection Program to Identify Construction Deficiencies*

The Staff's inspection of the construction areas indicated that additional LILCO attention is needed in the area of final system inspections. Their concerns relate, in part, to the RAT inspection findings and the fact that construction discrepancies were identified even though items or components had been final inspected and accepted by the Shoreham QA/QC program (Findings K-1047, 1048).

High rejection rates by FQC were a concern to the Staff in that the Staff believed that the construction items coming over for acceptance should receive attention on the front end, and that LILCO should not rely so heavily on the final inspections to catch everything (Finding K-1050).

Because of these concerns, LILCO agreed to initiate certain measures to improve the quality and effectiveness of both construction activities and FQC final inspections. For example, there is to be FQA re-inspection of a sample of FQC-inspected components. Two discrepancies identified by FQA at the time of the hearing have led Staff to decide that it will evaluate further the FQC final inspection program (Findings K-1046, 1052).

After the RAT inspection, it was still the opinion of the NRC Senior Resident Inspector at Shoreham that there have been no programmatic QA breakdowns (Finding K-1062).

3). *Violation A — Control Rod Drive Piping Supports, Pipe Hangers, and Cable Tray Supports*

The Staff cited LILCO for a Severity IV violation for failure to provide adequate verification of completed construction in the areas of Control

Rod Drive (CRD) piping supports, pipe hangers, and cable tray supports. These three areas all involved completed construction that was not in conformance with the drawings. The construction had been final inspected and accepted by QC prior to the RAT inspection (Findings K-1064, 1066).

The first area, CRD piping supports, involved welds which were completed with fitup gaps even though the design drawings did not specify a gap. Though there was some ambiguity of opinion regarding whether fitup gaps are allowable, it seemed clear to Staff that the weld involved did not meet design drawing requirements. Corrective action involves 100 percent reinspection of all similar and related pipe support welds (Findings 1066 through 1072).

The second area, RHR pipe hangers, refers, in part, to a situation where two bolts specified to be "hand tight" required a significant amount of force to remove. Investigation revealed that it was likely that part of the reason for the problem was oxidation. The Staff thought this explanation to be plausible. In any event, an engineering review showed that the support would still have functioned properly even though more than "hand tight" (Findings K-1073 through 1076).

Also discovered in certain RHR pipe hangers was a condition in which there was not full contact between the lugs welded to the pipe and the pipe clamps supporting the pipe. Though the situation is acceptable from an engineering evaluation viewpoint, the situation did not meet the specifications and represents an inspector error. All similar supports are being reinspected (Findings K-1077 through 1079).

The final area of Violation A resulted from the Staff's inspection of nine cable tray supports which had received final QC inspection. Four of these cable tray supports did not conform to the applicable drawings. The discrepancies were in the location or orientation of certain braces. Appropriate action was being taken to bring construction in conformance with design (Findings K-1083 through 1105).

#### 4). *Violation D*

Three nonconforming conditions in the "A" diesel generator turbocharger support installation comprised Violation D. Specifically, the conditions were: (1) an unsatisfactory weld, (2) use of an unqualified welding technique, and (3) bolting installation at variance with American Institute of Steel Construction (AISC) Code. These conditions had been final inspected and accepted by OQA at the time of the RAT inspection. Corrective action was taken by LILCO, but the Staff was not willing to draw any conclusions with respect to the overall adequacy of the OQA

inspection program since it had not completed its review of LILCO's response to Violation D (Findings K-1108 through 1120).

*5). Violation B*

During the RAT inspection, the cold set conditions of several spring hangers were inspected. Two hangers were found not to have been adjusted, though the plant Master Punch List (MPL) indicated otherwise. LILCO subsequently established an additional program to control and document the cold set conditions of hangers. The Staff believes from its initial review that it has received the additional commitments it looked for (Findings K-1119 through 1123).

*6). Violation C*

This violation involved administrative controls, including control of work on safety-related items following FQC inspections. As a result of this violation, LILCO FQC has initiated a tagging procedure that requires the tagging of structural items which have received FQC inspections. The NRC witness stated that this response probably would be acceptable (Findings K-1124 through 1127).

*7). Plant Housekeeping*

At the time of the RAT inspection, the Staff determined that plant housekeeping was still not acceptable. *See also* Section II-K.7.f., above. This was indicated by free-standing water, problems with corrosion, accumulated trash and litter, debris in cable trays and on top of equipment and an "overall prevalent attitude among site personnel of inattention to housekeeping." LILCO's view was that it is more efficient to postpone final cleanup until the remaining construction activity is closer to completion. The Staff disagreed and issued Confirmatory Action Letter 83-01 to obtain prompt and effective corrective action. The Staff's view is that assuming LILCO's programs stay on track, there is no need for any additional LILCO attention (Findings K-1134 through 1136).

*g. Important to Safety*

The County's consultant, Mr. Hubbard, testified that LILCO should identify components and structures which are covered by the QA program, not just those which are safety-related. In his opinion, the "important" to safety category should be listed, too. Mr. Hubbard did

agree that LILCO has some QA requirements for nonsafety-related equipment, components, and structures (Findings K-1137 through 1143).

In response to Board questioning on this subject as it related to E&DCRs, Staff witness Higgins stated that the system is used for both safety-related and nonsafety-related items, but that the degree of attention to changes is quite a bit different for the latter category. One difference is that Appendix B does not apply if the item is not safety-related. During preoperational testing and operations, the I&E inspection program takes into account some nonsafety-related items (Findings K-1145 through 1149).

For further discussion on the general question of safety-related vs. important to safety, see Section II-J (Contention 7B) of this Opinion.

#### ***h. Number of I&E Violations***

For the years 1975-81, Shoreham averaged 7.3 noncompliances (to regulatory requirements) per year. In 1982, however, there were 16 violations. Because of this increase, the Staff met with LILCO management to express its concern about this upward trend. The Staff testified that in the last one or two years before plant operation, the number of violations tends to increase (Findings K-1150 through 1156).

#### ***i. The Staff's Inspection Program***

Contentions 14 and 15 both challenge the sufficiency of the NRC's I&E inspection program. Contention 14 asserts the program itself is inadequate because (1) it has failed to require the Applicant to initiate corrective actions to resolve the "root causes" of the problems identified; (2) the audit review process is inadequate as shown by lack of timely identification of quality deficiencies at other nuclear facilities; and (3) the program has failed to use baseline criteria against which to measure quantitatively the Shoreham QA program. Contention 15 asserts the need for a full physical inspection of Shoreham due to the inadequacies of both the NRC inspection program and the Applicant's QA program (Finding K-1164).

The Staff addressed the issue of required corrective action in its direct testimony. The inspection program requires that root causes be corrected since the Applicant is required to describe corrective actions taken to avoid further violations (Finding K-1165).

The NRC inspection program is designed to verify that the Applicant's QA/QC program is being effectively implemented. The NRC requires

the licensee and each of its contractors to have effective QA programs. The audit sampling program conducted by the NRC resident inspector at Shoreham did not indicate lapses, breakdowns, or inconsistencies in the Applicant's QA system (Findings K-1166, 1167).

The results of the NRC's routine inspection program, including the CAT inspection, Inspection Report 82-04, and the RAT inspection, Inspection Report 83-02, provide assurance of compliance with NRC requirements and licensee commitments. There is no evidence in the record to show that either the inadequacies discovered at Diablo Canyon, Zimmer, Midland and South Texas, or the statements by NRC Chairman Palladino that were relied on by the County are applicable to Shoreham (Findings K-1169, 1170).

The final concern raised by the County in these contentions is that the audit programs of the NRC and the Applicant do not employ statistical methodology. In this regard, it should be noted that there are no quantitative measures to assure that the NRC and Applicant audits can be correlated statistically. However, the NRC inspection program is independent of the Applicant's audits and independently determines if the licensee and contractor QA programs are properly implemented. The Staff also noted that sound technical judgment is more significant to determining the effectiveness of a quality assurance program, rather than an arithmetic summary of positive and negative findings (Finding K-1171).

***j. Final Safety Analysis Report (FSAR) Conformance***

According to the Staff, the FSAR is predominantly a licensing document, rather than a design document. The Staff views the FSAR as a commitment by the licensee, though the Staff concedes that there is a hierarchy of details in the FSAR, some of which can be changed without prior NRC approval. The Staff notes that finding differences in detail between a plant and an FSAR is a common occurrence, and not unique to Shoreham (Findings K-1172, 1174).

The FSAR deviations noted in the CAT inspection report were not violations of NRC regulations. Rather, in this context, a deviation is a failure to meet a non-legally binding requirement (Finding K-1175).

Although LILCO disagreed with the characterization of deviations from FSAR descriptive detail as being failures to meet FSAR requirements, LILCO agrees with the desirability of an accurate FSAR. LILCO intends to maintain accuracy at the lowest level of descriptive detail, and does not anticipate any ongoing disagreement with the Staff (Finding K-1176).

The Shoreham Plant Configuration Review (SPCR) program is adequate to assure the level of agreement between the FSAR and the as-built plant desired by I&E. The I&E inspectors will continue to follow up the program to verify this is achieved (Finding K-1181).

In summary, we find no basis for the County's contention that the Staff's I&E program has not adequately verified LILCO's QA program for Shoreham.

## **9. Torrey Pines**

### ***a. Introduction***

In the spring of 1982, LILCO contracted with the engineering firm of Torrey Pines Technology to perform an independent verification of the adequacy of Shoreham's construction and the Quality Assurance program for the construction phase. The independent verification was commissioned by LILCO to allay concerns of Suffolk County officials and the public regarding the safety of Shoreham. This was done though neither the NRC regulations nor the NRC Staff required the inspection. Torrey Pines personnel arrived at the site on June 1, 1982, and remained until October 7, 1982. Over 90 Torrey Pines personnel worked more than 35,000 man-hours at a cost to LILCO of \$2.8 million. The Torrey Pines Final Report was issued on October 30, 1982 (Findings K-1183, 1984).

Torrey Pines is a division of GA Technologies, Inc. GA Technologies has been actively engaged in the nuclear power industry since 1955. It is one of the largest privately owned centers for diversified energy research, development and engineering in the world. Its staff has an extensive background in the nuclear field and has conducted verifications at the San Onofre 2 and 3, Palo Verde, Waterford, Fort St. Vrain, and Susquehanna nuclear power stations. The County's consultant Mr. Hubbard agreed that Torrey Pines was "technically qualified and had integrity as a professional organization" (Findings K-1186 through 1190).

Independence between Torrey Pines and the organizations involved in Shoreham was confirmed before the verification was conducted. In addition to institutional independence, LILCO and Torrey Pines ascertained that the Torrey Pines personnel who would work on the project had never been involved with the design or construction of Shoreham and did not have any individual financial interest in LILCO (Findings K-1191, 1192). *See also* Findings K-1241 through 1246.

Torrey Pines focused on the construction of Shoreham and the Quality Assurance program for construction. The entire construction control process was reviewed, as well as a broad selection of documents and

hardware associated with implementation of the process. Emphasis on the physical inspection portion of Torrey Pines' verification was on 37 safety-related systems. The main criterion in the selection of these systems was that they were all important to achieving cold shutdown of the reactor. The County's consultant, Mr. Hubbard, was quoted as saying that the scope of the program was reflected by viewgraphs he had seen (at the time of initial planning for the study) "was the most comprehensive program he had ever seen developed for construction verification" (Findings K-1193, 1194, 1195, 1196).

In his prefiled testimony, however, he later testified that the Torrey Pines review of the construction process was improperly limited or restricted in three important areas: equipment "important to safety"; electrical equipment; and QA/QC programs. Hubbard and Samaniego, ff. Tr. 19,068, at 7.

### ***b. Methodology***

Torrey Pines adapted for use at Shoreham the methodology that it had developed for the San Onofre seismic design review. The independent verification was organized around six discrete "tasks." Task A involved a 100 percent review of the construction control process. In Task B, Torrey Pines reviewed the quality assurance documentation generated pursuant to the procedures covered under Task A with respect to a number of components selected from the structures, systems and components that were physically inspected under the next task. Task C was the physical walkdown of the plant. Task D involved actual testing of large-bore pipe welds and the primary containment concrete strength, as well as witnessing the pressure test of the primary containment. Under Task E, Torrey Pines reviewed Certified Material Test Reports and the results of preoperational tests performed by LILCO. Task F involved the processing of the data collected pursuant to Tasks A through E. Details of each task were provided during the hearing (Findings K-1205 through 1234).

Under Task F, Torrey Pines recorded all perceived discrepancies on Discrepancy Reports (DR). In this context, a discrepancy is any difference between an observed condition and a required condition. Further, discrepancies determined to have possible safety impact were recorded on Potential Finding Reports (PFRs) (Finding K-1228).

Of 371 DRs which were prepared, approximately 100 were invalidated when reviewed for accuracy. The remaining DRs were then considered in light of their potential safety significance; those presenting any possi-



ble safety concern resulted in the generation of a PFR. This process yielded 120 PFRs (Findings K-1228 through 1230).

Further review of the PFRs resulted in invalidation of 69 of them because they were not a potential safety concern or that the basis was inaccurate or incomplete. This left 51 valid PFRs (Finding K-1231). These 51 valid PFRs were further classified as either findings or observations under the following guidelines:

**Finding** — A deviation that could result in a substantial safety hazard, or in which there was an indication of a repetitive or generic deviation that could create a substantial safety hazard.

**Observation** — Those PFRs which do not meet the criteria for a Finding.

After this sorting, the GA Technologies Finding Review Committee classified 19 as Findings and 32 as Observations (Finding K-1231).

### *c. Comments on Statistical Methodology*

In its prefiled testimony, the County criticized Torrey Pines for its decision to rely upon engineering judgment rather than statistical methodology in the selection of structures, systems and components that were inspected during the independent verification (Finding K-1235).

The record establishes that Torrey Pines, both on its own and at the request of LILCO, expressly considered and rejected the applicability of statistical methodology in its independent verification of Shoreham. This decision was based not only on Torrey Pines' experience in its San Onofre and Palo Verde verifications, but also upon Torrey Pines' engineering judgment that for a number of reasons it would have been inappropriate to utilize statistical sampling methodology. As Mr. Johnson testified, GA Technologies, which employs professional statisticians, has evaluated the applicability and cost-effectiveness of applying statistical methods to an independent construction verification of a nuclear power plant and has been unable to identify a cost-effective way of doing so. The statisticians within GA Technologies whom Mr. Johnson consulted were both familiar with the general field of statistics and were involved in probabilistic risk assessments. There are no accepted methods or accepted ground rules upon which to apply statistical methodology in this context. The difficulties lie in the identification of homogeneous populations, the identification of what will be considered a failure, and the identification of what will be considered acceptable reliability and an acceptable confidence level (Finding K-1236).

As Mr. Johnson explained, there has been no application of statistical methodology to a problem as diverse and complex as the verification of

construction of a nuclear power station. Even the County's statistician, Dr. Samanigo, apparently conceded that the usefulness of statistical sampling methodology decreases in proportion to a reduction of the size of the population that one is sampling, although he nonetheless thought the difficulty of limited homogeneity among components in a nuclear power plant could be resolved by a process of stratification (Finding K-1237).

The Commission's Quality Assurance Criteria, 10 C.F.R. Part 50, Appendix B, do not require the use of statistical sampling methodology. Moreover, throughout the nuclear power industry, it is not the practice to utilize statistical methodology in quality assurance auditing programs (Finding K-1238).

Dr. Samanigo, although well-qualified as a statistician, candidly acknowledged that he had no experience or expertise in the nuclear power industry. Indeed, Dr. Samanigo's deposition confirms that:

- (a) He has no general knowledge of nuclear power plants generally or Shoreham in particular;
- (b) He has never studied, reviewed, designed, attempted to design, or had any personal experience with a statistically based methodology for measuring or verifying the effectiveness of a quality assurance program or the adequacy of the construction process for a nuclear power station; and
- (c) He does not know whether anyone else has developed or implemented a methodology for measuring or verifying the effectiveness of the quality assurance program or the adequacy of the construction process for a nuclear power station using statistical methodology.

Dr. Samanigo's conclusions regarding the inadequacies of Torrey Pines' methodology, as expressed in the County's prefiled testimony, were based upon only slight familiarity with Torrey Pines' inspection of Shoreham and its final report (Finding K-1239).

Perhaps most indicative of Dr. Samanigo's readiness to require the use of statistical methodology in areas in which he had no practical experience in his testimony that, based on only his extremely limited familiarity with Criterion XVIII of Appendix B, he interpreted this criterion to require the use of statistical methods in quality assurance auditing programs (Finding K-1240).

Criterion XVIII, Audits, states that audits shall be carried out, but makes no reference, implicitly or explicitly, to the use of statistical methods.

**d. Results**

Of the 19 Findings which resulted from Torrey Pines' review, 13 were characterized as documentation deviations that would probably require only amending the pertinent documentation, while 6 were hardware deviations that would probably require actual physical modifications. In the opinion of Mr. Johnson of Torrey Pines, "the risk of significant safety degradation was quite remote for any of the Findings." Similarly, Mr. Novarro of LILCO testified that none of these Findings posed safety concerns (Finding K-1249).

All Potential Finding Reports issued by Torrey Pines were reviewed by LILCO and contractor personnel. In addition, those discrepancies identified by Torrey Pines but not converted into PFRs were separately reviewed by LILCO and contractor personnel. No items of substantial safety significance were identified in these reviews. LILCO and contractor personnel have not deemed it necessary to implement any hardware modifications as a result of the potential findings and discrepancies (Finding K-1250).

In its evaluation of the discrepant conditions discovered in the inspection, Torrey Pines considered whether trends existed and concluded that no significant trends were present (Finding K-1251).

Torrey Pines concluded as follows with respect to the Quality Assurance Program:

The small number of discrepancies identified, the very small number of potential safety concerns identified, the lack of trends in the discrepancies or safety-related concerns, and the availability of QA documentation on the construction activity from the beginning of the project demonstrat[e] that the QA program has been effectively applied over the duration of the project and that the resultant safety-related plant hardware meets construction requirements of the design documents.

• • •

Based on the data reviewed during this independent construction verification effort, the QA program for construction of safety-related equipment at the Shoreham Nuclear Power Station is judged satisfactory.

(Finding K-1252.)

Torrey Pines reached the following additional conclusions with respect to the adequacy of Shoreham's construction:

- (1) LILCO and SWEC each have, and have had, construction control procedures in place during the construction activity. The procedures were reviewed in detail and were judged adequate to provide a reasonable and required QA program for the construction. It is concluded that the procedures in effect for the entire life of the construction activity are adequate and can be reasonably expected to produce adequate nuclear safety-related systems and hardware.

- (2) The review of implementation of the construction control system indicated that the system was effectively implemented over the duration of the construction activity.
- (3) Results of the extensive inspections performed on actual plant hardware as well as review of large-bore ASME Code piping material certifications and available preoperational test results on plant systems indicate that the implementation of the construction control program has resulted in adequate construction of nuclear safety systems and components in the Shoreham plant.

\* \* \*

Since an adequate construction system existed, since the system was implemented, and since it will result in satisfactory construction of all nuclear safety-related features inspected when planned actions are completed, the construction of the Shoreham Nuclear Power Station is judged to meet the construction requirements of the design documents obtained from LILCO.

**(Finding K-1253.)**

Based upon Torrey Pines' conclusions that the construction control process was appropriate and that it actually functioned, Torrey Pines believes its conclusions are applicable to the entire construction of safety-related structures, systems and components at Shoreham. In Torrey Pines' judgment, the significance of the Findings was "rather small," both quantitatively and qualitatively (Finding K-1254).

In response to Torrey Pines' Findings, LILCO developed specific Corrective Action Plans (CAPs) that will be implemented prior to fuel load and that will resolve the discrepant conditions underlying each of the Findings (Finding K-1255).

We note, in conclusion, that the Torrey Pines study was designed to be a study of the construction control process. It was designed to look at important parts of this process in a logically consistent way, focusing on matters judged to be representative and important for protection of public health and safety. We make no statistical inference from the results of this study. We simply note that nothing resulting from this study detracts from our opinion that LILCO and the Staff have satisfied Commission requirements with respect to Quality Assurance and Quality Control.

### **III. FINDINGS OF FACT**

This section is not being published in this issuance but may be found in the NRC Public Document Room, 1717 H Street, NW, Washington, DC 20555.

#### IV. LOW-POWER OPERATING LICENSE

LILCO has filed a motion, pursuant to 10 C.F.R. § 50.57(c), requesting authorization "to load fuel into the Shoreham reactor and to operate the facility at power levels not to exceed five percent of full power." LILCO Motion (June 8, 1983), at 1.

All issues in this Partial Initial Decision have been decided in LILCO's favor insofar as the requested low-power operation is concerned.<sup>70</sup> As a result of Intervenor's default, there are no emergency planning issues remaining in controversy before any Licensing Board which, pursuant to 10 C.F.R. § 50.47(d), need be resolved prior to issuance of a license authorizing fuel loading and low-power operation up to five percent of rated power.<sup>71</sup> As noted in the introduction to this decision (Section I), the emergency diesel generator contention pending for litigation before us must be resolved in LILCO's favor, at least as to its identified aspects of concern for low-power operation, as a prerequisite to issuance of the requested low-power license.

Issuance of a low-power license may not be authorized at this time, insofar as contested issues before Licensing Boards are concerned, due to the pendency of the emergency diesel generator contention. (Any such authorization by us would have been subject to the NRC Staff making findings in LILCO's favor on all uncontested issues and on those aspects of contested issues which we have left for Staff verification by this decision, to the extent such issues are pertinent to issuance of the requested low-power license.) However, we believe it prudent and proper to rule now on Suffolk County's legal objections to issuance of a low-power license as part of this appealable Partial Initial Decision. This

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<sup>70</sup> We have not found in LILCO's favor and have therefore retained jurisdiction over aspects of SC Contentions 11 (Passive Mechanical Valve Failure) and 21 (Mark II Containment). However, the pendency of the remaining portions of those issues does not affect the requested low-power operation.

<sup>71</sup> This Licensing Board dismissed the remaining Section 50.47(d) "Phase I" emergency planning contentions in a "Memorandum and Order Confirming Ruling on Sanctions for Intervenor's Refusal to Comply with Order to Participate in Prehearing Examinations," LBP-83-115, 16 NRC 1923 (1982). Recently, the separate Licensing Board convened to preside over emergency planning matters has rejected the County's motion to revive litigation of emergency planning issues which are within the scope of Section 50.47(d) (which section is limited to onsite emergency planning with some related offsite elements). "Memorandum and Order Denying Suffolk County Motion for Leave to File Contentions Regarding Onsite Emergency Planning" (August 5, 1983) (unpublished). Accordingly, the NRC Staff is now the Commission entity responsible for finding that LILCO has complied with all emergency planning requirements within the scope of Section 50.47(d). That finding is a prerequisite to issuance of a low-power license. As will be discussed in the text of this section, the Commission has affirmed in this proceeding that offsite emergency planning issues not within the scope of Section 50.47(d) need not be resolved prior to issuance of the requested low-power license. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-83-17, 17 NRC 1032 (1983). Such issues are pending before the separate emergency planning Licensing Board and must be resolved in LILCO's favor before a full-power license may be authorized by that Licensing Board.

will permit uncertainty to be removed by us, and by any appellate process invoked, over whether possible future resolution of low-power license aspects of the diesel generator issue in LILCO's favor would then permit issuance of the requested low-power license, insofar as contested issues are concerned.

The remaining County objection to issuance of a low-power license still pertinent is its argument that under the National Environmental Policy Act (NEPA), a supplemental Environmental Impact Statement (EIS) (or at least an Environmental Impact Appraisal (EIA)) must be prepared, prior to issuance of a low-power license for Shoreham, to consider "the alternative that the power plant would be licensed at low power, go critical, contaminate the facility, and then be abandoned without ever having generated [commercial electrical] power." County Answer (June 27, 1983), at 28. See generally County Answer, at 24-32.<sup>72</sup>

We agree generally with LILCO (LILCO Reply, July 18, 1983, at 10-20) and the NRC Staff (Staff Response (to County Opposition), July 18, 1983, at 4-6) that Commission precedent, including the Commission's ruling in CLI-83-17, *supra*, mandates that we reject the County's argument. Accordingly, we do so. However, we respectfully believe that the County, supported by Federal court precedent, has raised arguments which are substantial in the circumstances of this proceeding and which do not appear to have been dealt with by the Commission and Appeal Board precedent in the precise terms in which we perceive the argument. Accordingly, we discuss the County's argument beyond the simple recitation of the applicable contrary Commission precedent in the belief that the Appeal Board may find our views useful should the County appeal our determination that Commission precedent mandates our rejection of the County's argument.

In a recent decision, the Appeal Board rejected the identical legal argument (advanced by the same law firm representing the County before us) that NEPA and 10 C.F.R. § 51.5(b)(3) and (c)(1) of the Commission's regulations require that a supplemental EIS or, alternatively, an EIA, be prepared prior to issuance of a low-power license. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2),

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<sup>72</sup> On July 29, 1983, the County filed an unauthorized "Response to LILCO and NRC Staff Arguments" regarding the NEPA question, accompanied by a motion for leave to file that response. We have on at least one previous occasion noted that, absent exigent circumstances, which are not apparent here, it is improper for the County to include its unauthorized filing with the motion for leave to file it. Since we rule that Commission precedent mandates rejection of the County's argument, LILCO and the Staff are not prejudiced, at this time, by our consideration of the County's July 29, 1983 Response. If some of the points and authorities in the County Response which are also discussed by us become pertinent on appeal, LILCO and the NRC Staff presumably will have the opportunity before another tribunal to address them in response to any appeal by the County.

ALAB-728, 17 NRC 777, 793-95 (1983). The *Diablo Canyon* Appeal Board summarized the NEPA argument pressed before it as a claim that "such environmental analysis is crucial because the existing EIS for Diablo Canyon does not address the costs and benefits of low power testing and the need to conduct such tests before receiving full power authorization." *Id.* at 794.<sup>73</sup>

The Appeal Board held:

Low power testing is a normal, necessary and expected step in the life of every nuclear plant. This is true whether such testing is planned under the authorization of a separate fuel loading and low power testing license, as in the case of Diablo Canyon, or scheduled as the first step toward operation under the authority of a full power license. Low power testing, unlike full power operation, is not intended to produce electrical power, and it is not an alternative to full power operation. The brief period of low power testing does not involve any environmental impacts different from those already evaluated in the EIS for full term, full power operation. For these reasons, an adequate final EIS for Diablo Canyon necessarily includes the lesser impacts attendant to low power testing and removes the need for a separate statement focusing on questions such as the costs and benefits of low power testing (footnotes omitted).

*Id.* at 794-95.

As in the case of the Diablo Canyon facility, a final EIS analyzing alternatives to, and the environmental impacts and cost-benefit balance of, full-power full term operation of Shoreham has been issued by the NRC Staff. (NUREG-0285, October 1977.) There were no contested environmental issues which remained for evidentiary hearing in this case. In the absence of any claims to the contrary by LILCO, and in the absence of anything to the contrary disclosed by our brief perusal of the EIS, we assume that as stated by the Staff, the Shoreham EIS, like the Diablo Canyon EIS, did not include environmental consideration of low-power operation under a separate license issued in advance of a full-power license. Staff Response, at 5.

The County attempts to distinguish the decision in *Diablo Canyon* by arguing that in the *Shoreham* proceeding it is "highly questionable" that a full-power license can ever be issued (due to the County's determination not to participate in offsite emergency planning). County Answer, at 27. In *Diablo Canyon*, as here, there were offsite emergency planning issues pending before the Licensing Board at the time it rejected the

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<sup>73</sup> The Appeal Board easily rejected the claim that Sections 51.5(b)(3) and (c)(1) mandated the preparation of an EIS or EIA for low-power operation by pointing out that Sections 51.5(b) and (c)(1) are phrased in nonmandatory language "depending upon the circumstances." The Appeal Board held that the existence of a final EIS for full-power operation presents circumstances which obviate the need for preparation of an EIS or EIA for low-power operation. *Id.* at 794.

NEPA argument and authorized issuance of a low-power license. See *Diablo Canyon, supra*, 17 NRC at 785. However, all emergency planning issues were ultimately resolved by the Licensing Board by the time of issuance of ALAB-728. *Id.* at 788.

In any event, the Appeal Board in *Diablo Canyon* provided not the slightest indication that the likely outcome of issues still pending in *Diablo Canyon* which are prerequisite to issuance of a full-power license, be they offsite emergency planning issues on appeal before it or other issues, is pertinent to its rejection of the argument that issuance of a low-power license requires a supplemental environmental analysis focused on that action. Furthermore, we are in no position to attempt to gauge the relative prospects of the future issuance of a license permitting full-power operation of Shoreham as compared to *Diablo Canyon*.

More to the point, the Commission has directly rejected our certified recommendation that a low-power license not be issued for Shoreham so long as there is, at present, no reasonable assurance that emergency preparedness requirements for full-power operation can and will be met in the future. CLI-83-17, *supra*. The Commission held:

[I]t seems apparent that the Licensing Board's preliminary doubt about whether there is reasonable assurance that a sufficient offsite emergency plan can and will be developed is no different from preliminary doubt about whether a safety issue can be adequately resolved which has significance for full-power operation but not for low-power activities. Interjection of such doubts into the low-power proceeding could create a limited full-power hearing, before authorization of the low-power license. Such a procedure would have little to commend it.

The emergency planning issues in this case are difficult. However, they do not appear to us to be categorically unresolvable. We believe the better procedure is to reserve full-power issues, like offsite emergency planning, for the full-power authorization decision.

*Id.*, 17 NRC at 1034.

As our recommendation was not couched in terms of NEPA, the Commission's decision on the question likewise was not so presented. However, our recommendation was prompted by and presented as the same cost-benefit balance which the County argues must be made under NEPA, *viz.*: We believed that the benefits of the avoidance of a period of delay of several months for low-power testing, which delay:

would occur only if and when a full-power operating license is issued for Shoreham, does not outweigh the irreversible change in the status quo of Shoreham which would obtain if fuel were to be irradiated in the reactor in circumstances where, at present, we cannot find there is reasonable assurance that Shoreham will ever be permitted to operate at power levels above five percent.

LBP-83-21, 17 NRC 593, 601 (1983).



We had raised the same issue now raised by the County for the Commission's early consideration in advance of this P.I.D. (We note that our recommendation preceded the issuance of *Diablo Canyon*, ALAB-728, *supra*.) The Commission ruled as set forth above. Accordingly, the County's argument has already been considered and rejected by the Commission in a timely fashion in advance of this P.I.D.

### Federal Court Decisions

The Appeal Board in *Diablo Canyon*, as quoted above, considered the issue in terms of the clearly correct facts that: (1) low-power operation, especially for a brief period of testing up to five percent of rated power, involves lesser environmental impacts than those already analyzed for full-power full term operation; and (2) such low-power testing operation is not a reasonably proposed alternative to generation of commercial power.

In the circumstances of Shoreham, the gravamen of the County's argument is not that low-power testing be analyzed as an alternative to commercial generation of electricity which a decision maker could reasonably or rationally *select*. It clearly is not. *Diablo Canyon*, *supra*, at 794-95 and n.46, *relying on Maine Yankee Atomic Power Co.* (Maine Yankee Atomic Power Station), ALAB-161, 6 AEC 1003, 1014 (1973), *aff'd sub nom. Citizens for Safe Power, Inc. v. NRC*, 524 F.2d 1291, 1301 (D.C. Cir. 1975). Rather, the County's claim is that the *result* of Shoreham having to be abandoned (decommissioned) after being tested with irradiated fuel is at least a reasonably foreseeable possibility in the present factual circumstances of offsite emergency planning.

In *Union of Concerned Scientists v. AEC*, 499 F.2d 1069, 1083-84 (D.C. Cir. 1974), the court considered a similar argument that the Pilgrim facility might in the future have to operate at a decreased power rating if it could not meet the new ECCS acceptance criteria, and therefore a NEPA cost-benefit balance of such possible operation need be performed prior to issuance of an operating license. The court held that it was too speculative to attempt to foresee whether derating would be required and, if so, for how long at what power level, to require in advance a reevaluation of the cost-benefit balance.<sup>74</sup> The court further stated that if and when the Pilgrim license had to be amended to require derating, the

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<sup>74</sup> The court did note that by the time of the court's decision the Commission was able to estimate that the derating would average less than five percent for boiling water reactors such as Pilgrim. *Union of Concerned Scientists v. AEC*, *supra*, at 1084 n.35. This *de minimus* reduction in benefit may have affected the court's rejection of the claim that the cost-benefit balance be reevaluated.

NEPA cost-benefit balance would then be reevaluated, if warranted by the significance of any such derating. *Id.* at 1084.

Similarly, LILCO and the NRC Staff argue that the possibility that Shoreham will not be allowed to operate at commercial power levels due to emergency preparedness requirements is too speculative to require the NEPA consideration urged by the County. LILCO points out that it is always possible that a low-power license will not ultimately be upgraded to a full-power operating license, and that the Commission, as quoted above, has placed the Shoreham circumstances in that same category.

Suffolk County cavalierly rejects this as a “Pandora’s box” argument. County Response, at 11. The fact that there may be difficult lines to draw in the future is an important consideration. However, in our recommendation to the Commission in LBP-83-21, *supra*, we would have limited the need to predict the reasonableness of the proposition that a low-power licensee would eventually be permitted to operate at a substantial commercial power level to special circumstances; *i.e.*, where it affirmatively appeared that, based on the currently available record, a finding of reasonable assurance of future commercial operation could not be made at the time of issuance of a low-power license. We believed this was such a case.<sup>75</sup> The Commission appears to have held otherwise. Accordingly, the circumstances of Shoreham fall within the holding of *Union of Concerned Scientists v. AEC*, *supra*, and *Citizens for Safe Power v. NRC*, *supra*, that the environmental analysis need not be reevaluated to consider low-power, short-term operation.

The only uncertainty we harbor as to the scope of the Commission’s holding is its statement that although the pending offsite emergency planning issues in this case are difficult, “they do not appear to be categorically unresolvable.” CLI-83-17, *supra*, 17 NRC at 1034. Nothing in our recommendation was intended to imply otherwise. Our own ruling, issued the same day as our certified recommendation, in effect so held in denying the County’s motion to terminate the proceeding on legal grounds. LBP-83-22, 17 NRC 608 (1983). However, the test of whether uncertain circumstances should be considered under NEPA typically is not stated by courts in such stringent terms. Rather, the test normally is phrased in terms of whether the circumstances are reasonably foreseeable. *See, e.g., Potomac Alliance v. NRC*, 682 F.2d 1030, 1036-37

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<sup>75</sup> For example, we have no difficulty in finding that the portions of other issues noted at the beginning of this section which may not be resolved prior to issuance of a low-power license — valve failure, Mark II containment and emergency diesel generators — do not raise any questions of whether there is a reasonable possibility that Shoreham would not be permitted to operate commercially. To be sure, they are issues on which LILCO’s position may be rejected by us, but, if so, the issues appear to be resolvable by means within LILCO’s control and the state-of-the-art.

(D.C. Cir. 1982), and cases cited at n.32 therein. Nevertheless, as we read the Commission's decision, we are bound by its overall determination that we must not interject doubts about whether Shoreham will be able to satisfy the offsite emergency preparedness requirements, which are prerequisite to commercial operation, into the decision of whether to authorize the requested low-power license.

The other aspect of the holding in *Diablo Canyon*, ALAB-728, *supra*, as stated above, is its focus on the fact that the requested low-power license would involve lesser environmental impacts than those already analyzed for full-power operation. However, this does not in direct terms address the argument that the benefits of low-power testing operation are much less than those of the commercial generation of electricity, and therefore the lesser environmental impacts have to be balanced against the reduced benefits. A necessary assumption in reaching this argument is that it is reasonably foreseeable that Shoreham may not be permitted to operate at a substantial commercial power level. Otherwise, the cost-benefit balance will be the same and need not be reevaluated, even though the benefit will begin at a time subsequent to issuance of the low-power license (as it would after issuance of a full-power license which was not preceded by a low-power testing license).<sup>76</sup> Therefore, the cases discussed below would be distinguishable from the case before us if the Commission's decision in CLI-83-17 is, as discussed above, properly construed as holding that it is not reasonable for us to consider that Shoreham may not be permitted to operate at a substantial commercial power level.

In *Union of Concerned Scientists v. AEC*, *supra*, 499 F.2d at 1083, the court indicated that the assertion that operation at a low power level could only result in lesser environmental impact is not an adequate response to a claim that the cost-benefit balance must be reevaluated to consider the reduced "environmental, economic, technical and other benefits" balanced against the reduced environmental costs.

Similarly, a recent Federal district court decision, cited in the County's Response, rejected the argument that a substantially reduced projection of recoverable amounts of offshore oil and gas does not require a reevaluation of the NEPA cost-benefit analysis because the environmental impacts of drilling under the proposed government leases would not in-

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<sup>76</sup> Another way of stating this is that it is appropriate to focus only on whether a partial interim action will increase the environmental effects over those analyzed for the full proposed action when there is no reasonable basis to foresee that the full action will not be permitted in the future. This may have been the *Diablo Canyon* Appeal Board's unexpressed belief and the reason for it not considering the circumstance of reduced benefits. See also *Portland General Electric Co.* (Trojan Nuclear Plant), ALAB-534, 9 NRC 287, 289 n.4 (1979).

crease over those previously analyzed. *Conservation Law Foundation v. Watt*, 560 F. Supp. 561, 569-71 (D. Mass. 1983), *appeal pending*, Docket Nos. 83-1258 and 83-1265 (1st Cir., argued June 6, 1983)). The District Court, at 569, noted the well-known black letter law passages of the *Calvert Cliffs* decision, *viz.*: that the balancing of environmental costs of a project against its economic and technical benefits is mandated by NEPA, and that the quantum of risk of environmental damage that might be acceptable for a given level of benefits might be unacceptable for lesser benefits. See *Conservation Law Foundation, supra*, at 571; *Calvert Cliff's Coordinating Committee v. AEC*, 449 F.2d 1109, 1113, 1123 (D.C. Cir. 1971). See also *Columbia Basin Land Protection Ass'n v. Schlesinger*, 643 F.2d 585, 594 (9th Cir. 1981).

*Columbia Basin, supra*, at 595, noted the principle relied on by the *Conservation Law* District Court, that:

[t]he policy of full disclosure applies equally to the economic and technological benefits of a project as to its environmental costs. If full disclosure were applied only to the environmental costs, the purposes of mandating a balancing analysis would be defeated.

Of course, as in *Columbia Basin* itself, not all technical failures of full disclosure of the level of benefits render the EIS inadequate. Similarly, one could argue (as do LILCO and the Staff), whether the reasonableness of assuming the possibility of reduced benefits and the potential importance of the reduction presented by a case such as *Chelsea Neighborhood Ass'n v. U.S. Postal Service*, 516 F.2d 378, 387-89 (2d Cir. 1975)<sup>77</sup> is applicable to the circumstances of *Shoreham*. Or, one could argue (as does LILCO), whether the flaw found in the failure of a highway widening project EIS to disclose that a moratorium on construction work on another portion of the highway would greatly reduce the traffic flow estimates used to justify widening of the segment in question was viewed by the court as a "reduced benefit" or a "different environmental impact" case or both, given the general language of the decision. *Essex County Preservation Ass'n v. Campbell*, 536 F.2d 956, 960-61 (1st Cir. 1976).<sup>78</sup>

Our point in discussing these cases is that we believe the County is correct that, as a general principle, a reasonably foreseeable, non-

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<sup>77</sup> In *Chelsea* the Postal Service justified a proposed vehicle maintenance facility in New York City in part based on the benefits of residential apartments to be erected over the facility. The court affirmed the injunction against construction in part on the basis that the EIS failed to disclose and consider the fact that the apartments might not in fact be built.

<sup>78</sup> Under the facts of *Essex County*, the court affirmed the District Court's decision that a balancing of the equities militated against enjoining the highway work until preparation and circulation of the supplemental EIS required by the court.

speculative, substantial reduction in benefits should trigger the need, under NEPA, to reevaluate the cost-benefit balance of a proposed action before further irreversible environmental costs are incurred. LILCO's argument that the County is improperly inserting economic considerations under the aegis of an environmental law is misplaced. The economic costs to LILCO and the public of irradiation of fuel in the reactor followed by decommissioning would not be considered by the NRC.<sup>79</sup> However, as held in *Calvert Cliffs*, and as noted in *Union of Concerned Scientists* and *Columbia Basin*, as quoted above, the benefits of low-power testing, including economic ones, have to be weighed against the environmental costs. Presumably, LILCO would want to include all such benefits in the calculus.<sup>80</sup> It may be that an environmental impact appraisal could be sufficient to determine that a supplemental EIS, which apparently would require circulation for comment, is not needed.<sup>81</sup>

However, as we have noted, the Commission has held that the circumstances of Shoreham do not give rise to a reasonably foreseeable non-speculative reduction in the proposed benefits of substantial commercial generation of electricity. Accordingly, even if we felt free to depart from the Appeal Board's holding in *Diablo Canyon* because of its focus on the lack of increased impacts, the Commission's decision in this case mandates our denial of the County's request that we not authorize the NRC Staff to issue the requested low-power authorization unless the NEPA cost-benefit balance is reevaluated.

We have not discussed Section 11 of the 1982-83 NRC Authorization Act, Pub. L. No. 97-415 (amending Section 192 of the Atomic Energy Act, 42 U.S.C. § 2242), which authorizes the issuance of temporary operating licenses (initially up to five percent of power), or the Commission's proposed implementing regulations, dated April 4, 1983. 48 Fed. Reg. 14,926, *et seq.* (1983). They are not pertinent at present, nor would a request for such a license be addressed to a licensing board. See 48 Fed. Reg. 14,926 (1983) (to be codified at 10 C.F.R. § 50.57(d)(1))

<sup>79</sup> As noted by the Commission in its Order in this case:

A State Public Service Commission undoubtedly would have jurisdiction to examine the propriety of a management decision to load fuel and conduct low-power testing in the face of substantial uncertainties about full-power operation of the plant, particularly when the State Commission will be called upon to allocate costs, including any incremental costs due to fuel loading and low-power testing, in the event the reactor never receives full-power authorization from the NRC.

CLI-83-17, *supra*, 17 NRC at 1035 n.4.

<sup>80</sup> Economic costs can become pertinent when it is argued that they militate in favor of adopting cheaper alternative action which would have greater environmental effects. *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-458, 7 NRC 155, 162-63 & n.25 (1978).

<sup>81</sup> LILCO's argument on why the cost-benefit balance is more complex than the County's preordained result raises points appropriate for consideration in an environmental reevaluation if one were required. LILCO Reply, at 19.

(proposed April 4, 1983). In any event, Section 11 appears to require that all normally applicable requirements of law (other than the completion of any required hearing) be adhered to by the Commission, including any required environmental findings. See subsection 192(b)(1) and (2), as amended (42 U.S.C. § 2242(b)(1) and (2)). Therefore, it appears that nothing in Section 11 affects the analysis of the County's NEPA argument either way.

Finally, we note our disagreement with the apparent implication of the Staff in its statement that Commission precedent holds that there is no new opportunity for filing contentions upon an application for a low-power license. Staff Response, at 5, relying on *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-81-5, 13 NRC 361; 362 (1981), and *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-82-39, 16 NRC 1712, 1715 (1982). As we read those Commission cases, they hold that there is no automatically triggered *right* to an evidentiary hearing on new contentions by virtue of a request for a low-power license. However, the Commission did not preclude the late-filing of such contentions; indeed it expressly considered that any such new issues must be raised in the context of motions to reopen the record (where, as here, it had been closed) to admit a late-filed contention. CLI-82-39, *supra*, at 1715; CLI-81-5, *supra*, at 362.

If it had been open to us to consider the County's argument, we would have applied the appropriate balancing factors to its request as one to reopen the record to admit a late-filed contention, after inviting the parties' views on the application of these factors to the instant issue. Cf. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-83-30, 17 NRC 1132 (1983) (consideration of reopening and late-filed contention balancing factors in deciding whether to admit a new contention regarding the diesel generators after the record on health and safety issues had closed). We do not here decide whether the County unnecessarily delayed filing its claim, and if so, how much earlier it should have been apparent that a low-power license would be sought in the circumstances of the County itself refusing to cooperate in offsite emergency planning matters. Nor do we reach the other factors which must be applied in addition to that of good cause for failure to file a contention earlier. We do note that if the County had been correct in its NEPA argument, the NRC Staff would have had a duty to reassess the NEPA cost-benefit balance, by EIA or supplemental EIS, regardless of whether the County may have forfeited its right to an adjudicatory hearing on the issue due to a balancing of the reopening and late-filed contention factors or due to its own actions regarding emergency planning.

For the reasons discussed above, we conclude that Commission precedent and the Commission's Order in this case mandate denial of the County's claim that the requested low-power license may not be authorized unless a supplemental EIS or an EIA is first prepared.

## V. CONCLUSIONS OF LAW AND RECOMMENDATIONS TO THE COMMISSION

In preparing this decision, we have considered all the evidence submitted by the parties and the entire record of this proceeding. That record consists of the Commission's Notice of Hearing, the pleadings filed by the parties, the transcripts of the hearing, and the exhibits received into evidence. All issues, arguments, or proposed findings presented by the parties, but not addressed in this decision, have been found to be without merit or unnecessary to our decision. Based upon the foregoing Opinion and Findings which are supported by reliable, probative, and substantial evidence as required by the Administrative Procedure Act and the Commission's Rules of Practice, and upon consideration of the entire evidentiary record in this proceeding, the Board makes the following Conclusions of Law:

1. LILCO has met its burden of proof with respect to each of the following contentions (keyed to the sections of this decision):

- A. Water Hammer (SC 4);
- B. ECCS Core Spray (SC 10);
- D. Anticipated Transients Without Scram (SC 16);
- E. Seismic Design (SOC 19(e));
- G. Safety Relief Valve Tests and Challenges (SC 22; SC 28(a)(vi)/SOC 7A(6));
- H. Post-Accident Monitoring (SC 27/SOC 3);
- I. Environmental Qualification (SC 8/SOC 19(h));
- J. Systems Interaction and Safety Classification (SC 7B/SOC 19(b));
- K. Quality Assurance and Quality Control (SC/SOC 12; SC 13; SC 14; SC 15).

Accordingly, we find with respect to each of these contentions that, subject to the conditions noted, there is reasonable assurance that the Shoreham Nuclear Power Station, Unit 1 can be operated without endangering the health and safety of the public.

2. LILCO has not fully met its burden of proof with respect to each of the following contentions:

- C. Passive Mechanical Valve Failure (SC 11)
- F. Mark II Containment (SC 21)

With respect to each of these contentions, however, we find that those issues remaining to be resolved do not preclude us from finding that there is reasonable assurance that the Shoreham Nuclear Power Station, Unit 1 can be operated at levels up to five percent of rated power without endangering the health and safety of the public.

3. Even though we resolve all contentions which are the subject of this Partial Initial Decision favorably to LILCO, at least insofar as operation at levels up to five percent of rated power is concerned, we do not authorize the issuance of the license for fuel loading and low-power operation which LILCO has requested at this time. No such license may be authorized until such time as that portion of Suffolk County's recently admitted emergency diesel generator contention may be resolved in LILCO's favor, at least insofar as necessary to support a finding of reasonable assurance that Shoreham can be operated at levels up to five percent of rated power without endangering the health and safety of the public.

4. The County's assertion that no authorization for the issuance of the low-power license requested by LILCO may be granted unless a supplemental Environmental Impact Statement (EIS) or an Environmental Impact Appraisal (EIA) is first prepared, is contrary to Commission precedent.

5. The County has demonstrated an adequate basis to justify the reopening of the record on Contention SC 11, Passive Mechanical Valve Failure, to admit into evidence IE Bulletin 83-03 and certain related documents specified in Section III-C of this decision.

6. Based on the findings of fact set forth in Part III of the NRC Staff's Proposed Opinion, Findings of Fact and Conclusion[s] of Law on Unresolved Safety Issues in the Form of a Partial Initial Decision (November 2, 1982), this Board concludes that the Staff has adequately considered the impact on Shoreham of those generic unresolved safety issues relevant to Shoreham and, notwithstanding the pendency of these issues, the plant can be operated without endangering the health and safety of the public.

### **License Conditions**

Any license authorized to be issued for Shoreham in the future will be subject to the following conditions:

a. Those license conditions agreed to by the parties as a part of their settlement agreements are hereby adopted by the Board for incorporation in any license. Therefore, pursuant to the parties' settlement agreement on Detection of Inadequate Core Cooling (Contention SC 3) (dated



December 9, 1983) and the parties' "Joint Compilation of Settlement Agreement Obligations" (June 28, 1983), at 7 (Appendix F to this Partial Initial Decision, at F-9):

1. By July 1, 1983, LILCO shall submit to the Staff a description and schedule for hardware modifications to the Shoreham reactor vessel water level measurement system to eliminate dependence on early operator action during events involving an instrument line failure (leak or break) and a single additional component failure, in accordance with the second recommendation in the BWR Owners' Group Report SLI-8211 (July 1982). The proposed modifications and schedule must be acceptable to the Staff and installation must be completed no later than the end of the second refueling outage. (Agreement at 7-8, § II.B.1). (NOTE: The proposed modifications will be installed as soon as practicable, but in no event later than the end of the second refueling outage.) (Agreement at 8, § II.B.3).
2. LILCO shall implement any Staff requirements regarding additional instrumentation for detection of inadequate core cooling which may result from the Staff's review of the BWR Owners' Group Report on this subject in conjunction with LILCO documentation addressing the subject. (Agreement at 16-17, § III.B.3).

Furthermore, pursuant to the parties' settlement agreement on Containment Isolation (Contention SC 23) (dated February 22, 1983) and the parties' "Joint Compilation of Settlement Agreement Obligations" at 18-19 (Appendix F at F-20 to F-21):

3. LILCO will also revise SP 23.425.01 to include the license condition that an operator will be dedicated to the containment isolation valve controls whenever operation of the system is required and to instruct the operator to close these valves if a high-radiation containment alarm should occur. The license condition will be deleted when the automatic high-radiation isolation signal is installed. (Agreement at 11, § II.B.4(c)). The signal will be installed and operable by December 31, 1983. (Agreement at 12, § II.B.4(d)).
- b. The following license conditions are required by this decision:
  4. Pursuant to a written agreement to be executed by LILCO as a precondition to the issuance of a license, the definition of the term "important to safety" includes but is larger than the term "safety-related," insofar as the classification and qualification of structures, systems and components are concerned. Use of the term "important to safety" in other contexts is not affected by this condition.

5. LILCO is required to comply with the requirements for qualification of post-accident monitoring equipment pursuant to 10 C.F.R. § 50.49(b)(3) and the other provisions of 10 C.F.R. § 50.49 as such additional equipment is installed.
6. As required by 10 C.F.R. § 50.49(b)(2) and (d), as interpreted by the Licensing Board Partial Initial Decision, all "important to safety" equipment falling within the Section 50.49(b)(2) category shall be identified prior to fuel load and shall be either fully qualified or be justified for interim operation pursuant to Section 50.49(i). The identification of Section 50.49(b)(2) equipment shall include equipment whose failure under postulated environmental conditions could mislead the operator *and* could thereby prevent satisfactory accomplishment of those safety functions specified in 10 C.F.R. § 50.49(b)(1)(i) through (iii) by the safety-related equipment.
7. All equipment falling within the scope of 10 C.F.R. § 50.49, for which LILCO is relying on justifications for interim operation pursuant to Section 50.49(i), shall be fully qualified to the requirements of Section 50.49(b), (d), (e) and (f) by startup after the first refueling outage, but in no event later than November 30, 1985.

### **Retention of Jurisdiction**

As was stated above, LILCO has not fully met its burden of proof with respect to Contentions SC 11, Passive Mechanical Valve Failure, and SC 21, Mark II Containment. Accordingly, in addition to Suffolk County's diesel generator contention, we retain jurisdiction over the following matters which must be resolved prior to the issuance of a full-power license:

1. Whether LILCO's In-Service Testing (IST) Program, which requires periodic testing of check valves by forward flow only for certain check valves, by reverse flow only for other check valves, and by both forward and reverse flow for certain other check valves, is adequate to address those concerns expressed in IE Bulletin 83-03 about the inadequacy of forward flow only testing to detect latent check valve failures. As is more fully described in Section II-C, LILCO is to file an affidavit or affidavits with the Board and parties within two months from the date of service of this decision, stating both whether and why it believes that single direction (forward or reverse) flow testing will be adequate to detect or prevent "latent" check valve

failures, such as those described in IE Bulletin 83-03, and describing what other methodologies LILCO intends to use to detect or prevent such latent check valve failures. The parties shall file a negotiation status report not later than the date for filing of LILCO's affidavits. If not settled, affidavits in response to LILCO's affidavits shall be filed by the Staff and County one month after service of LILCO's affidavits.

2. Whether the design margins inherent in the Shoreham Mark II containment are adequately conservative such that there exists reasonable assurance that the effects of the loads arising from operation of the Residual Heat Removal System discharge mode in the steam condensing mode will not endanger the public health and safety and that the effects of the discharge into the suppression pool will not disable any safety-related equipment, or whether design modification will be necessary before such a finding can be made. The parties are to file a joint report on the status of LILCO/Staff efforts to resolve this issue and what, if any, further actions are deemed necessary in this proceeding, within two months from the date of service of this decision.

### **Recommendations to the Commission**

The following recommendations to the Commission have no effect on our findings in this proceeding with regard to the Shoreham facility. However, as stated in the decision, these matters have come to our attention in this litigation and we believe they merit the Commission's attention. Accordingly, we respectfully recommend that the Commission consider the following matters outside of the context of this proceeding:

1. Whether Appendix K to 10 C.F.R. Part 50, Emergency Core Cooling System (ECCS) — Evaluation Models, should be updated to specify the convective heat transfer coefficients, and other pertinent factors, which would be acceptable for use in an ECCS analysis performed for the current 8 x 8 fuel assembly array design of Boiling Water Reactor fuel (*See* Section II-B).
2. Whether the NRC Staff should provide more detailed guidance on the criteria and methodology for identification of "important to safety" equipment falling within the scope of 10 C.F.R. § 50.49(b)(2) of the recent rule governing the environmental qualification of electrical equipment (*See* Section II-I).

3. In addition, Judge Brenner recommends that the Commission consider whether present and realistically projected future progress and management by the NRC Staff of Unresolved Safety Issue A-17 (Systems Interactions) is proper. The July 26, 1983 memorandum to the Commission from Mr. Eisenhut of the NRC Staff, enclosing a report on the NRC Staff's actions on this subject in response to Mr. Conran's Differing Professional Opinion, does not change his recommendation that the Commission review and perhaps monitor to its own satisfaction the current and future Staff progress and management of USI A-17 (See Section II-J).

## VI. ORDER

WHEREFORE, IT IS ORDERED, in accordance with 10 C.F.R. §§ 2.760, 2.762, 2.764, 2.785, and 2.786, that this partial initial decision shall become effective immediately and shall constitute, with respect to matters resolved herein, the final decision of the Commission thirty (30) days after issuance hereof, subject to any review pursuant to the above cited Rules of Practice. Applying the rationale of *Boston Edison Co.* (Pilgrim Nuclear Power Station, Unit 2), ALAB-632, 13 NRC 91, 93 n.2 (1981); *Duke Power Co.* (Perkins Nuclear Power Station, Units 1, 2 and 3), ALAB-597, 11 NRC 870 (1980); and *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Units 1 and 2), ALAB-301, 2 NRC 853 (1975), this partial initial decision is appealable at this time. Any exceptions to this partial initial decision must be filed with the Atomic Safety and Licensing Appeal Board within ten (10) days after service of this decision. A brief in support of such exceptions must be filed within thirty (30) days thereafter (forty (40) days in the case of the NRC Staff). Within thirty (30) days after service of the brief of the appellant (forty (40) days in the case of the NRC Staff), any other party may file a brief in support of, or in opposition to, such exceptions.

This Licensing Board perceives that the length of this decision could make it difficult for a party wishing to file exceptions to do so within the prescribed time. However, the Licensing Board does not have authority

to extend the time for exceptions. Any requests for extensions of the appellate schedule must be directed to the Appeal Board.

It is so ORDERED.

**THE ATOMIC SAFETY AND  
LICENSING BOARD**

**Lawrence Brenner, Chairman  
ADMINISTRATIVE JUDGE**

**Dr. George A. Ferguson  
ADMINISTRATIVE JUDGE**

**Dr. Peter A. Morris  
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland  
September 21, 1983**

**Attachments: Appendices A - F**

**[Appendices A through F have 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:**

**John H Frye, III, Chairman  
Dr. M. Stanley Livingston  
Dr. Frank F. Hooper**

**In the Matter of**

**Docket No. 50-358-OL  
(ASLBP No. 76-317-01-OL)**

**THE CINCINNATI GAS & ELECTRIC  
COMPANY, *et al.*  
(William H. Zimmer Nuclear  
Power Station, Unit 1)**

**September 15, 1983**

Intervenor petitioned for reconsideration of the Licensing Board's ruling in LBP-83-54, 16 NRC 210 (1982) that it had failed to satisfy the requirements of 10 C.F.R. § 2.714(a) to have eight late-filed contentions admitted in this proceeding. Alternatively, Intervenor petitioned to have those contentions admitted on the basis of new information which furnished "good cause" for their late filing. After Intervenor abandoned the petition for reconsideration, the Licensing Board again denied the admission of the eight contentions, holding that new information which was outside the scope of the contentions ruled on in LBP-82-54 had not been presented and that the five criteria of 10 C.F.R. § 2.714(a) balanced against admission of the contentions.

## **RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS**

Intervenors must diligently uncover and apply all available information to the prompt formulation of contentions. *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041 (1983).

## **RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS**

Where intervenor does not show good cause for the nontimely submission of contentions, it must make a compelling showing on the other four criteria of 10 C.F.R. § 2.714(a). *Mississippi Power & Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725 (1982).

## **RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS**

Despite the fact that nontimely contentions raise matters which have not previously been litigated, the requirements for reopening records must be satisfied in addition to the requirements of 10 C.F.R. § 2.714(a). *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-82-39, 16 NRC 1712, 1714-15 (1982).

# **MEMORANDUM AND ORDER**

**(Ruling on MVPP's Motion to Reopen the Record)**

## **BACKGROUND**

On May 18, 1982, Miami Valley Power Project (MVPP), an intervenor in this proceeding, filed a motion seeking leave to file eight new contentions. These contentions raised questions concerning quality assurance and management's character and competence to operate a nuclear power station. Applicants opposed this motion. Although Staff recognized that there was validity to Applicants' position that MVPP's motion was inexcusably late, it nonetheless urged that the contentions be admitted in the public interest.

On July 15, 1982, we ruled that although MVPP had not met its burden of justifying admission of the eight untimely contentions, the public interest dictated that these contentions be taken up as Board

issues. Consequently, we raised the eight contentions *sua sponte* pursuant to our authority under 10 C.F.R. §§ 2.718(j) and 2.760a and informed the Commission of our action. (LBP-82-54, 16 NRC 210.)

On July 30, 1982, the Commission reversed our action on the ground that we had not adequately justified it and directed us to dismiss the eight contentions. (CLI-82-20, 16 NRC 109.) On August 2, we carried out that directive. Subsequently, MVPP moved that the Commission reconsider its July 30 Order. On February 18, 1983, the Commission denied that motion. In so doing, the Commission stated that in its July 30 Order it had

intended no view on the correctness of the Licensing Board's decision that MVPP had not met its burden for reopening the hearing to consider late contentions. The Commission has no view on whether MVPP has met the standards for reopening or for admission of late contentions and does not wish to entertain the matter out of the normal sequence. Thus MVPP may seek reconsideration or further relief from the Licensing Board or appellate review from the Appeal Board as appropriate under Commission rules.

(CLI-83-4, 17 NRC 75, 76.)

Following the Commission's July 30 reversal of our Order taking up the eight contentions as Board issues, MVPP also petitioned the Commission to suspend construction at the Zimmer plant. The Commission referred this petition to the Staff for consideration under 10 C.F.R. § 2.206. Staff issued a Demand for Information to Applicants which required Applicants to address the substantive allegations of MVPP's petition. Subsequently, on November 12, the Commission halted safety-related construction at Zimmer. (Order to Show Cause and Order Immediately Suspending Construction, CLI-82-33, 16 NRC 1489.) Staff, treating the Commission's action as having granted substantially the same relief as sought by the petition, issued a Director's Decision (DD-83-2, 17 NRC 323 (1983)) which granted the petition in part and denied it in part. In this decision, the Staff specifically noted that it continued to need Applicants' response to its Demand for Information (*see* DD-83-2, 17 NRC 324 n.1). That response reached MVPP in mid-March of this year.

## PRELIMINARY MATTERS

On June 3, 1983, in excess of three months following the Commission's February 18 Order, MVPP filed the instant motion to reopen the record. Alternatively, the motion asks that we reconsider LBP-82-54. This motion advances the same eight contentions advanced



in May 1982, but adds supporting information subsequently obtained by MVPP. MVPP asserts that it has met the Commission's requirements for reopening records and for admitting late contentions. In addition, MVPP asserts that adequate justification for our again raising these contentions as *sua sponte* issues is now present.

On June 20, 1983, both Applicants and Staff filed responses in opposition to MVPP's motion. Pursuant to this Board's Order of July 7, 1983 (unpublished), on July 12 MVPP filed a reply to these responses and certain additional affidavits.<sup>1</sup>

### A. Jurisdiction

Both Applicants and Staff argue that this Board has lost jurisdiction to decide MVPP's motion. Staff asserts (*see* Staff's response at 10 n.14) that this Board lost jurisdiction on July 7, 1982, with respect to all matters covered by the Initial Decision (LBP-82-48, 15 NRC 1549 (1982)) save certain emergency planning matters over which we retained jurisdiction. Staff cites *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-513, 8 NRC 694, 695 (1978); *Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-551, 9 NRC 704, 706 (1979); and *Florida Power and Light Co.* (St. Lucie Nuclear Power Plant, Unit No. 2), ALAB-579, 11 NRC 223, 225 (1980) as authority for its position. Staff's position in this regard appears to be that no jurisdiction exists in either the Appeal Board or this Board by virtue of the fact that finality has attached to the matters resolved by this Board's Initial Decision other than those over which we retained jurisdiction. (Our retention of jurisdiction was modified and affirmed by the Appeal Board in ALAB-727, 17 NRC 760 (1983). Because LBP-82-48 resolved all issues save those over which jurisdiction was retained, and because there is no nexus between the issues which MVPP now seeks to raise and those remaining issues, Staff appears to believe that the Commission's adjudicatory boards no longer may consider MVPP's motion.

Staff also takes the position that jurisdiction to rule on a petition for reconsideration has now passed to the Appeal Board, citing *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-699,

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<sup>1</sup> Although the Board had indicated in its July 7 Order that in the event it desired further responses after having received MVPP's reply it would so indicate, Applicants on July 15 sought permission to respond. On being advised orally by the Board's Clerk that the Board did not wish a further response from Applicants, Applicants nevertheless filed such a response on August 3. That response has not been considered by the Board. Consequently MVPP's motion that it be permitted a further reply is denied as moot.

16 NRC 1324 (1982) and *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-726, 17 NRC 755 (1983). Staff also points out that MVPP made no timely motion for an extension of time to act following CLI-83-4, and cites the Commission's *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (1981) for the proposition that boards must satisfy themselves that such motions are truly supported by good cause. Staff concludes by attacking MVPP's showing of good cause for the delay in filing its motion for reconsideration.

Applicants devote considerable space to their jurisdictional arguments. Applicants start with the premise that Licensing Boards are creatures of the Commission's delegated authority, citing *Carolina Power and Light Co.* (Shearon Harris Nuclear Power Plant, Units 1, 2, 3, and 4), CLI-80-12, 11 NRC 514, 516-17 (1980), and proceed to discuss the *Three Mile Island* and *Limerick* decisions, *supra*, as well as the *Seabrook*, *North Anna*, and *St. Lucie* decisions cited by Staff. Applicants conclude that, at this point in time, this Board has only limited jurisdiction to consider the aforementioned emergency planning issues, which Applicants wrongly characterize as having been remanded by the Appeal Board.<sup>2</sup>

In its reply brief, MVPP takes sharp issue with Applicants' and Staff's analyses. MVPP starts its argument with the proposition that 10 C.F.R. § 2.717(a) gives the presiding officer jurisdiction over a proceeding until final agency action takes place. MVPP then points out that finality had not occurred in this proceeding at the time its motion was filed. It bases its argument on the proposition that the Applicants' appeal of our Initial Decision (LBP-82-48) prevented that decision from becoming final agency action by virtue of 10 C.F.R. § 2.760(a). It also notes that the Appeal Board, as the Commission's delegate, conducted its customary *sua sponte* review of LBP-82-48 pursuant to 10 C.F.R. § 2.770(a). (See ALAB-727, *supra*, at 776 n.23.) Finally, MVPP notes that its motion preceded the expiration of the time period (extended by the Commission to July 13 in an unpublished Order issued June 13) in which the Commission might act to review the record. MVPP cites a number of cases as support for its position and distinguishes the *Seabrook*, *North Anna*, and *St. Lucie* decisions, *supra*, relied on by Applicants and Staff.

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<sup>2</sup> These emergency planning issues were found by this Board to preclude the issuance of a full-power operating license until an adequate showing had been made with respect to them (LBP-82-48, *supra*). This result was modified and affirmed by the Appeal Board after considering Applicants' appeal (ALAB-727, *supra*). No other party appealed LBP-82-48, and no party sought Commission review of ALAB-727.

MVPP disagrees with Staff and Applicants on whether jurisdiction has passed from this Board to the Appeal Board. MVPP relies on a previous Order of this Board for the proposition that, because the issues which it seeks to raise are unrelated to the issues appealed in this proceeding, this Board retains jurisdiction to pass on its motion. (See Memorandum and Order of March 10, 1983 (LBP-83-12, 17 NRC 466).) MVPP thus distinguishes the *Three Mile Island* and *Limerick* decisions, *supra*, relied on by Applicants and Staff.

We agree with the substance of MVPP's jurisdictional arguments. We start from the premise that the applicable regulation, 10 C.F.R. § 2.717(a), states that:

[t]he presiding officer's jurisdiction in each proceeding will terminate upon the expiration of the period within which the Commission may direct that the record be certified to it for final decision, or when the Commission renders a final decision, or when the presiding officer shall have withdrawn himself from the case upon considering himself disqualified, whichever is earliest.

Because the latter two events recited in the regulations are not here applicable, it becomes necessary to determine when the period within which the Commission might direct that the record be certified to it for final decision expired.

The regulations indicate that this period expired on July 18, 1983, after the filing of the instant motion, with the passing of the time within which the Commission might elect to review ALAB-727. Under 10 C.F.R. § 2.760(a), LBP-82-48 would have become final NRC action 30 days after its issuance had not Applicants filed exceptions to it with the Appeal Board. That action prevented LBP-82-48 from becoming final prior to the completion of Appeal Board review. That review was completed on May 2, 1983, with the issuance of ALAB-727. Under 10 C.F.R. § 2.786(a), ALAB-727 and LBP-82-48 did not become the final NRC action until the expiration of the Commission's review period. While the specific issues appealed to and decided by the Appeal Board are unrelated to the eight contentions here under consideration, the Appeal Board conducted its customary *sua sponte* review of the record (see ALAB-727, *supra*, at 776 n.23). Thus none of the unappealed results reached in LBP-82-48 became final NRC action until the expiration of the Commission's review period.

The continuance of jurisdiction over a proceeding by adjudicatory boards until final NRC action in that proceeding divests them of jurisdiction is mandated by § 2.717(a) quoted above. The *Seabrook*, *North Anna*, and *St. Lucie* decisions, *supra*, cited by Applicants and Staff are entirely consistent with this result. In each of these decisions, final

NRC action had occurred with respect to virtually all issues. The fact that a few discrete issues remained to be resolved could not vest a board with jurisdiction over a wholly unrelated issue.

Having concluded that the fact that agency action had not occurred when the instant motion was filed, the question whether that jurisdiction has passed from this Licensing Board to the Appeal Board must be addressed.

We begin from the premise that we as a Licensing Board have the power to rule in the first instance as to the scope of our jurisdiction. *Duke Power Co.* (Perkins Nuclear Station, Units 1, 2 and 3), ALAB-591, 11 NRC 741, 742 (1980). Once a Board determines that it has jurisdiction, it is entitled to proceed directly to the merits. *Perkins*, ALAB-597, 11 NRC 870, 873 (1980).

The Appeal Board has said that a Licensing Board retains jurisdiction to reopen a proceeding at least until issuance of the initial decision, but no later than the filing of exceptions or the expiration of the period during which the Commission or an Appeal Board can exercise its right to review the record. (*Three Mile Island, supra.*) “[J]urisdiction to rule on a motion to reopen filed after exceptions have been taken . . . rests with the appeal board rather than the licensing board.” *Id.* at 1327 (footnote omitted). The Appeal Board in the situation presented accepted a referral from the Licensing Board only after the Board had initially decided issues on which reopening was sought and exceptions challenging the Board’s decision on those issues had been filed. Until exceptions to an initial decision have been filed (or where no exceptions are filed), jurisdiction to rule on a motion to reopen lies with the Licensing Board. *Limerick, supra*, ALAB-726, 17 NRC at 757.

The situation this Board is faced with is not one in which the contentions on which intervenors seek to reopen the record have been litigated and exceptions filed. Like the situation spoken to in *Limerick*, no record has been compiled on these contentions on which jurisdiction may pass to an Appeal Board for review. The Appeal Board explained in that case that, “until exceptions are filed, there is literally no appeal to invoke [Appeal Board] jurisdiction (*see generally* 10 C.F.R. §§ 2.762(a), 2.785) and, necessarily, [an appeal board has] no familiarity with the case.” *Limerick, supra*, at 758. We thus conclude that jurisdiction to rule on the admission of these eight contentions, which were filed prior to final agency action and which have never been litigated, rests with the Licensing Board. This is consistent with our earlier ruling, LBP-83-12, *supra*, relied on by MVPP.

## B. The Nature of MVPP's Motion

Applicants and Staff take the position that MVPP's motion is too late to take advantage of the opportunity afforded it in CLI-83-4 to seek reconsideration of or appeal this Board's ruling in LBP-82-54 that it was inexcusably tardy in proffering its eight contentions in May of last year. Both start from the premise that the instant motion is in effect a petition for reconsideration. Both acknowledge that the Commission effectively extended the time period to file such a motion from July 25, 1982 (ten days following LBP-82-54) until ten days following CLI-83-4, or February 28, 1983. Both argue that MVPP's June 3 motion is therefore inexcusably late.

Staff goes on to attack the motion as wholly failing to comply with 10 C.F.R. § 2.771(b) in that it does not advise the Board of the respects in which MVPP considers LBP-82-54 to be erroneous. Staff argues that matters which have transpired since LBP-82-54 was rendered are irrelevant to a petition for reconsideration, and concludes that that ruling was correct. Applicants join in this conclusion (Applicants' Answer at 21-24).

Applicants also raise a related point that MVPP might well have been able to show that, despite the fact that we raised MVPP's contentions as Board issues, some discernible injury resulted to it from LBP-82-54, thus permitting an appeal under *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-252, 8 AEC 1175 (1975), *aff'd*, CLI-75-1, 1 NRC 1 (1975). Applicants base their position on the proposition that, under *Public Service Electric and Gas Co.* (Salem Nuclear Generating Station, Unit 1), LBP-80-27, 12 NRC 435, 451 (1980), *aff'd*, ALAB-650, 14 NRC 43 (1981), *aff'd*, *Township of Lower Alloways Creek v. Public Service Electric & Gas Co.*, 687 F.2d 732 (3d Cir. 1982), a licensing board considering an issue *sua sponte* need only satisfy itself that its questions have been adequately answered. Applicants contrast this situation to the rules under which licensing boards must deal with admitted contentions. In the latter situation, an applicant bears the burden of proof and must present a preponderance of the evidence. Thus Applicants assert that MVPP should have immediately sought reconsideration of or appealed LBP-82-54.

Applicants' and Staff's arguments in regard to reconsideration are made moot by MVPP's concession in footnote 2, page 2 of its reply brief. There

MVPP concedes that it has exceeded the statute of limitations for a petition to reconsider previous rulings on its May 18, 1982 motion for licensing hearings on contentions covering the same basic subject matter, and therefore withdraws the alternative petition to reconsider that was presented in the June 3 motion.

Similarly, MVPP states on pages 27-28 of its reply brief that the instant motion is not a motion to reconsider, but rather a new motion to reopen based on new facts. We treat the motion in that context.

## **THE MERITS OF MVPP MOTION TO REOPEN THE RECORD**

### **A. *Amici Curiae* Briefs**

Several organizations which are not parties to this proceeding have filed *Amici Curiae* briefs in support of MVPP's motion. These briefs assert the need to reopen the record so that the quality assurance and character and competence issues may be resolved in full public view. The sponsoring organizations are:

Ohio Sierra Club

Church of the Brethren, Southern Ohio District

Cumberland Chapter of the Sierra Club

Appalachia-Science in the Public Interest

Coalition for Affordable, Safe Energy (Cincinnati, Ohio)

Applicants oppose acceptance of these briefs, pointing out that there is no provision in the Rules of Practice which authorizes them and that, substantively, they constitute general statements of concern rather than legal briefs. Staff does not object to their consideration.

We agree with Applicants' characterization of the substantive nature of these briefs. Given their nature, we *see* no obstacle to their acceptance under 10 C.F.R. § 2.715(a).

### **B. Responses to the MVPP Motion**

The City of Mentor, participating in this proceeding pursuant to 10 C.F.R. § 2.715(c), filed a brief response in which it points out that MVPP's motion is based on allegations of corporate mismanagement and quality assurance breakdowns which took place after the hearings on safety-related construction contentions had been concluded. In these circumstances, Mentor takes the position that the Commission should be less concerned with procedure than with protection of the public. Mentor characterizes the latter consideration as the real issue and urges that MVPP's motion be granted.

### **C. Existence of Disputes**

In its motion and reply brief, MVPP spends much time arguing that there are disputes over material, significant facts. MVPP concedes that it

is not necessary to trigger a hearing if the contentions are frivolous or in essence only "fishing expeditions." However, MVPP argues strenuously that such is not the case here,<sup>3</sup> and requests the opportunity for discovery in order to demonstrate this proposition should the Board doubt it.

Applicants do not take issue with this argument. We have no doubt that disputes over material, significant facts exist between MVPP and Applicants, and that these disputes are indeed vehement ones. We do doubt whether any major disputes exist between MVPP and Staff, given Staff statement that:

if . . . the basic allegations of the MVPP Contentions were to be litigated in the Zimmer operating license proceeding, the Staff position would be to agree in general with the substance of the contentions.

(Staff answer at 12.)

#### **D. The Five Criteria of 10 C.F.R. § 2.714(a)**

##### ***1. Good Cause for Failure to File on Time***

In evaluating the "good cause" criterion as applied to the instant motion, it is first necessary to consider the relationship of this motion to MVPP's 1982 motion. We have already noted (*supra* p. 647) MVPP's concession in its reply brief that the instant motion does not seek reconsideration of our ruling that the 1982 motion was inexcusably late. Rather MVPP wishes the 1983 motion to be viewed as a new effort to reopen the record based on new information.

In this connection, it is interesting to compare MVPP's characterization of the eight contentions in its 1983 motion with its characterization in the reply brief. On page 6 of its 1983 motion, MVPP states:

Last May 18 [May 18, 1982] MVPP submitted eight contentions for litigation in licensing hearings. During the previous year MVPP has obtained considerable evidence to further refine, expand and strengthen the contentions. The original contentions are again presented below, refined with additional illustrations learned since May 18, 1982. The basis for each contention is the evidence in the previous MVPP submissions . . . . Examples of additional supporting evidence are attached, as specified.

Thus the motion clearly sets forth that MVPP is not submitting new contentions, but rather refinements of the original contentions based on new information obtained since the original contentions were advanced.

However, after receiving Applicants' and Staff's opposition, this characterization of the contentions changed.

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<sup>3</sup> MVPP asserts that "[t]here is virtually unanimous disagreement" in this case. (MVPP motion at 38.)

MVPP concedes that the new contentions are similar to the old in that they have identical titles. But the staff has missed the point. The titles of the contentions are merely a means to organize the issues in an across-the-board QA breakdown. MVPP organized the information by dividing it into eight contentions. The information could have been organized as one contention — C.F.R. Part 50, Appendix B — or as 18 contentions, according to the specific criteria in Appendix B. In short, the general subject titles of the contentions are merely of cosmetic significance.

MVPP also concedes that the new contentions included the examples that could be identified and alleged last year. That is unavoidable, because the problems have not been solved. The distinction is that the new evidence gathered since last May 18, and the new instances of illegality during the last year, qualitatively change the scope and nature of the QA abuses MVPP is challenging, as well as the fundamental conclusions: Instead of being quality indeterminate, Zimmer is quality condemnable. (*Supra*, at 3). MVPP was not even familiar last year with many of the specific concerns now covered by the contentions. Many of the abuses MVPP seeks to challenge had not yet occurred.

To analogize, a newborn baby is not “identical” to the same person as an adult, even though the genes and last names are the same. In short, this year’s 8 contentions sprang from the same “family” as those proposed last year. But they are different generations, not twins. The staff’s inability to recognize this distinction leaves its analysis largely irrelevant. [Footnote omitted.]

MVPP reply brief at 35-36.

And, in characterizing new evidence purportedly obtained between the filing of the motion in 1983 and the reply brief, MVPP states:

In some instances, the new evidence pertains to significant additional quality assurance (QA) violations. In other cases, the new evidence offers illustrative examples to rebut or demonstrate the inadequacy of applicant’s responses to the NRC’s September 23, 1982 Demand for Information . . . .

(Reply brief at 3.) Nonetheless, MVPP maintains that this new information alone offers sufficient justification to reopen the record. (Reply brief at 2.)

Because of the different emphasis in MVPP’s characterization of its contentions, and because MVPP has abandoned its efforts to obtain reconsideration of LBP-82-54 holding the 1982 motion inexcusably late, we have carefully compared the contentions advanced in 1982 with their 1983 versions. In so doing, we have examined whether the 1983 versions do in fact raise significant new quality assurance violations not contemplated by the 1982 contentions. Our findings in that regard follow.



### Contention 1<sup>4</sup>

*CG & E and its contractors have failed to maintain sufficient quality assurance controls to ensure that the as-built condition of the plant reflects the final version of a design that complies with all applicable regulations and requirements for public health and safety, as required by 10 C.F.R. 50, Appendices A and B.*

This Contention alleged in 1982 that construction had "proceeded on the basis of construction aids rather than final [approved] drawings" (1982 motion at 5), that design changes were not properly circulated, and that erroneous Design Document Changes were approved.

In 1983, MVPP provided further specification of the allegations made in 1982. The principal new information relied on by MVPP is an evaluation in the NET Report<sup>5</sup> of the design practices of Sargent and Lundy. A portion of this evaluation is quoted by MVPP on page 8 of its motion. The evaluation indicates that, taken individually, the concerns identified by the NET Report may be of minor significance. However, the NET Report concludes that the widespread nature of the concerns, when taken in the aggregate, necessitates the need to verify the quality of the design process. To do this, the NET Report recommended an independent design audit. (See § 2.5, p. 224 of the NET Report.)

MVPP also relied in part on the NET Report in its letter to the Commissioners of May 25, 1983, requesting that CG&E be removed from further control of the Zimmer quality assurance program. That letter is specifically referenced as support for this Contention.

### Contention 2

*CG & E and its contractors have failed to maintain an adequate traceability system to identify and document the history of all material, parts, components and welds, as required by 10 C.F.R. Part 50, Appendix B, Criterion VIII.*

In 1982, MVPP alleged that it was not possible to trace the history of construction materials because of inadequate blueprints, damage to the materials, inadequate records, and inadequate identifying markings. MVPP concluded that there was little basis to rely on the existing traceability system.

In 1983, MVPP provided further specification to this contention. Among other things, MVPP points to a decision to require traceability

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<sup>4</sup> The wording of the contentions is taken from the MVPP reply brief.

<sup>5</sup> Report of the NRC Evaluation Team on the Quality of Construction at the Zimmer Nuclear Power Station, NUREG-0969, April 1983.

of material only to the point of receipt rather than the point of use. MVPP alleges that the full scope of this problem is unknown.

MVPP supports its 1983 motion with a general reference to the NET report and certain affidavits which would be furnished if a protective order were entered. It is not clear whether these affidavits were in fact among those submitted with MVPP's reply brief.

### *Contention 3*

*CG & E and its contractors have failed to maintain an adequate quality assurance program for vendor purchases, as required by 10 C.F.R. Part 50, Appendix B, Criterion VII.*

In 1982, MVPP alleged that vendors were improperly placed on the Approved Vendor List, that vendor products were inadequately inspected and accounted for and inadequately segregated from materials fabricated on site, and that "non-essential" vendor materials were improperly upgraded to "essential."

The 1983 motion simply puts more meat on the bones of the 1982 allegations.

### *Contention 4*

*CG & E and its contractors have failed to maintain an adequate quality assurance program to identify and correct construction deficiencies, as required by 10 C.F.R. Part 50, Appendix B.*

In 1982, MVPP alleged that the quality assurance program suffered in the following respects:

1. lack of adequate manuals;
2. inadequate training;
3. inadequate staffing prior to the establishment of the Quality Confirmation Program;
4. inadequate inspections and audits;
5. lack of good faith efforts to comply with audit recommendations;
6. corrective actions which were prospective only; and
7. lack of independence for the QA/QC departments.

The 1983 motion adds considerable detail to these allegations chiefly by citing illustrations from the welding program. It relies to a great extent on the NET Report. The motion alleges that the qualifications of QA/QC personnel were suspect; that proper procedures, when in effect, were circumvented; that QA records were inadequately controlled; that corrective actions failed to prevent the recurrence of problems; that

equipment was improperly maintained; and that tests were improperly conducted.

Additionally, MVPP in its reply brief, relies on the Nolder affidavit executed on July 6, 1983 to further document its allegations concerning the quality assurance program. This affidavit apparently represents a source of information only recently available to MVPP. However, the allegations of the affidavit serve only to illustrate allegations made in MVPP's 1982 motion.

### *Contention 5*

*CG & E and Kaiser failed to maintain adequate controls to initiate, process and respond to internal Nonconformance Reports ("NRs") identifying violations of internal or government requirements.*

In 1982, MVPP relied on the November 1981 I&E Report (IE Report No. 50-358/81-13, November 2, 1981) to support this contention. MVPP alleged that QA inspectors were ordered not to write NRs on procedural deficiencies, that it was otherwise unreasonably difficult to issue NRs, that an elaborate system of reports on nonconforming conditions essentially avoided accountability, and that NRs were improperly voided so that many unknown deficiencies exist.

The 1983 motion elaborates on the 1982 allegations and relies for additional support on the NET Report.

### *Contention 6*

*CG & E and Kaiser have engaged in illegal retaliation against QA/QC personnel who attempt diligently to perform their duties or who disclose QA deficiencies outside the chain of command, in violation of 10 C.F.R. Part 19 and Part 50, Appendix B, Criterion I.*

In 1982, MVPP alleged various acts designed to discourage the proper discharge of QA/QC duties. These included physical and verbal attacks, as well as adverse personnel actions. Retaliatory action was also alleged to have been taken against organizations.

The 1983 motion and reply brief elaborate on the 1982 allegations and assert that retaliatory actions against conscientious QA personnel continue undiminished.

## Contention 7

*Reforms imposed by the April 8, 1981 Immediate Action Letter ("IAL"), such as the Quality Confirmation Program ("QCP"), have been [sic] inherently and empirically failed to adequately mitigate or solve the serious consequences of the QA breakdown at Zimmer.*

In 1982, MVPP found fault with the QCP on the following grounds:

1. Too much discretion vested in CG&E;
2. The program is an audit, as opposed to a complete reinspection of all safety systems; and
3. The program is limited to deficiencies identified by NRC.

The 1983 motion elaborates on the 1982 allegations and adds a new element — an inherent conflict of interest on CG&E's part. The motion alleges that, as a result of legal proceedings, CG&E faces a conflict in that discovery of construction defects important to safety may well compromise its position in those proceedings.

The proceedings in question are a shareholder derivative action,<sup>6</sup> rate proceedings before the Ohio Public Utilities Commission, and demands for arbitration (and civil litigation growing from those demands) by CG&E's partners, Dayton Power and Light Company and Columbus and Southern Ohio Electric Company.<sup>7</sup>

While it may well be true that the legal proceedings cited by MVPP could provide motivation to CG&E, in defending its management of Zimmer, to overlook deficiencies in construction, other consequences flowing from the discovery of deficiencies provide equal or greater motivation in the same direction. The simple fact that construction deficiencies may delay the commercial operation of a nuclear power plant — in addition to the possibility that they may prompt enforcement action — probably provides the most powerful incentive not to discover deficiencies.

For this reason we do not view MVPP's allegations that the QCP has been "fundamentally compromised" (1983 motion at 28) by these legal proceedings as raising new matters which should be litigated at this late date. Moreover, we note that the allegations with regard to this conflict appear to be an amplification of MVPP's complaint in the 1982 motion that the QCP vests too much discretion in CG&E. (See 1982 motion at 13.) Rather than seeking that CG&E's responsibilities under the QCP be more precisely defined in order to "guarantee a full solution for a

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<sup>6</sup> *Efros v. Dickhoner*, No. C-1-82-1310 (S.D. Ohio, U.S.D.C., filed November 15, 1982); a copy of the complaint is Exhibit 4 to Exhibit 2 to the 1983 motion. Exhibit 2 to the 1983 motion is a May 25, 1983 letter to the Commissioners written by GAP on behalf of MVPP.

<sup>7</sup> See Exhibit 1 to Exhibit 2 to the 1983 motion.

quality assurance program 'totally out of control' ” (1982 motion at 14), MVPP has simply escalated its demand to removal of CG&E's responsibilities. Hence we view the alleged conflict as new information pertaining to an old demand.

### Contention 8

*CG & E lacks the necessary character and competence to operate a nuclear power plant.*

This contention is, according to MVPP, the most significant of its eight contentions (*see* MVPP's reply brief at 16 n.7). It alleges that CG&E lacks the necessary character and competence to operate a nuclear power plant, relying on *Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), CLI-80-32, 12 NRC 281 (1980).

In 1982, this contention asserted that “[t]he most charitable explanation for the massive QA breakdown is that CG&E abdicated its duty to devise a technically competent QA program and to monitor that program.” (1982 motion at 15.) This, MVPP had alleged, is sufficient ground to deny the operating license.

The 1982 motion further alleges that CG&E dominated the quality assurance program and relegated it to a secondary role *vis a vis* the construction program. As to character, the 1982 motion alleged that specific public statements issued by CG&E about the quality assurance program and about specific hardware defects were at best inaccurate. Additionally, the motion pointed to inaccurate and misleading statements made by CG&E and its construction contractor, Kaiser Engineers, Inc. (KEI) to NRC, raising the possibility that some of these may have been intentional. The motion concluded with references to a then-suspended criminal investigation of CG&E's conduct and onsite illegal activities of construction workers.

The 1983 motion adds meat to the bones of the 1982 allegations and alleges that, rather than improve, CG&E's conduct has in fact become worse.

On August 26, 1983, MVPP filed a motion for leave to submit additional new evidence in support of its contentions. This new evidence consists of material apparently generated on an investigative trip by MVPP's counsel concluded on August 19 and a review of the Torrey Pines Technology Report on CG&E's management of the Zimmer project which was received by MVPP on August 24. The motion also reiterates MVPP's arguments in favor of discovery as a means to demonstrate that genuine disputes exist on significant safety matters. Finally, the motion requests that we review two NRC investigations related to

Zimmer which are not yet publicly available. These are identified as "1) the investigation by Administrative Law Judge Helen Hoyt of Thomas Applegate's allegations of misconduct by the Office of Inspector and Auditor during a 1981 investigation at Zimmer; and 2) the ongoing OI investigation of Zimmer performed primarily by Mr. John Sinclair [footnote omitted]." (Motion at 9.) MVPP believes these investigations to be highly relevant to its contentions.

The new evidence generated by counsel on his investigative trip has been summarized by contention in the motion. It pertains to Contentions 2, 3, 4, 6, and 8. We have reviewed this information in light of the allegations contained in MVPP's 1982 motion to admit these contentions. We find nothing in it which is not within the contemplation of the 1982 contentions. Hence our conclusions stated above are not affected.

The same holds true for the Torrey Pines Report. MVPP, in fact, finds the report's conclusions add support to and confirm its contentions, but does not allege that it constitutes new material not contemplated by its contentions.

Because we have ruled that disputes exist between MVPP and Applicants, *supra*, at p. 649, there is no need for discovery on that point.

Further, we decline to review the two reports cited by MVPP. We have reviewed the Commission's Statement of Policy on Investigations and Adjudicatory Proceedings (48 Fed. Reg. 36,358 (1983)) cited by MVPP. We do not believe that Statement is applicable to the circumstances presented here. The Statement is clearly applicable to information generated in investigations that is material to issues in controversy in an adjudication. While the investigative materials cited by MVPP may well be relevant and material to its proposed contentions, those contentions have not yet been admitted in this proceeding. Hence they are not issues in controversy to which the investigative material is relevant and material, and the Policy Statement is accordingly not applicable.

With the preceding as background, MVPP's showing of "good cause" may be evaluated. Preliminarily to that evaluation, it should be noted that the issues which MVPP seeks to raise are indeed serious ones. This fact was specifically noted by the Staff in its support of MVPP's 1982 motion, and was recognized by this Board in LBP-82-54 (*see* 16 NRC at 214) and the Commission in CLI-82-20 (*see* 16 NRC at 110). In MVPP's view, the issues are more serious now than they were in 1982. Be that as it may, we have made no attempt to determine degrees of seriousness. In their 1982 form, the contentions were serious matters appropriate for an adjudicatory hearing. They are no less so in 1983. Our

inquiry, in evaluating "good cause," is to determine whether MVPP has now raised matters not within the contemplation of the 1982 contentions for which there is "good cause" to justify MVPP's untimely filing. Because MVPP has conceded that it is too late to take advantage of the opportunity afforded by CLI-83-4 to seek reconsideration by us of our 1982 holding in LBP-82-54 that MVPP had not met the standards necessary to admit late contentions, that holding stands.

MVPP addresses the five criteria of 10 C.F.R. § 2.714(a) governing admission of late contentions. With respect to the first criterion, failure to file in a timely fashion, MVPP first asserts that it was entitled to rely on the Staff to deal with the situation at Zimmer and consequently was under no obligation to file its contentions until it had received and verified information indicating that the Staff apparently was not uncovering significant portions of the quality assurance problems. This argument appears to refer more to the 1982 motion than the instant motion.

With respect to the delay in filing the instant motion, MVPP asserts that: first, much of that time was consumed by Commission consideration of the matter; second, it has been conscientiously participating in the Commission's so-called third party program, a matter more fully discussed under the second criterion; third, it was entitled to a reasonable period of time to review Applicants' response to Staff's demand for information with respect to MVPP's petition to halt construction; and fourth, it had good cause to delay its decision on whether to again seek hearings until receipt in mid-May of the Staff's April NET Report which, MVPP alleges, provides additional support for its contentions.<sup>8</sup>

Applicants mount a generalized attack on this showing and MVPP, in its reply brief, has responded in kind. Their arguments go to the reasonableness of the timing of MVPP's attempts to have its contentions taken up in this proceeding. We do not discuss these arguments because we believe that the disposition of the "good cause" criterion is governed by the Commission's decision in *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041 (1983). This decision was rendered after Applicants' answer was filed but before MVPP's reply brief. In their answer, Applicants relied on the Appeal Board's *Catawba* decision (ALAB-687, 16 NRC 460 (1982)) which was reviewed in CLI-83-19. Although MVPP attacked Applicants' reliance on ALAB-687 and argued that ALAB-687 in fact supported its position, it did not discuss CLI-83-19.

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<sup>8</sup> Because Staff limited its response to MVPP's motion to a discussion of whether MVPP had shown good cause for a tardy petition for reconsideration, it is irrelevant to the ensuing discussion.

In CLI-83-19, the Commission stated two basic principles governing intervention in NRC proceedings. The first principle requires one who invokes the right to participate to accept the obligations of participation. The second principle is that there is a substantial public interest in the efficient and expeditious conduct of those proceedings. (17 NRC at 1048.) From these principles, the Commission reasoned:

Taken together, these principles require intervenors to diligently uncover and apply all publicly available information to the prompt formulation of contentions. Accordingly, the institutional unavailability of a licensing-related document does not establish good cause for filing a contention late if information was available early enough to provide the basis for the timely filing of that contention.

Turning now to the specific subject areas raised by the participants, we have the following observations:

### ***1. Safety-Related Contentions***

It is well established that the Applicant carries the burden of proof on safety issues. *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-283, 2 NRC 11, 17 (1975). Thus, the FSAR is the central document for the formulation of safety contentions. Should the subsequent issuance of the SER lead to a change in the FSAR and thereby modify or moot a contention based on that document, that contention can be amended or promptly disposed of by summary disposition or a stipulation. However, the possibility that such a circumstance could occur does not provide a reasonable basis for deferring the filing of safety-related contentions until the staff issues its SER.

(17 NRC at 1048-49.)

We find the above discussion fully applicable to MVPP's showing of good cause. We have compared the 1983 contentions to the 1982 contentions and find ourselves in agreement with MVPP's statement in its 1983 motion that the evidence it has gathered "further refine[s], expand[s] and strengthen[s] [the 1982] contentions." (1983 Motion at 7.) We are unable to find any allegations in MVPP's reply brief, the affidavits accompanying it, or its August 26 motion which raise new matters not within the contemplation of the 1982 contentions. As we held in LBP-82-54, these contentions clearly could have been raised at least as early as the end of 1981, if not earlier. MVPP's justifications for again advancing these contentions in 1983 simply do not pass muster.

### ***2. The Availability of Other Means to Protect Petitioner's Interest***

MVPP devotes considerable time to discussing this second criterion. Its position is perhaps best summed up by the following statement from page 46 of its motion:



MVPP's proposed contentions fill in the holes left by the other responses to Zimmer's QA breakdown. In combination, hearings and other remedies offer a complete program. Without hearings, the other responses combined will leave major questions unresolved, and will exempt significant policy decisions from public accountability.

MVPP then goes on to explain the shortcomings it finds in the "other responses to Zimmer's QA breakdown." Initially, it notes that in its view the Commission's commitment to maintain close oversight of the Staff's efforts in this connection is no longer in effect. In support of its view, MVPP cites the Commission's broad delegation to the Regional Administrator of Region III to supervise compliance with the Commission's Order to Show Cause (CLI-82-33, *supra*) contained in Section IV.B of that Order. MVPP goes on to assert that, in the absence of Commission involvement, there needs to be a forum to examine Staff practices. It questions the Staff's policy of permitting the lead Applicant (CG&E) to maintain control of the quality confirmation program (QCP) and the QA program, alleging that this perpetuates an "empirical failure" and a structural conflict of interest in light of CG&E's litigation with its partners (motion at 47).

MVPP then made the following allegations:

First, while not challenging Torrey Pines Technology's competence or objectivity to conduct the management review and quality verification program, MVPP asserts that "[i]t is unrealistic to expect that a new organization can assimilate and evaluate the massive organizational breakdown at Zimmer in a few months sufficiently to do more than complement licensing hearings" (motion at 48).

Second, Torrey Pines' substantive contribution would likely constitute an addition to MVPP's review rather than a substitute for it.

Third, Torrey Pines lacks the authority to enforce its findings; instead it is to make recommendations to CG&E which in turn will make decisions subject to Staff approval. MVPP finds this no substitute for licensing hearings.

Fourth, MVPP views the Commission's Order to Show Cause halting construction as a direct response to its eight proffered contentions. It also views the fact that that Order permits CG&E to remain in control of the QA program as a means of bypassing many of its concerns embodied in those contentions.

Fifth, MVPP alleges that CG&E's control permits it to retain control of the substantive findings.

Sixth, the opportunities for MVPP to informally participate in the Staff's review activities are an inadequate substitute for hearings.

MVPP thus concludes that the plan of action put in place by the Commission's Order to Show Cause cannot fully protect its interest. It then asserts that the Commission's reliance, in part, on its confidence in an enhanced Staff review program as a reason for its decision not to permit hearings no longer supports that decision. MVPP then enumerates twelve examples of alleged Staff misconduct beginning in December 1980, in support of its assertion. While disavowing any intent to use hearings before this Board as a means to review the Staff's program, MVPP concludes that such hearings would be a valuable addition to the Staff's efforts, citing ten specific construction deficiencies brought to its attention since last August.

Finally, MVPP reviews Zimmer proceedings before other fora and concludes that none offers a substitute for hearings before this Board.

Applicants' response to these arguments boils down to assertions that Staff is adequately protecting MVPP's interests, that 10 C.F.R. § 2.206 has and can in the future be utilized by MVPP, and that a hearing could result in no more relief for MVPP than is currently being afforded it as a result of the Commission's Order to Show Cause and various Staff efforts.<sup>9</sup>

In its reply brief, MVPP takes sharp issue with these assertions. We agree with MVPP. The question which must be answered in connection with this criterion is whether there are presently existing alternate means by which MVPP's interest will be protected. *Puget Sound Power and Light Co.* (Skagit Nuclear Power Project, Units 1 and 2), ALAB-559, 10 NRC 162, 170 (1979).

While it may well be that Staff is competently discharging its duty to protect the public interest generally, it is difficult to assert that Staff is adequately protecting MVPP's interest in light of MVPP's criticisms of the Staff's activities. Certainly Staff's program provides no effective means by which MVPP can call Staff to account. The hearing process was designed to and does provide such a forum. Through the hearing process, organizations such as MVPP can and do subject Staff and applicant activities to public scrutiny of an intensity not otherwise available and to the judgment of an independent tribunal.

We recognize that 10 C.F.R. § 2.206 provides an alternate means to protect its interests which MVPP has and can again use. We think, however, the fact that it is a remedy largely controlled by the Staff (subject to Commission review) which does not necessarily provide for an adjudicatory hearing makes it inadequate in the circumstances of this case. Given the intensity of MVPP's involvement, the extent of its

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<sup>9</sup> Staff agrees with this last assertion. See Staff answer at 12-13.

efforts, and the nature of its claims, we believe that, in all probability, its interests can only be protected through adjudication.

We emphatically disagree with Applicants' and Staff's assertion that we could provide no more relief to MVPP than is already being provided. As noted above, subjecting Applicants' and Staff's activities to the hearing process not only provides public scrutiny of those activities but the opportunity to MVPP to have the adequacy of those activities and the necessity for remedies which it deems necessary judged by an independent tribunal. Our conclusion stated in LBP-82-54 bears repeating:

Further, we do not believe that Applicants are correct in their position that hearings on these contentions would be counterproductive to or at least ineffectual for improving the implementation of the Zimmer QA program as Applicants seem to assert. To the contrary, we believe that a full public airing of this matter will not only contribute to public confidence, but will also strengthen the QA program. Subjecting this program to the scrutiny of the Commission's adjudicatory process can only contribute, not detract, to reasonable assurance that the public health and safety will be protected.

16 NRC at 215.

We find this criterion weighs in MVPP's favor.

### ***3. The Extent to Which MVPP May Reasonably Be Expected to Assist in Developing a Sound Record***

MVPP points to its past accomplishments in identifying problems with the Zimmer quality assurance program. Applicants note that while MVPP has demonstrated a facility for collecting large numbers of documents, it has not shown that it is technically qualified in the field of quality assurance. Applicants also assert that most of these documents were generated by Applicants, their contractors, and NRC Staff. To this charge, MVPP asserts that it is through MVPP's efforts that Applicants have been foiled in their attempts to withhold information. MVPP also points to twenty-eight affidavits it has garnered.

MVPP certainly has demonstrated its ability to amass large quantities of documents which are relevant to quality assurance problems. The documents are, however, largely undigested and consequently difficult to review in a systematic fashion. This, coupled with MVPP's tardiness in pursuing its procedural rights, causes us to discount to some degree its ability to assist in developing a sound record. Nonetheless, we must conclude that this criterion weighs in MVPP's favor.

**4. *The Extent to Which MVPP's Interest Will Be Represented by Existing Parties***

MVPP asserts that no other party to this proceeding has or will represent its interests. Applicants assert that Staff has and will do so. The considerations raised by this criterion are dealt with in our discussion of the second criterion. We find that this criterion weighs in MVPP's favor.

**5. *The Extent to Which MVPP's Participation Will Broaden the Issues or Delay the Proceeding***

In addressing the fifth criterion, MVPP acknowledges that acceptance of its contentions will broaden the scope of the proceeding. However, it asserts that they will not necessarily delay the date of operation of the facility and could conceivably accelerate that date by helping "to ensure that the current quality verification program is definitive." (Motion at 61.)

Applicants point out, correctly, that MVPP's participation will significantly broaden the issues in and delay the completion of this proceeding. They do not address the question whether MVPP's participation would also delay operation of the facility. In response, MVPP asserts the delay in operation will be warranted and in fact mandated by the sorry state of affairs in this case, citing, *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-124, 6 AEC 358, 365 (1973).

While it is true that admission of these contentions will broaden the issues and delay the completion of the proceeding, it is questionable whether it will delay operation of the plant. By letter of June 1, 1983, J. Williams, Jr., of CG&E, informed H. Denton, NRC, that while it was not then possible to provide a definitive fuel loading date, for purposes of scheduling licensing activities CG&E was estimating a fuel loading date in the fourth quarter of 1984. It therefore seems entirely possible that litigation of MVPP's eight contentions might not affect Applicants' fuel loading date. Cf. CLI-82-20, 16 NRC at 117-18 (Dissent of Commissioner Asselstine). We conclude that this criterion does not weigh against MVPP and may weigh in its favor. However, in light of the uncertainty surrounding the resumption and completion of construction, it is not possible to be more definitive.

**E. *The Balance of the Five Criteria***

We conclude that the overall balance of the five criteria tips against MVPP. While only the first criterion weighs against MVPP's interest, it

must be deemed controlling. These contentions should and could have been advanced long ago. Nothing new has been presented which is outside the contemplation of the original contentions.

In this circumstance, MVPP must make a compelling showing on the other four criteria in order to be successful. *Mississippi Power & Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725 (1982). It has made such a showing only with respect to the second and fourth criteria.

While we do not mean our conclusion to indicate that we do not appreciate the seriousness of the issues raised, we must nonetheless give meaning to the Commission's rules. The delay in filing these contentions has been great, and although the issues are serious, seriousness of an issue does not imply that the party raising it is somehow forever exempted from the Rules of Practice. The Rules serve the salutary purpose of ensuring a fair and orderly procedure. The Commission has stated:

Fairness to all involved in NRC's adjudicatory procedures requires that every participant fulfill the obligations imposed by and in accordance with applicable law and Commission regulations.

*Statement of Policy on Conduct of Licensing Proceedings, supra*, 13 NRC at 454.

MVPP has not fulfilled those obligations. Its administrative remedies therefore are now limited to 10 C.F.R. § 2.206.

## **F. Standards Applicable to Reopening Records**

Both MVPP and Applicants have addressed the standards applicable to the reopening of closed records. In LBP-82-54, we expressed doubt that those standards are applicable to this case. Our doubt sprang from the fact that none of the contentions had previously been litigated. The standards for reopening records seem to be best applied to situations in which a previously litigated matter is the subject of the motion.

While we do not perceive any useful purpose to be gained by applying these standards in addition to the standards applicable to tardy contentions, *cf. Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-83-30, 17 NRC 1132, 1143 (1983), because the former standards are largely encompassed by the latter, the Commission has held that both must be considered. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-82-39, 16 NRC 1712, 1714-15 (1982).

MVPP and Applicants both rely on their discussions of the five criteria for their arguments on this point. Based on our discussion of the five criteria, we find that the standards for reopening records have not been met.

### G. Contentions and *Sua Sponte* Authority

Before closing our discussion of MVPP's attempt to have its eight contentions admitted, we believe it appropriate to address the contentions themselves.

When we raised these contentions as Board issues in LBP-82-54, we did so with the understanding that the contentions were indeed broad and that it would be necessary to further refine them in order to properly manage the proceeding. By raising the contentions as Board issues, rather than as issues raised by a party, we gained control of the contentions and were in a position to refine them so as to properly manage the proceeding.<sup>10</sup>

We point this out because, in our view, the contentions still need that refinement. In their present state, the contentions are largely open-ended. If litigated, virtually any new development in the quality assurance area would become relevant. Consequently, if they were to be litigated, the Board would be faced with a virtually open-ended review of the Zimmer quality assurance situation.

We do not mean to rule that the contentions are inadmissible. Indeed, while we have not specifically addressed this aspect of the contentions, we note that the contentions do raise matters which are litigable in NRC proceedings and that consequently this requirement of the regulations has been met. Rather, we mean only to offer our observation that, should MVPP be found to have satisfied the 10 C.F.R. § 2.714(a) criteria, and the standards for reopening the record, attention must be given to the contentions to properly narrow and refine them so that the ensuing litigation will be manageable.

MVPP has again asked that we raise the eight contentions as Board issues (*see* motion at 1-2, 41). We decline to do so.

When we raised these contentions as Board issues in LBP-82-54, we did so because we believed that the standards of 10 C.F.R. § 2.760a were fully met in the circumstances of this case. Lively disputes existed with regard to serious safety issues which had been raised by a party, but which failed to satisfy the procedural requirements of the Rules of

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<sup>10</sup> While we have not examined it carefully, we note that Applicants have raised another potential difference between *sua sponte* issues and admitted contentions. This is recited at p. 647, *supra*.

Practice. Thus, under the mandate of the aforementioned provision of the rules:

Matters not put into controversy by the parties will be examined and decided by the presiding officer only where he or she determines that a serious safety . . . matter exists.

we felt compelled, upon being asked to do so, to raise these contentions as Board issues. Cf. 10 C.F.R. Part 2, Appendix A, § VIII(b).

The Commission, in CLI-82-20, disagreed, citing the intensive activities of the Staff with regard to the subject matter of the contentions. We are not persuaded from MVPP's motion that anything has transpired since the issuance of LBP-83-54 which would lead to the conclusion that the Commission would hold a different view of the matter now. Consequently we deny this aspect of MVPP's motion.

## ORDER

In consideration of the foregoing, it is this 15th day of September 1983, hereby ORDERED:

1. This Board has jurisdiction of MVPP's Motion to Reopen the Record for Admission of Eight Contentions on Quality Assurance and Character and Competence;
2. The aforesaid motion is denied;
3. All pending motions ancillary to the aforesaid motion are denied as moot; and
4. This Memorandum and Order terminates MVPP's right to participate in this proceeding. In accord with *Toledo Edison Co.* (Davis-Besse Nuclear Power Station), ALAB-300, 2 NRC 752, 758 (1975) and 10 C.F.R. § 2.714a, this Memorandum and Order may be appealed to the Atomic Safety and Licensing Appeal Board by the filing of a notice of appeal and accompanying brief within ten (10) days of the date of its service.

Judges Hooper and Livingston concur but were unavailable to sign this Memorandum and Order.

**FOR THE ATOMIC SAFETY AND  
LICENSING BOARD**

**John H Frye, III, Chairman  
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland  
September 15, 1983**



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Herbert Grossman, Chairman  
Glenn O. Bright  
Dr. Jerry Harbour

In the Matter of

Docket No. 50-460-CPA  
(ASLBP No. 83-485-02-CPA)

WASHINGTON PUBLIC POWER  
SUPPLY SYSTEM, *et al.*  
(WPPSS Nuclear Project No. 1)

September 21, 1983

Upon uncontested motion of intervenor organization and without balancing the five factors of 10 C.F.R. § 2.714(a)(1), the Licensing Board accepts the withdrawal of affidavit of the only authorizing member with standing, accepts the authorizing affidavit of a new member with standing, and affirms the continuation of the proceeding.

**RULES OF PRACTICE: INTERVENTION PETITION  
(PLEADING REQUIREMENTS)**

The representation in the petition that the interests of the organization are predicated on the interests of members with standing, but not the identities of those members, is a material part of the petition.

**RULES OF PRACTICE: AMENDMENT TO INTERVENTION  
PETITION**

A change in the identities of the authorizing members of an organization is not a material change that requires an amendment of the petition

to which the five-factor test of 10 C.F.R. § 2.714(a)(1) would be applicable.

## **RULES OF PRACTICE: STANDING TO INTERVENE**

Once an organizational petition to intervene is granted, it is presumed that the class of authorizing members with standing continues to exist.

### **MEMORANDUM AND ORDER (Accepting Withdrawal of Intervenor Member and Affirming Continuation of Proceeding)**

On August 26, 1983, Intervenor, Coalition for Safe Power (CSP), filed a "Motion to Amend Request for Hearing and Petition for Leave to Intervene Filed by Intervenor Coalition for Safe Power," requesting that the Board accept the membership affidavit of Larry L. Caldwell and permit the withdrawal of the membership affidavit of M. Terry Dana, which was attached to the original petition and was the only affidavit satisfying the requirements of standing. Mr. Caldwell has the requisite geographical standing but was not a member of the intervening organization when the petition was filed. Intervenor moved on the ground that the employer of M. Terry Dana has prevented him from working on certain scientific projects until such time as he demonstrates to them that he has no responsibility for the ongoing nature of this proceeding. Applicant and Staff have filed responses to the motion indicating that they do not object.

The Board accepts the withdrawal of Mr. Dana's affidavit and the inclusion of Mr. Caldwell's, and affirms the continuation of this proceeding.

### **MEMORANDUM**

Although each of the parties treated Intervenor's motion as a motion to amend the petition, only Staff has addressed the five-factor test of 10 C.F.R. § 2.714(a)(1). Staff relies upon the requirement in 10 C.F.R. § 2.714(a)(3) that, subsequent to 15 days prior to the holding of the special prehearing conference, a petition may be amended only with the approval of the presiding officer based upon a balancing of those factors. Staff weighs those factors and finds the balance favorable to Intervenor's proposed amendment. We do not agree with the parties that

Intervenor's motion constitutes a motion to amend the petition and, consequently, do not feel constrained to utilize the five-factor test of Section 2.714(a)(1), which we feel is not well suited, in any event, to the matter before us.<sup>1</sup>

We do not view the identities of the specific individual members of a petitioner organization whose interests are being represented by that organization as an integral and material portion of the petition to intervene. Any change in the membership, therefore, does not require an amendment of the petition. It is true that the petitioning organization must disclose the name and address of at least one member with standing to intervene so as to afford the other litigants the means to verify that standing exists. *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-535, 9 NRC 377, 389-400 (1979). But there is no requirement that the identification of such a member or members be made in the petition to intervene or in an attached affidavit. We note that the provision in original Rule 2.714(a), that a petition to intervene be accompanied by a supporting affidavit setting forth the facts pertaining to the petitioner's interest, was abolished effective May 26, 1978. 43 Fed. Reg. 17,798 (1978).

As we view the requirements of an organizational petition, it must assert that the interests of the organization are predicated on the interests of its members, at least one of which has the requisite standing to intervene. The identification of that member can be made independently of the petition, in another instrument or even orally. Once a member has been identified sufficiently to afford verification by the other parties and the petition to intervene has been granted, it is presumed that the organizational petitioner continues to represent individual members with standing to intervene who authorize the intervention. Although we do not have that case before us, we doubt that the death or relocation outside the geographical zone of interest of the only named members upon whom standing was based would defeat this presumption and require a further showing of standing.

In this proceeding Intervenor's request for hearing did not itself name its individual members, but indicated that it had at least one member residing within a 20-mile radius of the WNP-1 plant.<sup>2</sup> Along with it, Intervenor filed three affidavits of individual members indicating their place of residence and their authorization to the Coalition for Safe Power to represent their interests before the NRC. Only the affidavit of

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<sup>1</sup> It is directed primarily towards a late petition in which new contentions are raised.

<sup>2</sup> If it had named individual members, we would not consider such identification a material part of the petition.

M. Terry Dana, who now wishes to withdraw, satisfied the geographical standing requirement. Although we do not consider that affidavit to be an integral part of the petition for hearing, the representation in the petition that CSP represents members with the requisite standing who authorize the representation of their interests *is* a material part of the request for hearing and is still valid. Since we have accepted the petition, it is presumed thereafter during the course of this proceeding, that CSP continues to represent members with the requisite interests.

We do not take it upon ourselves to determine whether, or under what circumstances, the presumption that the class of individual members with standing continues to exist, can be defeated. It suffices for this proceeding that we accept Intervenor's representations that the class of members with standing that existed at the time the petition was filed continues to exist and is being represented by the Intervenor organization. There being no material change in the petition with the withdrawal of Mr. Dana's authorization and the addition of Mr. Caldwell's affidavit, there is no need to amend the petition and no cause to apply the five-factor test of 10 C.F.R. § 2.714(a)(1). As far as standing is concerned, the class of members with standing to intervene who have authorized Intervenor to represent its interests, as represented in the petition for hearing, presumptively and factually continues to exist.<sup>3</sup>

## ORDER

For all the foregoing reasons and based upon a consideration of the entire record in this matter, it is, this 21st day of September 1983,

### ORDERED

That M. Terry Dana shall be considered as withdrawing his authorization of the petition for hearing and that Larry Caldwell shall be

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<sup>3</sup> Cf. *Gulf States Utilities Co.* (River Bend Station, Units 1 and 2), ALAB-358, 4 NRC 558 (1976) in which an inactive intervenor who had failed to respond to a Board order was dismissed from the proceeding. The Appeal Board found that the intervenor change of residence to an area not in proximity to the reactor, coupled with a virtual failure on his part to assume a significant participational role in the proceeding, made it difficult to discern a useful purpose in allowing the intervention to continue.

accepted as an authorizing member of Intervenor with standing to intervene.

**FOR THE ATOMIC SAFETY AND  
LICENSING BOARD**

**Herbert Grossman, Chairman  
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland  
September 21, 1983**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

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

**In the Matter of**

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

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

**September 23, 1983**

In this decision the Licensing Board resolves objections that the Board had invited from the parties to help it to resolve correctly the issues covered in its Proposed Initial Decision of July 29, 1983 (LBP-83-43, 18 NRC 122). The Board dismisses the emergency planning contention but establishes a procedure that will permit it to decide whether the emergency plans are so incomplete that the Board will declare their adequacy to be a *sua sponte* issue.

Although several of applicant's objections are sustained, causing fewer adverse findings to remain, the Board makes the following findings adverse to the applicant: (1) a supervisor, who called a meeting about "nit-picking" by quality assurance inspectors, was willing to have quality assurance inspectors do a less thorough job of reporting deficiencies; (2) quality assurance inspectors were harassed by the paint craft; (3) a quality assurance inspector, who apparently was too careful for management's liking, was dismissed from his job on a pretext; (4) the availability of a

recent procedural change does not rebut testimony that applicant's quality assurance procedures for verifying "near white blast" were inadequate during an extended period of time; (5) sufficient reasons have not been provided to demonstrate the adequacy of protective coatings on Westinghouse equipment; (6) applicant apparently had inadequate knowledge of code authorization for the use of plug welds and consequently did not institute a hold point that would have been required for adequate inspection of such welds; (7) applicant has not adequately demonstrated that improper downhill welds are not a problem at Comanche Peak; (8) applicant has not adequately demonstrated that it has kept incidents of uncontrolled weld rods to an acceptable number; (9) there was an incident in which a quality assurance inspector, Mr. Atchison, was pressured into approving a report against his own best judgment; and (10) the applicant's Final Safety Analysis Report should have been amended to reflect accurately the rock overbreak problem that occurred and failure to correct the report constitutes a material false statement.

#### **RULES OF PRACTICE: DEFAULT FOR FAILURE TO FILE REQUIRED FINDINGS**

A Board may declare a default for failure to file required findings. This default does not, however, prohibit the Board from inquiring into the defaulted matters if necessary to compile a complete record on a contention that is still part of the case. Nor does the default prohibit the Board from eliciting help from the defaulting intervenor in pursuing the Board's continuing concerns.

#### **EMERGENCY PLANNING: FEMA REVIEW**

When the Board finds review of the emergency plan by the Federal Emergency Management Agency to be cursory, it may establish a procedure by which it may determine whether or not to raise this matter *sua sponte*.

#### **EVIDENCE: CREDIBILITY OF WITNESS**

Applicant must provide a reasoned response to allegations of an individual who had an opportunity to observe conditions to which he objects, even if the witness has had previous convictions for violent crimes.

## **RULES OF PRACTICE: OBJECTIONS TO A PROPOSED DECISION**

When a Board has invited objections to a proposed decision, parties must make specific objections or waive their rights to continue to pursue the issues involved.

### **TECHNICAL ISSUES DISCUSSED**

- Quality assurance
- Emergency planning
- Protective coatings
- Intimidation of quality assurance inspectors
- Harassment of quality assurance inspectors
- Protected activity — discharge on a pretext
- Firing quality assurance inspector on a pretext
- Maximum roughness of protective coatings
- Adhesion testing of protective coatings
- Smoke on protective coatings
- Weave welding
- Plug welds
- Plug welds (inspection of)
- Downhill welding
- Weld rod control
- Hilti bolt inspection
- Fillet weld, gap
- Water quenching of welds, austenitic stainless steel
- Rock overbreak
- Blast damage to foundation rock
- Rock damage in foundation
- Dental concrete
- Concrete as part of a foundation
- Radiation, cracks in reactor shield wall.

### **MEMORANDUM AND ORDER**

**(Emergency Planning, Specific Quality Assurance Issues and Board Issues)**

Our Proposed Initial Decision of July 29, 1983 (LBP-83-43, 18 NRC 122) invited the parties to comment on our tentative conclusions concerning emergency planning, certain quality assurance contentions



and four Board questions. Each of the parties<sup>1</sup> submitted objections. Applicant and CASE also submitted replies, pursuant to our authorization.

This decision resolves the objections that were filed. In particular, we have clarified our earlier intention to dismiss Contention 22 (emergency planning). We also have clarified the extent of our continuing interest in the emergency planning issue. This decision is called a "Memorandum and Order" because its effect is to affirm the declaration of a default on some issues and to make interim factual findings that do not dispose of any contentions. Hence, this is an interlocutory order that does not conclude the evidentiary record on any contention.<sup>2</sup>

Staff persuaded us that CASE's failure to file findings on certain quality assurance issues should not preclude the Board from satisfying ourselves that our record is reasonably complete. To this extent, we no longer consider that our remaining questions on these quality assurance issues are in the nature of preliminary inquiries concerning potential *sua sponte* issues. Since the quality assurance contention still is pending, we need not decide whether our questions are "important" safety issues — as used in the *sua sponte* section of the procedural rules — but only whether we require answers in order to have a satisfactory understanding of the quality assurance contention.<sup>3</sup>

Applicant's objections have, in some instances, led us to narrow the scope of our continuing concern. In other instances, applicant's objections have been incomplete and our review of the record in light of those objections has caused us to make new, more detailed findings.

The objections of the parties also have permitted us to clarify the nature of our concern and the relationship between some of the "open items" and the Board's overall responsibility to assess the adequacy of applicant's quality assurance program.

Although the issuance of proposed decisions is not expressly provided for in the rules, and should be used sparingly, in this particular instance we believe the procedure has been useful.

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<sup>1</sup> The parties are the Staff of the Nuclear Regulatory Commission (staff), Citizens Association for Safe Energy (CASE) and Texas Utilities Generating Company, *et al.* (applicant).

<sup>2</sup> Facts found in this decision will be relied on in our initial decision in this case. To this extent, the memorandum and order makes final rulings, but we do not believe it need be issued as an initial decision under 10 C.F.R. § 2.760.

<sup>3</sup> Because of this change in the Board's analysis, statements in our proposed decision about whether or not we will declare a "*sua sponte*" issue should be interpreted as statements about whether or not we require a more complete record.

## I. SUMMARY OF OBJECTIONS

The principal thrust of staff's objections is that we should dismiss the emergency planning contention. Applicant agrees with this objection. CASE disagrees.

The staff did not comment on any of the Board's findings concerning particular quality assurance issues. It supported the Board's consideration of those issues, but for different reasons than the Board, which had considered its continuing inquiry on matters abandoned by CASE to be an effort to decide whether or not to take up these matters by itself (*sua sponte*). The staff argues that, "[i]t is appropriate for the Board to consider all the evidence of record in determining its findings on this matter [quality assurance] in controversy."<sup>4</sup>

Applicant opposes the Board's continued consideration of any questions on which intervenor has defaulted and argues that it should not be accorded any further participational rights. It cites *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-244, 8 AEC 857, 864 (1974); *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-123, 6 AEC 331, 333 (1973) in support of this proposition.<sup>5</sup>

Applicant also addressed each item on which the Board was not satisfied. It submitted affidavits to support its position that the Board should be satisfied on each of these items. While thus accepting the Board's invitation for it to submit additional evidence, it opposed extending the same privilege to CASE, which had defaulted in presenting proposed findings.<sup>6</sup>

CASE objected to the Board finding it in default for not filing findings. It cited the Board's December 7, 1982 Order (unpublished) for the proposition that it was ordered to file provisional findings that could be supplemented or modified as a result of further information when the record is closed.<sup>7</sup> It also argued that its earlier October 18, 1982 pleading constituted Proposed Findings and should be treated as such.<sup>8</sup>

CASE then stated specific objections to the Board's findings on rock overbreak, cracks in concrete, the issue concerning polar crane rails, the disappearance of 15 quality assurance inspection reports, and "the Board's reliance on the staff's investigation into the Stiners' allegation

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<sup>4</sup> NRC Staff Objections to Proposed Initial Decision, August 29, 1983 (Staff Objections) at 3 n.2.

<sup>5</sup> Applicants' Objections to Proposed Initial Decision, August 27, 1983 (Applicant's Objections) at 4-5.

<sup>6</sup> *Id.*

<sup>7</sup> CASE's Objections to Licensing Board's Proposed Initial Decision, August 27, 1983 (CASE's Objections) at 2-3.

<sup>8</sup> *Id.* at 4.

about the hole that was created in the Safeguards Building when he removed a partially installed Hilti bolt.” CASE also included in its objections, arguments that particular findings of quality assurance problems draw into serious question applicant’s commitment to its quality assurance program. These comments are not considered to be objections because they do not relate to findings made by the Board and are not within the scope of its decision.

Although the parties each had a right to reply to the filed objections,<sup>9</sup> the staff did not avail itself of this privilege. Hence, staff did not provide the Board assistance in evaluating the new evidence presented to us in applicant’s affidavits. Applicant and CASE did avail themselves of the right to reply.<sup>10</sup>

Applicant’s Reply argues that it would be improper to treat the “CASE Response to Board Directive Regarding CASE Exhibits,” October 18, 1982 as proposed findings because the filing stated its intent “to use these documents *in* its proposed findings.”<sup>11</sup> It also argues that it would be improper to decide retroactively that the CASE filing was timely.<sup>12</sup> It makes specific factual responses to several of CASE’s objections.

CASE’s Reply addresses rhetoric in Applicant’s Objections concerning the need for timely decisionmaking. CASE argues, in a fashion quite irrelevant to the purpose of a Reply, that it is not receiving documents in a timely fashion. It opposes the dismissal of the emergency planning contention. It argues that it should be permitted to participate with respect to all aspects of its contention, whether or not it filed findings,<sup>13</sup> citing 10 C.F.R. Part 2, Appendix A, V(g)(1) in support of its argument that it should be permitted to assist the Board to resolve uncertainties in the record.<sup>14</sup> CASE’s Reply asserts support for the Board’s continuing interest in the “open issues” identified in our Proposed Decision, but it does not address any of those issues or the responding affidavits filed by applicant.

CASE did not file any affidavits buttressing its case and it filed few specific objections to the Board’s specific findings on quality assurance.

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<sup>9</sup> LBP-83-43, 17 NRC at 155 (Order, ¶¶ 4 and 5).

<sup>10</sup> Applicants’ Reply to CASE’s Objections to Proposed Initial Decision, September 8, 1983 (Applicant’s Reply); CASE’s Answer to Applicants’ Objections to Proposed Initial Decision, September 8, 1983 (CASE’s Reply).

<sup>11</sup> Emphasis added. Applicant’s Reply at 5.

<sup>12</sup> *Id.*

<sup>13</sup> *Id.*

<sup>14</sup> *Id.* at 9.

## II. EMERGENCY PLANNING

Both applicant and staff have objected to our decision on the emergency planning contention because we ruled that the contention had been abandoned but did not expressly dismiss it. This error should be rectified. The contention should be dismissed.

Applicant and staff also challenge the basis for the Board's continued interest in emergency planning. However, this Board is convinced that:

FEMA's [Federal Emergency Management Agency] review tends to be conclusory, failing to inquire adequately into whether local jurisdictions have planned sufficiently or have summoned sufficient resources to meet their planning obligations. There also does not seem to be any systematic evaluation of whether deviations from NUREG-0654 criteria, based on local law or other planning exigencies, are adequate to satisfy the Appendix B criteria that govern planning.<sup>15</sup>

Given our view of the FEMA interim report, we are not satisfied that the Commission's regulations on emergency planning either are being complied with or will be complied with. Pursuant to the July 1982 amendment to 10 C.F.R. § 50.47(a)(1), "there should be reasonable assurance prior to license issuance that there are no barriers to emergency planning implementation or to a satisfactory state of emergency preparedness that cannot feasibly be removed."<sup>16</sup> Were we to conclude now that the only assurance available concerning the adequacy of emergency planning was the FEMA interim report, we would declare compliance with the Commission's emergency planning regulations to be a *sua sponte* issue and we would notify the Commission immediately. Compliance with those regulations is a serious safety matter and we cannot conclude on the present state of the record that there is reasonable assurance that compliance will be achieved.

On the other hand, FEMA's responsibility for reviewing the state of emergency planning is continuing. If it files with us a review of the emergency plan that provides the required reasonable assurance, there will be no need for us to declare a *sua sponte* issue. Similarly, if applicant were to file a report in evidentiary format, including sufficient detail for the Board to be reasonably assured of compliance, there also would be no need for us to declare a *sua sponte* issue.

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<sup>15</sup> LBP-83-32, 17 NRC 1164, 1166 (1983); see also 17 NRC at 1166-68.

<sup>16</sup> 46 Fed. Reg. at 61,135, as cited in *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1104 (1983). Our recognition of this standard represents a clarification of the view expressed in our Proposed Decision. (But see *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), CLI-83-22, 17 NRC 299, 309 (1983), which does not discuss what standard is applicable to reviews of emergency plans but applies a test of whether a plan "comport[s] with Commission guidance" and "protect[s] adequately the public health and safety.")

Given the posture of the emergency planning concerns of the Board, a party also could satisfy us that the only remaining "barriers to emergency planning implementation" did not, together, amount to a serious safety issue. In that event, the degree of noncompliance with the regulations would not justify our continued concerns.

To permit this matter to be determined reasonably expeditiously, without great likelihood of delaying the proceeding, we request FEMA or applicant to file the required assurances no later than November 30, 1983. These assurances should provide a reasoned discussion with sufficient particularity so that the Board can reach its own conclusions from the facts and reasoning provided. CASE will have ten days from receipt of the assurances to respond.<sup>17</sup> Although this is not an extensive time period for a response, we believe it adequate for CASE to provide a focused discussion of any serious problems in the filings. Given its abandonment<sup>18</sup> of its contention, this degree of participation is adequate to assist the Board.

### III. CASE'S CONTINUING ROLE

In light of CASE's defaults, applicant would have us bar it from further participation on the defaulted issues. However, we interpret precedent differently from applicant and we refuse to accept its suggestion. Applicant cites the *Prairie Island* case, *supra*, and the *Midland* case, *supra*, for the proposition that further participational rights should not be given to intervenors in matters on which they have defaulted. However, *Prairie Island* states, 8 AEC at 863, that:

[I]n placing certain specified issues into controversy himself, an intervenor should not be taken as waiving the right to insist that all other issues coming before the Board . . . be decided in conformity with the evidence of record and applicable principles of law — no matter what the genesis of those issues or the source of the evidence.

*Prairie Island* then goes on to hold, at 864, that if an intervenor fails to file findings on a particular issue it cannot then appeal that issue. It does

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<sup>17</sup> Filing should be by express mail. Deadlines falling on a weekend or government holiday are extended to the next working day.

<sup>18</sup> CASE has expressed concern about language in our Proposed Decision that appeared to impugn the nature of its participation in this proceeding. We regret that any such implications could have been drawn by CASE. Given its limited resources, its participation has been diligent. However, its inability to summon the resources to pursue issues tried before us constitutes an abandonment of those issues. Continued interest in issues is not enough to keep those issues before us. When mandatory filings are not submitted, the Board is not obligated to undertake a review for the party. *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-123, 6 AEC 331, 333 (1973).

not hold that a default deprives a Board of the discretion to permit the intervenor to continue to participate in developing a complete record. Indeed, the Appeal Board itself conducted a *sua sponte* review of the substantive areas affected by the default.

*Midland* states, 6 AEC at 333, that:

The Commission's rules of practice do *not* mandate a sanction for failing to file proposed findings and conclusions, but do provide that such failure may be deemed a "default" and that "an order or initial decision may be entered accordingly."<sup>19</sup>

In that case, the defaulted intervenors were not excluded from further participation. Their evidence was considered by the Board even though proposed findings were not filed. Their default was taken "into account."<sup>20</sup> However, the Appeal Board stated that it was "not inclined to dismiss a party from further participation as a result of its failure to file proposed findings and conclusions." *Id.* at 333.

We consider that it is the Board's obligation to make a reasoned assessment of its record. It must act on the contentions and make reasonable decisions about whether to act on any potentially serious safety matters raised in that record.<sup>21</sup> Whether we act on contentions, in pursuit of our obligation to compile a complete record on those contentions, or in fulfillment of our *sua sponte* responsibility, we seek to act in a reasoned fashion and will accept any assistance that may be helpful. Since CASE is equipped to help and willing to do so, we would be foolish to bar it from helping us.

#### IV. CASE'S DEFAULT

CASE has not persuaded us that we were in error in declaring it to be in default. It acknowledges that it was required to file "provisional findings," subject to supplementation "as the result of further information."<sup>22</sup> Yet it now seeks to supplement its findings without demonstrating the existence of further information. It should have

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<sup>19</sup> The quoted material initially appeared in the Licensing Board's "Post Hearing Order" (June 28, 1972).

<sup>20</sup> *Midland* at 334.

<sup>21</sup> Some of applicant's comments about the Board's allegedly improper invocation of the *sua sponte* authority relate to Board decisions made prior to the issuance of the Samuel J. Chilk memorandum, "Raising of Issues *Sua Sponte*," June 30, 1981. At the time that those Board actions took place, they were proper because there was no requirement that the reasons for raising issues *sua sponte* be explained.

<sup>22</sup> CASE's Objections at 2.

known from the words of the December 7 order that this would not be permitted.

We do not adopt CASE's suggestion that we accept its brief concerning the relevance of exhibits in place of findings. Applicant is correct in arguing that this would be improper because applicant was not notified that these were findings and did not respond to them as such. Similarly, the Board did not know they were intended as findings and did not consider them in its proposed decision.

Even if CASE were entitled to file further findings, it has now enjoyed that opportunity in the course of the filing of objections and replies. We invited the filing of specific objections to our decision, including the filing of affidavits. Applicant availed itself of that opportunity. We then invited replies, which were not mandatory. CASE could have replied to each factual argument of applicant, but it did not do so. Whatever opportunity it may have sought to file findings, it has enjoyed. There is no unfairness in declaring a default.

## **V. APPLICANT'S SPECIFIC QUALITY ASSURANCE OBJECTIONS**

Applicant's quality assurance objections consist of arguments, references to its previously filed findings, and supporting affidavits. The affidavits were filed pursuant to the Board's invitation. Since these affidavits relate to issues on which CASE has defaulted, CASE has no right to demand a hearing on issues of fact raised in those affidavits. CASE had an opportunity to reply to these newly filed facts but it did not exercise that opportunity.

### **A. Protective Coatings**

Applicant describes its objection with these words:

Mrs. [Cordella] Hamilton's allegation was that she had heard that paint inspectors had been directed not to write NCRs [nonconformance reports] on protective coatings for a period of approximately one year. Mrs. Hamilton first claimed that she personally had heard such a directive, but she subsequently admitted that she did not hear that directive herself, but understood based on hearsay from paint inspectors that there had been such a directive. (CASE Exhibit 652 at 19-20.) Mr. [Robert L.] Hamilton, who was a paint inspector supervisor, . . . stated that his supervisor had requested that the paint inspectors should pick up their production and stop "nit-picking." He testified, however, that he (and presumably his inspectors) did not conduct himself (themselves) any differently after that request.

In fact, he did not believe that the supervisor was intending to intimidate the inspectors. (CASE Exhibit 653 at 43-44.)<sup>23</sup>

The testimony being cited appeared in the depositions of the Hamiltons, admitted as CASE Exhibits 652 and 653.

Our reading of CASE Exhibit 653 differs from that of applicant. We are not entirely sure what Mr. Hamilton meant when he denied that his supervisor was trying to "intimidate" him. From the entire context, we suspect that he was denying that there was any attempt to physically coerce him. We attach greater importance to the un rebutted testimony that the supervisor called a meeting in which he urged the inspectors to stop "nit-picking."<sup>24</sup> Since this admonition was not qualified in any way, either by the use of specific examples or by an exhortation to continue doing the job conscientiously, we interpret the record as establishing a willingness of a supervisor to have quality assurance inspectors do a less thorough job of reporting deficiencies. This is troubling, particularly in light of the parallel finding we have accepted concerning Mr. Atchison. We will consider its implications in a later decision.

We do not interpret Mr. Hamilton's testimony as implying that all of the paint inspectors performed precisely the same after the "nit-picking" remark as they had done before. Mr. Hamilton never said that was the case. We believe his testimony about his own conduct amounts to a statement that he has the courage to withstand management suggestions even when pressured. Since he does not appear to have accompanied the other inspectors on each of their rounds, we do not find it surprising that he could not give specific examples of failure to perform inspections properly. However, we do not think that every individual is as likely to be self-motivated and courageous as Mr. Hamilton appears to be; and we suspect that the remark about "nit-picking" had its intended effect.

On the other hand, we accept applicant's un rebutted but incomplete evidence that it is conducting a thorough reinspection program whose preliminary findings, as of February 25, 1983, were favorable.<sup>25</sup> However, almost half a year has passed and more than preliminary findings should be available. If written evidence concerning these more complete results, of both the applicant's reinspection program<sup>26</sup> and the staff's "verification" of changes in applicant's program,<sup>27</sup> confirms the

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<sup>23</sup> Applicant's Objections at 26.

<sup>24</sup> CASE Exhibit 653 at 43-46.

<sup>25</sup> Applicants' Proposed Findings of Fact in the Form of a Partial Initial Decision, February 25, 1983 (Applicant's Findings) at 50-51, citing Applicant's Exhibit 44 at 10; NRC Exhibit 13 at 79; and Tr. 2114, 2143-44.

<sup>26</sup> *Id.* at 51.

<sup>27</sup> *Id.*



preliminary findings, we will conclude that the "nit-picking" incident had no serious impact on inspector effectiveness.

## B. Harassment of Quality Assurance Inspectors

Mr. Hamilton described incidents in which he alleged there had been harassment of quality assurance inspectors by the paint craft.<sup>28</sup> Applicant would have us conclude that these were "isolated pranks."<sup>29</sup>

Our review of the record discloses the following incidents, which we consider more serious than "pranks" when performed by adults working on a nuclear plant: trapping Joe Krolak to fall over a bench,<sup>30</sup> seriously burning John Moon with a rag dipped in paint thinner,<sup>31</sup> and "locking up" two inspectors in the same area.<sup>32</sup> Furthermore, there is no evidence that applicant ever conducted a serious self-initiated investigation of these incidents.

However, applicant's testimony appears to address generally its "commitment" to quality assurance<sup>33</sup> without ever directly discussing the incidence of craft harassment, management's attitude toward craft behavior, or corrective action taken by management. It was only after the staff's Construction Appraisal Team (CAT team) brought intimidation to management's attention that "aggressive action" was taken.<sup>34</sup> However, this is a subject of continuing investigation and we do not know whether intimidation was a continuing problem, whether applicant knew or should have known about the problem, whether it failed to act over an extended period of time or whether the corrective action taken by management in response to the CAT findings was adequate.

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<sup>28</sup> CASE Exhibit 653 at 36-39.

<sup>29</sup> Applicant's Objections at 29.

<sup>30</sup> CASE Exhibit 653 at 36.

<sup>31</sup> *Id.* at 36-37.

<sup>32</sup> The record is unclear on how lengthy the period of confinement was and on the means used for the "lock-up." *Id.* at 37.

<sup>33</sup> Applicant's Objections at 29, citing Applicant's Exhibits 8 and 118; Tr. 598-608, 2157-59, 2176-77, 2183 and Applicant's Exhibits 42 and 123; *e.g.*, Tr. 1945-55.

<sup>34</sup> NRC Exhibit 206 at VII-4.

### C. Firing of Mr. Hamilton

As Applicant correctly states,

Mr. Hamilton's specific allegation was that he was fired for refusing to conduct an inspection of coatings on the liner plate wall from a crane rail platform (CASE Exhibit 653 at 7-10).<sup>35</sup>

However, we disagree with applicant's conclusion, in its Objections, that, "[t]he disagreement which led to Mr. Hamilton's dismissal was over the occupational safety of performing that inspection."<sup>36</sup>

Mr. Hamilton was employed by Brown & Root, Inc., at Comanche Peak from November 1976 to March 1982.<sup>37</sup> During that entire period of time, there is no indication that Mr. Hamilton had a history of unreasonably refusing to work in areas in which the applicant thought he ought to work. The only instance of a refusal to enter an area that applicant considered safe was Mr. Hamilton's refusal to inspect paint coatings on the liner plate wall

from the rotating platform crane rail which was approximately 105 feet in the air, approximately 2½ feet wide with nothing on either side to walk on, more or less like a railroad track. It had grease and oil on it. The only place you could hook your safety belt was to a ½" diameter cable, which had approximately 3' slack in it, so that if you were to fall you would have fallen at least 8' before anything would have stopped you.<sup>38</sup>

Mr. Hamilton considered the area unsafe and neither he nor the employees whom he supervised would inspect it.<sup>39</sup>

Considering that this was apparently the first instance of a refusal to inspect<sup>40</sup> and that applicant easily resolved its operational problem by having workers from another shift inspect the area,<sup>41</sup> dismissal seems an extraordinary reaction. Mr. Hamilton had been employed for more than five years. Furthermore, there were other workers who refused to inspect the same area who were not fired.<sup>42</sup>

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<sup>35</sup> Applicant's Objections at 31.

<sup>36</sup> *Id.*

<sup>37</sup> CASE Exhibit 653 at 1.

<sup>38</sup> *Id.* at 8.

<sup>39</sup> *Id.*

<sup>40</sup> There was an instance in which Mr. Hamilton complained about the safety of inspecting an area unless scaffolding were erected. However, in that instance the applicant agreed to erect the scaffolding. *Id.* at 10.

<sup>41</sup> *Id.* at 8.

<sup>42</sup> *Id.* at 26.

Although we accept as binding on us the findings of the Occupational Health and Safety Administration that the area of which Mr. Hamilton complained was sufficiently safe under the law,<sup>43</sup> the legal conclusion about the safety of the area does not negate the existence of legitimate fears. Given the physical description of the area and Mr. Hamilton's previous record concerning matters of courage, we consider the grounds for dismissal to be pretextual.<sup>44</sup> Our conclusion is buttressed by Mr. Hamilton's testimony that his dismissal did not follow established procedures governing such events.<sup>45</sup> We are not sure what the true motivation for dismissal was, but we consider it likely that it was related both to the "nit-picking" meeting, discussed above, and to Mr. Hamilton's penchant for discharging insufficiently productive quality assurance inspectors — a practice that resulted in his losing the right to hire and fire the workers for whom he was responsible.<sup>46</sup>

Although our Proposed Initial Decision was less firm on these points than we are now, we reviewed the record in response to applicant's objections and we became more convinced of the seriousness of the Hamilton dismissal. This matter is particularly serious in light of our parallel acceptance of the Department of Labor's finding that Mr. Atchison's dismissal was pretextual. Our conclusions concerning Mr. Hamilton lends increased significance to the Office of Investigation's inquiry into Atchison-related matters and into intimidation of quality assurance inspectors.<sup>47</sup>

#### **D. Near White Blast**

Mr. Hamilton alleged that applicant had inadequate procedures for determining whether surfaces had been properly prepared for protective coatings by achieving a "near white blast" condition.<sup>48</sup> Applicant's answer, presented in the Brandt Affidavit at 2, relies on CCP-30, Revision 10, which was effective on January 26, 1982. The availability of this revised procedure for 35 days prior to Mr. Hamilton's

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<sup>43</sup> Applicant's Objections, Attachment A at 26-28.

<sup>44</sup> Although the Department of Labor has jurisdiction to protect workers from improper dismissal for engaging in protected activities (the "whistleblower" statute), the Commission also has the responsibility for examining applicant's quality assurance program to determine its adequacy. The Department of Labor's jurisdiction does not preclude the Commission from fulfilling this basic obligation.

<sup>45</sup> CASE Exhibit 653 at 11.

<sup>46</sup> CASE Exhibit 653 at 34-35.

<sup>47</sup> We trust that the Office of Investigation will consider each factual allegation made by Mr. Hamilton, including his specific claim that an unqualified individual was made a certified inspector without the proper qualifications. This may relate to certain CAT findings concerning the qualifications of inspectors. CASE Exhibit 653 at 15.

<sup>48</sup> Applicant's Objections at 34, citing CASE Exhibit 653 at 15, 18.

termination is not a response concerning the inadequacy of the procedures during an extended period of time. It is particularly incomplete as an answer to charges by an individual who performed as an inspector and who had knowledge of procedures as they were actually implemented. We accept this Objection only to the extent that it covers the period subsequent to January 26, 1982.

### **E. Maximum Roughness**

Mr. Hamilton stated that applicant had no maximum value for surface roughness. Applicant does not contest the lack of a standard that may be applied prior to the application of paint.<sup>49</sup> It claims that it does, however, have a millage requirement that is verified by being "inspected for dry film thickness."<sup>50</sup> However, the Nuclear Regulatory Commission once found that dry film thickness tests were not indicated on applicant's checklists.<sup>51</sup> As we have not been given a report of the resulting reinspection of coatings, we are unable to sustain this objection.

### **F. Adhesion Testing**

To the extent that Mr. Hamilton made a separate allegation that any paint that passed the adhesion test would be acceptable, we find applicant's objection — consisting of C. Thomas Brandt's Affidavit at 3-4 — to be satisfactory. Mr. Brandt states that there are visual inspection and other requirements that go beyond mere adhesion testing and we find his testimony on this point to be more credible than Mr. Hamilton's. We believe that Mr. Hamilton, under the pressure of cross-examination, overstated the nature of the quality assurance problem in this particular aspect of his testimony.

### **G. Kelly Heaters**

Mr. Hamilton alleged that an NCR relating to smoking Kelly heaters was inadequately dispositioned. However, applicant has demonstrated that Mr. Hamilton did not "remember exactly what the disposition [of the NCR] was."<sup>52</sup> Furthermore, applicant discovered only one NCR related to this allegation — an NCR completed by Mr. Hamilton's

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<sup>49</sup> Applicant's Objections at 35, relying on Attachment B (Brandt Affidavit) at 3.

<sup>50</sup> *Id.* at 36.

<sup>51</sup> Applicant's Findings at 50: "incomplete check lists without recorded visual inspections and Dry Film Thickness readings."

<sup>52</sup> CASE Exhibit 653 at 22.

supervisor. That NCR required detergent washing or solvent wiping, plus visual inspection.<sup>53</sup> Since we have no reason to question this disposition, applicant's objection is sustained.

## H. Westinghouse Coatings

Applicant has shown that Westinghouse has a program for assuring the quality of coatings on Westinghouse-supplied equipment.<sup>54</sup> The coating system is identical to the one used on steel at Comanche Peak.<sup>55</sup> However, Mr. Hamilton alleges that the appearance of Westinghouse coatings is different from the appearance of other coatings at Comanche Peak and that these coatings failed an adhesion test he conducted.<sup>56</sup> Mr. Hamilton was a qualified supervisor in the quality assurance program for coatings.

Under the circumstances, it is not enough for applicant to rely on the general topography of its quality assurance program or on the alleged adequacy of the Westinghouse quality assurance program. Pursuant to 10 C.F.R. Part 50, Appendix B, "[t]he applicant may delegate to others . . . the work of establishing and executing the quality assurance program, or any part thereof, *but shall retain responsibility therefor.*"<sup>57</sup>

Applicant is involved in constructing a nuclear plant. This is not just ordinary civil litigation. When a complaint is filed, applicant must satisfy itself, this Board and the public that there is no substance to the complaint. It does not suffice to characterize a complaint as "vague" or to demean the character of the person making the charges. Applicant must have a reasoned basis for concluding that there is no safety problem related to the complaint. Failure to do so reflects adversely on the adequacy of the quality assurance program and on management's fitness to shoulder the responsibilities for which it seeks an operating license. Accordingly, this objection is denied.

## I. Weave Welding

Applicant's objection on weave welding is sustained. In this instance, applicant did not rely solely on the lack of credibility of the witnesses. It reviewed each of the areas in which weave welding was alleged to have

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<sup>53</sup> Brandt Affidavit at 4-5.

<sup>54</sup> Brandt Affidavit at 6.

<sup>55</sup> *Id.*

<sup>56</sup> CASE Exhibit 653 at 55.

<sup>57</sup> 10 C.F.R. Part 50, Appendix B, § I. ORGANIZATION.

occurred and it determined that there was no safety prohibition in these areas against weave welding, which is prohibited only for material that requires Charpy impact testing.<sup>58</sup>

## J. Repair of Plug Welds

We find that applicant's objections to our findings on this issue have succeeded only in muddying the waters further. The objections are denied.

Applicant tells us that it is "unable to identify any instance in the record in which plug welding was stated to have been governed specifically by the ASME Code."<sup>59</sup> Since the Board has ruled that Code sections, with which applicant must be familiar, are legal materials that need not be in the record, we found this response puzzling, so we opened the Code ourselves and found NF 4429, "Plug Welds." This section authorizes the use of plug welds.<sup>60</sup> We are concerned that applicant's experts did not know that.

Applicant then tells us that it considers plug welding to be a kind of "fillet weld."<sup>61</sup> This is partially permitted by NF 4429; for a plug weld begins as a fillet weld, which is placed around the base of the area to be welded. However, it does not end as a fillet weld. Before completion, a plug is placed on top of the fillet weld, apparently obscuring it from external inspection and making it essential that there be a hold point before the plug is inserted. Thus, Mrs. Stiner's testimony that plug welds were made "without a QC inspector being present"<sup>62</sup> is directly in point. Applicant appears to concede the absence of a hold point that would have required inspectors to be present and do not directly contradict Mrs. Stiner's testimony.<sup>63</sup> Hence, applicant's response is inadequate and the NRC Staff's investigation of this point also appears to have fallen into the same trap of believing that plug welds can be properly inspected after they are closed.<sup>64</sup>

In making this finding, the Board is not applying any Code provision that directly requires a hold point on a plug weld. However, there is a Code provision prescribing standards for the fillet welds that are covered

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<sup>58</sup> Applicants' Summary of the Record Regarding Weave and Downhill Welding, July 15, 1983 (Applicant's Welding Summary) at Affidavit of C. Thomas Brandt (Initial Brandt Affidavit) at 2-3.

<sup>59</sup> Applicant's Objections at 48.

<sup>60</sup> Compare Applicant's Objections at 48, "there is no provision in the Code addressing directly 'plug' welding."

<sup>61</sup> *Id.* at 48, citing Applicant's Exhibit 141 at 36.

<sup>62</sup> Applicant's Objections at 45.

<sup>63</sup> Applicant's Objections at 47, citing Applicant's Exhibit 141 at 36 and Tr. 4629.

<sup>64</sup> See applicant's description of the inspection, Applicant's Objections at 47-48.

within a plug weld and it is our judgment that the opportunity to inspect these fillet welds is lost after they are closed. In response to applicant's objection, we therefore narrow our concern to whether plug welds are properly inspected before they are closed.

## K. Downhill Welding

Mr. Stiner testified that downhill welding occurred at Comanche Peak.<sup>65</sup> Until we issued our proposed decision on July 29, 1983, applicant's witnesses did not contradict this testimony. However, Mr. Brandt now testifies that, "I am aware of no evidence that such a practice has occurred at Comanche Peak."<sup>66</sup>

Applicant urges that we must give Mr. Stiner's testimony no weight whatsoever because he has been convicted of violent crimes and because he falsified his application for employment at Comanche Peak.<sup>67</sup> In its argument, it states that Mr. Stiner had some incentive to falsify his testimony because the statutory protections for whistleblowers are applicable both to him and to his wife, who continued her employment at Comanche Peak.<sup>68</sup> We consider this argument to have some merit. Nevertheless, our examination of Mr. Stiner's testimony, and that of his wife, persuades us that his statements are entitled to some weight and we will not disregard his allegations.

We do not believe it is correct either for applicant or this Board to disregard what Mr. Stiner has said because of his criminal background. He had substantial direct experience within the plant. There is, consequently, a substantial risk that his representations were learned first hand and are true. Given the potential hazards of operating a defective nuclear plant, we think that prudent action requires that all plausible allegations<sup>69</sup> be taken seriously by the applicant until it is sure that it has a sound reason for disregarding them.

We would note that Mr. Brandt is a senior employee of applicant and has strong motives for favoring the applicant's interest in this case. Furthermore, his new testimony about downhill welding is suspect because he did not choose to make this simple, direct response to this alle-

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<sup>65</sup> Proposed Initial Decision at 18 NRC 141, *citing* CASE Exhibit 666 at 44-45 (Tr. 4246-47).

<sup>66</sup> Brandt Affidavit at 7.

<sup>67</sup> Applicant's Objections at 42, 46 (especially n.16).

<sup>68</sup> *Id.*

<sup>69</sup> If an untrustworthy individual made a very large number of allegations and the investigation of a substantial number disclosed that none had any merit, the investigation might then cease. A bad track record on allegations may be a reason to abandon a search. However, applicant has not alleged that Mr. Stiner's track record in reporting deficiencies calls his credibility into question.

gation earlier in the case. Mr. Brandt also was involved in the firing of Mr. Atchison for pretextual reasons.<sup>70</sup>

Since Mr. Brandt has not been involved in misstatements or in violent crime, we continue to find his testimony more credible than that of Mr. Stiner; however, we are not prepared to accept his undocumented, belated statement about downhill welding to be determinative. We require at a minimum that he inform us about how he attempted to ascertain whether there were other workers who thought downhill welding occurred and the circumstances under which it may have occurred.<sup>71</sup> Despite applicant's careless rhetoric to the contrary, this Board does not require "absolute proof" of a negative.<sup>72</sup> We do require that applicant demonstrate its concern for public safety by giving reasoned responses.

Applicant's objection is without merit.

#### L. Weld Rod Control

Applicant correctly objects to certain language used by the Board in this portion of its decision. Consequently, we have decided that the language in the last paragraph of LBP-83-43 at 141 should be reworded as follows:

This testimony is not sufficient to resolve the issue. The fact that NCRs<sup>73</sup> have been written on uncontrolled weld rods does not refute a charge that the control system for these rods, while present, is *inadequate*. Neither the staff nor the applicant has presented evidence that the system is *sufficiently effective to keep the number of breaches to an acceptable number*. [Emphasis added to indicate the changed language.]

General testimony by Mrs. Stiner concerning a practice that occurs on the site needs to be investigated sufficiently to assure the public and this Board that safety has not been compromised. Intervenors fulfill their burden of going forward when an eyewitness testifies to a practice at the site. A quality assurance program that does not follow up on such leads is deficient. It is not sufficient to rely on random audits and paper checks when there is direct testimony. Random samples have serious dif-

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<sup>70</sup> LBP-83-34, 18 NRC 36, 37 (1983). (We do not know whether or not Mr. Brandt played a role in the pretextual dismissal of Mr. Hamilton.)

<sup>71</sup> The workers must provide the information under circumstances where they can be confident that they are being asked to tell the truth and that there will be no chance of an adverse impact on their job. Although applicant may be able to arrange these circumstances itself, testimony of NRC investigators on this subject might be more acceptable.

<sup>72</sup> Applicant's Objections at 50.

<sup>73</sup> Nonconformance reports.



facilities and must be supplemented by reasonable attention to specific, available information.

Applicant also argues that intervenors have only alleged one specific instance in which a weld rod was not controlled. However, testimony is that there was a *practice* and there is no requirement that specific instances be identified, as applicant argues.<sup>74</sup> Nor does applicant's testimony concerning its *procedures* rebut testimony of a contrary *practice*.

Except to the extent indicated, applicant's objection is denied.

### **M. Hilti Bolt Inspection**

Applicant's objection concerning this aspect of our decision is sustained. We accept the testimony of Mr. Ronald G. Tolson that Hilti bolt inspection requires the completion of an inspection report that requires the reporting of four attributes, including as one attribute the "torque wrench number" and the "calibration due date."<sup>75</sup> Given that testimony we reject any possible inference from Mrs. Stiner's testimony that quality assurance inspectors would fake these numbers because they had received an instruction to "pass" Hilti bolts on which they found torque seal.

We are confident that a review of these inspection reports should indicate whether torquing has been proper. Consequently, since applicant's inspectors do review the reports, the objection is sustained.

### **N. Mismatched Hanger**

Applicant's objection concerning this aspect of our decision also is sustained. Applicant admits the presence of a 1/4 inch gap in a particular hanger containing a "T" fillet joint.<sup>76</sup> However, it claims that such a gap is permitted by the ASME Code. Our own reading of the Code confirms applicant's interpretation.

### **O. Fuel Pool Liner**

Applicant has demonstrated that the craft person whom Mrs. Stiner saw doing liquid penetrant testing on the fuel pool liner was doing an in-process examination prior to the quality assurance inspection.<sup>77</sup>

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<sup>74</sup> Applicant's Objections at 53.

<sup>75</sup> Applicant's Objections, Attachment C, "Affidavit of Ronald G. Tolson" (Tolson Affidavit) at 2.

<sup>76</sup> Applicant's Objections at 62-63; Brandt Affidavit at 7.

<sup>77</sup> Tolson Affidavit at 3.

Consequently, we agree with applicant that there is no basis for concern about this event.

#### **P. Corrective Action Concerning Pipe Hanger**

Applicant has persuaded us that Mrs. Stiner narrowed her concern about the pipe hanger to a question of whether a particular clearance would permit the pipe to expand when heated.<sup>78</sup> Since Mrs. Stiner has no engineering expertise and since the clearance was not nonconforming,<sup>79</sup> we grant applicant's objection concerning this matter.

#### **Q. Chicago Bridge and Iron Restraints**

Our review of applicant's objections on this issue persuades us that they have adequately dealt with the welding problems that once existed with these restraints. The restraints were subject to a complete reinspection on site and the identified indications were found to be insignificant from a structural standpoint.<sup>80</sup> Furthermore, an NRC follow-up investigation found only Level V violations, considered by the staff to be "of minor safety or environmental concern."<sup>81</sup>

These objections are sustained.

#### **R. NPSI Pipe Whip Restraint Welding**

In this instance, applicant's objections also are sustained. Applicant correctly points out that it has refuted the only specific concern presented by Mr. Atchison, relating to a crushable bumper attached to the pipe whip restraint structures.<sup>82</sup> However, the kind of "warping" objected to by Mr. Atchison is acceptable in this type of configuration.<sup>83</sup>

Although we have generally required applicant to inquire further concerning the significance of nonspecific allegations, we will not do so here. The general allegation of deficiencies in NPSI welding is too general to be subject to a follow-up. Furthermore, welds are being inspected during final walkdowns and have been inspected by the Construction

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<sup>78</sup> CASE Exhibit 667 at 56-57, 667Y.

<sup>79</sup> CASE Exhibit 667Y; Tr. 4028-29.

<sup>80</sup> Applicant's Objections at 69, *citing* Applicant's Exhibits 122 at 1-5, and 123-26.

<sup>81</sup> Applicant's Objections at 69. There does not yet appear in our record an answer to Mr. Atchison's testimony about "word of mouth" that the backfit program was not taken seriously. CASE Exhibit 656 at 7.

<sup>82</sup> Tr. 3458-59.

<sup>83</sup> Applicant's Exhibit 141 at 29.

Appraisal Team, as we will discuss in a subsequent decision. Consequently, there is no need for applicant to follow up on this allegation.

### S. Liquid Penetrant Testing

We accept Mr. Brandt's testimony that the individuals who borrowed Mr. Atchison's kit did so solely for the purpose of obtaining prerequisite training for certification to perform such testing.<sup>84</sup> Mr. Atchison did not claim any personal knowledge contradictory to this assurance from the applicant.<sup>85</sup> Consequently, this objection is sustained.

### T. Unstated Management Directive

Mr. Atchison testified about his impression that it was the rule around Comanche Peak that "if there's a problem report it; you report too many then you come under somebody's thumb."<sup>86</sup> Applicant urges that we dismiss this allegation because the basis for it, as applicant understands it, does not support Mr. Atchison's allegation.<sup>87</sup> We reject this suggestion. The record concerning Mr. Atchison's relationships at Comanche Peak is far more complex than what applicant portrays it to be. His impressions were corroborated by his pretextual firing.

Mr. Atchison's general allegations and his specific testimony are entitled to be weighed when this Board considers whether or not applicant has discouraged the filing of nonconformance reports. Consistent with the Department of Labor decision, we may weigh testimony of this nature since it was corroborated by other evidence, including the subsequent action of dismissing Mr. Atchison. Hence, this objection is denied.

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<sup>84</sup> Applicant's Objections at 73, citing Applicant's Exhibit 141 at 24-25.

<sup>85</sup> CASE Exhibit 650 at 51.

<sup>86</sup> CASE Exhibit 650 at 58. Applicant would have us ignore this allegation in part because Mr. Atchison admitted that the number of NCRs filed by each quality assurance inspector was not "tracked" at Comanche Peak. *Id.* at 57-59. However, we do not draw the requested inference. Supervisors can know about the activities of inspectors without a formal tracking system. Indeed, the absence of such a system provides them with "deniability" and makes it more difficult to criticize them for discriminating against inspectors who file the greatest number of reports. To test Mr. Atchison's hypothesis, it would be useful to construct a tracking system that correlated productivity with positive and negative actions by supervisors. It also would be helpful to investigate Mr. Atchison's related claim that Brown & Root took extraordinary actions against Rose Klimist. CASE Exhibit 656 at 2-4.

<sup>87</sup> Applicant's Objections at 74.

## **U. Tennessee Wall, Tube & Metal Audit**

In response to applicant's objections, the Board states that it is not concerned about the propriety of closing the audit of Tennessee Wall, Tube & Metal. However, there is uncontroverted testimony that Mr. Atchison was pressured into approving the audit against his own best judgment. Although it may have been proper for the supervisor to have closed that audit on his own, we see no reason for him to have pressured a subordinate to act against his own conscience. Such actions cannot have a salutary effect on the morale of quality assurance inspectors at the plant. This action — and applicant's defense of it — will be considered by the Board in its subsequent decisions.

The applicant's objections are approved, in part, as we have indicated.

## **V. A490 Torque Values**

Since the problem to which Mr. Atchison pointed has been corrected by conducting tests to establish torque values for these bolts, and since bolts torqued previously have been reverified, there is no remaining problem.<sup>88</sup> Applicant's objection is sustained.

## **W. Quenching of Welds**

Since Mr. Brandt has testified that it is proper procedure to water quench austenitic stainless steel,<sup>89</sup> we have no further reason to be concerned about Mr. Atchison's testimony that he saw welds being water quenched. Accordingly, applicant's objection is sustained.

## **X. Cold Sprung Pipe on Component Cooling Water System**

On this matter, applicant has explained to our satisfaction that it introduced documents describing this particular deficiency and that CASE did not argue that the documents were irrelevant or nonresponsive.<sup>90</sup> For this reason, our doubts are resolved and applicant's objection is sustained.

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<sup>88</sup> Brandt Affidavit at 8.

<sup>89</sup> Brandt Affidavit at 9-10.

<sup>90</sup> Applicant's Exhibit 141W; Applicant's Exhibit 141 at 36-37; Applicant's Objections at 82.

## Y. Board Conclusions About ATWS

Since there are six specific actions concerning ATWS being required of applicants<sup>91</sup> and a follow-up program has been undertaken by the staff, we are satisfied that these proposed actions are satisfactory. Consequently, we sustain applicant's objection.

## VI. CASE'S SPECIFIC OBJECTIONS

Most of CASE's objections relate to rock overbreak and to settlement cracks. In this portion of our opinion, we respond to each of CASE's objections.

### A. Rock Overbreak

CASE argues that the Board should have found that applicant attempted to mislead the NRC concerning the extent of rock overbreak at the site. It argues that it should have amended its Final Safety Analysis Report (FSAR) to reflect the full extent of the overbreak. It also states that applicant's Section 50.55(e) report to the Commission created the impression that the overbreak was limited to the excavations for Units 1 and 2 reactor buildings rather than being "so extensive that there was no point in associating particular fractured rock with the excavation of a particular building."<sup>92</sup>

We agree that the FSAR should have been amended to disclose the overbreak problem accurately and to comply with full disclosure principles governing applications for an operating license. Failure to amend the FSAR reflects adversely on the seriousness with which applicant takes its obligations as an applicant for a license. On this matter, we are surprised to find that applicant appears to have left a void in the record. Considering that its integrity was being challenged, this seems a strange silence.

Failure to describe the rock overbreak problem in a reasonable manner in the FSAR constitutes a material false statement under 10 C.F.R. § 50.100, as CASE has argued.<sup>93</sup> Because this violation of the regulations is mitigated by the filing of a 50.55(e) report covering the situation, we will not attach any independent licensing significance to this event. However, we may consider this event subsequently.

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<sup>91</sup> Generic Letter #83-28, July 8, 1983; see SECY-83-248, June 22, 1983.

<sup>92</sup> CASE's Objections at 5-7.

<sup>93</sup> CASE's Objections at 8.

We disagree with CASE's objection concerning the report of rock overbreak to the NRC. Although applicant has not directly contradicted CASE's statement about the narrow wording of its report, the report that it filed indicated a problem of sufficient dimensions to trigger a staff investigation. Given the likelihood that such an investigation would be conducted, we find no serious harm in applicant's apparent understatement of the overbreak condition in its 50.55(e) report. CASE's objection does not provide us with any reason to believe that a differently worded report would have caused the NRC national office to become directly involved, as CASE suspects. Furthermore, officials in the national office are aware of regional reports. NRC is one organization. We make nothing of CASE's allegation concerning a possible motivation by applicant to limit the investigation to the regional office. Consequently, the objection concerning overbreak is denied.

## **B. Dental Concrete**

In our proposed decision, we described the rock overbreak problem as we understood it from the evidence. In our description, we acknowledged the problems applicant had in predicting the effects from blasting. CASE now calls this difficulty to our attention through its objections.<sup>94</sup> However, we see no direct relationship between this difficulty in predicting the reaction of limestone to blasting and the inference CASE would have us draw that the concrete placed in the hole represents an incorrect repair technique. In particular, CASE has not given us any reason to reverse our opinion that the concrete is stronger than the fractured rock that it was used to replace. The purpose of the dental concrete is different from that of structural concrete, which is reinforced with steel bars. CASE has not given us any reason to suspect applicant's testimony concerning the use of unreinforced concrete for replacement of broken rock. Consequently, this objection is denied.

## **C. Confirming Photographs**

CASE would have us find that the loss of one photograph, of the largest crack formed in the limestone formation, is so crucial that we should find that applicant has not carried its burden of proof concerning the safety of the foundation.<sup>95</sup> However, there is direct testimony in our record concerning this feature and its current status. We do not think

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<sup>94</sup> CASE's Objections at 9-12.

<sup>95</sup> CASE's Objections at 12-13.

CASE's reason for doubting these experts — their track record in predicting the effects of blasting on these foundations — is sufficient for us to reverse our findings on this fact. The applicant has sustained its burden of proof concerning the safety of the foundation. Hence, this objection is denied.

#### **D. Cracks in Reactor Shield Wall**

CASE has not given any reason for us to believe that a hairline crack in concrete (whether or not it should be called a settlement crack), assumed for conservative purposes to go through the entire reactor shield wall, would transmit any substantial increase in radiation.<sup>96</sup> Consequently, this objection is without merit.

CASE also raises a question about applicant's "concern" about "the area around the neutron detection slots."<sup>97</sup> However, it does not explain the nature of the problem that CASE is worried about or the relevance of this matter to the challenged findings. This does not meet the standard for the specificity of objections established by this Board in its proposed opinion. Although we have made extensive reference to source documents in preparing this document, we are not prepared to mine those documents without a map furnished to us by a party.

This objection is denied.

#### **E. Polar Crane**

CASE does not provide any reasons why the Board's findings about the polar crane should be changed, but it states its concern that the problem of accumulating gaps in the polar crane rail should not have occurred in the first place.<sup>98</sup> However, CASE does not give us any reason to believe that this represents a breakdown of the quality assurance program; and we accept applicant's representation that this problem was detected prior to the quality assurance inspection of the rails.<sup>99</sup> Consequently, this objection is denied.

We note, however, that CASE requests information concerning applicant's reevaluation of all shims with clipped fingers. Since this was a matter that was specifically litigated and that could be important to having a complete record, CASE's request should be honored. In this

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<sup>96</sup> See CASE's Objections at 13-14.

<sup>97</sup> *Id.* at 13.

<sup>98</sup> CASE's Objections at 15.

<sup>99</sup> Applicant's Reply at 8-9.

way, CASE may assist the Board in its effort to compile a complete record.

#### **F. Miscellaneous Objections**

CASE filed a number of other objections that are irrelevant to our proposed decision, which expressly excluded any overall consideration of applicant's commitment to its quality assurance program. These arguments should be incorporated in findings filed by CASE at an appropriate time. Those findings should attempt to indicate CASE's view of the applicant's overall commitment to its quality assurance program.<sup>100</sup>

CASE also argues that we should give zero weight to a staff investigation and finding concerning a partially installed Hilti bolt.<sup>101</sup> However, we find this finding to be sufficiently specific to be trustworthy. Absent reconsideration by the staff as the result of further investigation, we trust this finding.

CASE's miscellaneous objections are denied.

### **ORDER**

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

#### **ORDERED**

The parties' Objections to our Proposed Initial Decision of July 29, 1983 are granted only to the extent indicated in the accompanying memorandum. Findings in our Proposed Initial Decision that are *not* modified in this opinion are now final.

Because of the extensive filings on issues included in this decision, motions for reconsideration will be entertained only if they are filed within ten days of the issuance of this Order and if they are limited to

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<sup>100</sup> Given our massive record, the parties should consider relying heavily on figures and tables to display the overall record on commitment to quality assurance.

<sup>101</sup> CASE's Objections at 17.



clear errors of fact or law. Each such clear error should be listed and carefully explained in a separate paragraph.

**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

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**James A. Laurenson, Chairman  
Dr. Jerry R. Kline  
Mr. Frederick J. Shon**

**In the Matter of**

**Docket No. 50-322-OL-3  
(Emergency Planning Proceeding)**

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

**September 27, 1983**

The Licensing Board denies a motion to compel production of a certain FEMA employee for deposition regarding the FEMA review of an emergency plan.

**RULES OF PRACTICE: DISCOVERY (AGAINST FEMA)**

Pursuant to interagency Memorandum of Understanding, the Federal Emergency Management Agency (FEMA) is acting as consultant to NRC in emergency planning matters; its employees are thus entitled to limitations on discovery afforded NRC consultants by 10 C.F.R. §§ 2.720(h)(2)(i) and 2.4(p). Where party requesting production for deposition of a certain FEMA employee fails to show "exceptional circumstances," request is denied.

**EMERGENCY PLANNING: FEMA REVIEW**

The role of the Federal Emergency Management Agency (FEMA) in emergency plan review is that of "consultant" to NRC: FEMA submits

its expert advice concerning emergency plans to NRC, which evaluates that advice in conjunction with all other evidence of record. (Interagency Memorandum of Understanding, 45 Fed. Reg. at 82,714 (1980)).

**MEMORANDUM AND ORDER  
DENYING SUFFOLK COUNTY MOTION TO COMPEL  
DISCOVERY FROM FEMA**

On September 7, 1983, Suffolk County ("the County") filed a motion to compel discovery. The motion asserted that the County had filed notices of deposition for three named FEMA employees. FEMA notified the County that it would not voluntarily produce these employees for deposition because of the following: (1) FEMA employees are entitled to the same protection as NRC employees pursuant to 10 C.F.R. § 2.720(h)(2)(i); (2) FEMA already designated three other persons to testify at hearing and deposition; and (3) the County has not attempted to establish "exceptional circumstances" to justify the taking of these objections. At the first Discovery Conference on September 26, 1983, the County and FEMA announced that they had resolved their differences over two of the three requested depositions. However, they were unable to settle their dispute concerning the County's request for the deposition of Jeffrey Bragg. The County asserts that FEMA is an independent agency, not part of the NRC or a consultant to the NRC, and, hence, FEMA employees are not entitled to the protection of § 2.720(h)(2)(i). We disagree with the County. We find, pursuant to the relevant regulations, that FEMA is acting as a consultant to the NRC in emergency planning matters and that its employees are entitled to the protection of § 2.720(h)(2)(i). Since the County has not established any "exceptional circumstances," the motion is DENIED. The dissenting view of Judge Frederick J. Shon is attached. We do not here rule upon the "Suffolk County Motion to Compel Discovery from FEMA," filed on September 19, 1983, concerning documents and answers to deposition questions. That motion will be ruled upon at a later date.

FEMA has designated the following to be its witnesses at hearing and deposition: Edward Tanzman, Roger B. Kowieski, and Fred Sharrocks. The County wants to take the deposition of Jeffrey Bragg, Executive Deputy Director of FEMA. The County has conducted discovery which

identified Jeffrey Bragg as someone who personally participated in the FEMA review of the LILCO Emergency Preparedness Transition Plan.

At the outset we observe that the status of FEMA in NRC licensing hearings is unclear. There have been no changes in the NRC Rules of Practice, 10 C.F.R. Part 2, dealing with the status of FEMA since the Memorandum of Understanding between FEMA and NRC, 45 Fed. Reg. 82,713 (1980). That Memorandum set forth certain responsibilities for FEMA including the fact that "to support its findings and determinations, FEMA will make expert witnesses available before . . . NRC hearing boards . . . and during any related discovery proceeding." 45 Fed. Reg. at 82,714. The promulgation of the emergency planning rule, 10 C.F.R. § 50.47, placed FEMA in a unique position by declaring that "[i]n any NRC licensing proceeding, a FEMA finding will constitute a rebuttable presumption on questions of adequacy and implementation capability." 10 C.F.R. § 50.47(a)(2). Various licensing boards have dealt with FEMA's status in differing ways. Often, FEMA and NRC have been combined in emergency planning matters and FEMA has been represented by its own counsel. NRC's failure to clarify FEMA's role in a hearing brings us to the present controversy under the Rules of Practice.

Section 2.720(h)(2)(i) provides as follows:

In a proceeding in which the NRC is a party, the NRC staff will make available one or more witnesses designated by the Executive Director for Operations, for oral examination at the hearing or on deposition regarding any matter, not privileged, which is relevant to the issues in the proceeding. The attendance and testimony of the Commissioners and named NRC personnel at a hearing or on deposition may not be required by the presiding officer, by subpoena or otherwise: *Provided*, That the presiding officer may, upon a showing of exceptional circumstances, such as a case in which a particular named NRC employee has direct personal knowledge of a material fact not known to the witnesses made available by the Executive Director for Operations require the attendance and testimony of named NRC personnel.

(Emphasis in original.)

The purpose of this rule was set forth in the Statement of Consideration as follows:

In view of the increasing number of adjudicatory proceedings, and the demands on the time and energies of AEC policy making, supervisory and staff personnel, the Commission considers it desirable to provide a procedure and criteria for determining the appropriateness of attendance and testimony of such persons in AEC adjudicatory proceedings. The procedure and criteria established seek to accommodate the public interest in having participation by appropriate AEC personnel in resolving matters in issue in an adjudicatory proceeding with a parallel

public interest in maintaining the efficient and expeditious conduct of this and other agency functions.

35 Fed. Reg. 19,500 (1970).

The definition of "NRC personnel" protected by the above rule is set forth in 10 C.F.R. § 2.4(p) as follows:

"NRC personnel" means (1) NRC employees; (2) for the purpose of §§ 2.720 and 2.740 only, persons acting in the capacity of consultants to the Commission, regardless of the form of the contractual arrangements under which such persons act as consultants to the Commission; and (3) members of advisory boards, committees, and panels of the NRC; members of boards designated by the Commission to preside at adjudicatory proceedings; and officers or employees of Government agencies, including military personnel, assigned to duty at the NRC.

The Statement of Consideration for the above definition is, in pertinent part, as follows:

The Atomic Energy Commission has adopted an amendment to its rules of practice in 10 C.F.R. Part 2 which refines the definition of "AEC personnel" as used in that part.

Section 2.4 of Part 2 now includes within the definition of "AEC personnel," persons who are "consultants . . . of the AEC," the amendment adopted specifically includes within that definition persons who are acting in the capacity of consultants to the Commission, regardless of the form of the contractual arrangements under which such persons render consultant services. Thus, employees of AEC contractors are included in the definition of AEC personnel (for §§ 2.270 [sic] and 2.740 purposes only) to the extent that they act as consultants to the Commission, even though there is no special contract for consulting services between the Commission and such employees.

The clarification of the definition in § 2.4 has the effect of making applicable to employees of AEC contractors and other persons acting as consultants to the Commission, regardless of the form of the contractual arrangements, § 2.270(h) [sic], which deals, *inter alia*, with attendance and testimony of "AEC personnel."

38 Fed. Reg. 1500 (1973). The fact that NRC consultants are included in the term "NRC personnel" in § 2.720(h)(2)(i) is reaffirmed in 10 C.F.R. Part 2, Appendix A, IV(d). The County concedes that "Section 2.720(h)(2)(i) also protects the Staff's consultants from deposition. *See* 10 C.F.R. Part 2, Appendix A, § IV(d)." Suffolk County Motion to Compel Discovery at 3 n.1.

We next turn to the question of whether FEMA qualifies as a "consultant to the Commission." The term "consultant" is not defined in the Act or regulations. Thus, we shall look to the dictionary or ordinary usage of the term. A consultant is "a person who gives professional or expert advice." The Random House College Dictionary,

Revised Edition 289 (1980). Similarly, a consultant is "one who gives professional advice or services regarding matters in the field of his special knowledge or training." Webster's Third New International Dictionary 490 (1976). This path leads back to the Memorandum of Understanding Between FEMA and NRC, *supra*. Pursuant to that Memorandum, FEMA is to "make findings and determinations as to whether State and local emergency plans are adequate and capable of implementation. . . ." 45 Fed. Reg. at 82,714 (1980). The Memorandum goes on to provide that, thereafter, the NRC has the responsibility

to review the FEMA findings and determinations on the adequacy and capability of implementation of State and local plans [and] to make decisions with regard to the overall state of emergency preparedness (*i.e.* integration of emergency preparedness onsite as determined by the NRC and offsite as determined by FEMA and reviewed by NRC) and issuance of operating licenses or shut down of operating reactors.

*Ibid.* Moreover, that Memorandum provides that "FEMA will *provide support* for NRC reactor, fuel facility and material licensing reviews, *as requested* with regard to the assessment of the adequacy of State and local response plans for accidental radiological releases. This will include timely submittal of an evaluation suitable for inclusion in NRC safety evaluation reports." *Ibid.* (Emphasis supplied.)

We find that the provisions of the Memorandum of Understanding Between FEMA and NRC qualify FEMA as an "NRC consultant" for purposes of §§ 2.4 and 2.720(h)(2)(i). This is so because FEMA submits its professional advice concerning emergency preparedness plans and implementation of those plans, but it is NRC which must weigh and evaluate that advice in conjunction with all other probative, reliable, and substantial evidence of record. To paraphrase the Memorandum, FEMA will provide support as requested by the NRC. This clearly puts FEMA in the role of a consultant. FEMA is providing "professional advice or services" to the NRC. Since FEMA is an "NRC consultant," § 2.720(h)(2)(i) provides that we may not require the attendance and testimony of any named FEMA employees absent a showing by the County of "exceptional circumstances." Since the County has not attempted to establish any "exceptional circumstances," its motion is DENIED.

## **ORDER**

**WHEREFORE, IT IS ORDERED** that the Suffolk County Motion to Compel Discovery from FEMA is **DENIED**.

### **THE ATOMIC SAFETY AND LICENSING BOARD**

**James A. Laurenson, Chairman  
ADMINISTRATIVE LAW JUDGE**

**Dr. Jerry R. Kline  
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland**

### **DISSENTING VIEW OF JUDGE FREDERICK J. SHON**

I respectfully dissent from the views of my colleagues in this matter. I note that, to the extent I have been able to research it, the question is indeed a matter of first impression. We have no specific guidance from either Commission or Appeal Board, and the regulation itself seems not to have contemplated the precise situation at bar. That is not surprising in view of the fact that the special relationship between NRC and FEMA was defined a decade after the rule on NRC witnesses was adopted and seven years after the changes in definitions which brought "consultants" under the rule's aegis.

Nonetheless, I believe certain logical extrapolations can be made from the regulations as they stand. The original rule provided a special shield for "AEC personnel" in consideration of the "increasing number of adjudicatory proceedings, and the demands on the time and energies of AEC policy making supervisory and staff personnel." It seems clear to me that an agency, faced with increased demands upon its personnel, might well — purely as a matter of administrative efficiency — develop such a rule as 2.720(h)(2)(i) to apportion the effort of its people. But we have no indication that FEMA faces a dilemma of "increasing

... adjudicatory proceedings” in its own right, or that it would adopt this particular mechanism to remedy the problem if it did.

Certainly it seems FEMA has no comparable rule of its own, since FEMA's very able counsel cites only ours. If indeed, FEMA is in need of such protection, it should pursue it through the rulemaking mechanisms available to it rather than through adjudication before this Board.

In my colleagues' view the FEMA employee whose deposition is at issue here is a “consultant” to NRC. I have reviewed the memoranda of understanding which created the present relationship: both of the Memoranda of December 16, 1980 (45 Fed. Reg. 82,713) and the Memorandum which they superseded (45 Fed. Reg. 5847 (1980)).

Nowhere are the words “consult” or “consultant” used. Indeed, under sections II and III of the extant Memorandum on emergency planning, the directives to FEMA include only such exhortations as “to review,” “to make findings and determinations,” “to take the lead,” and “to assume responsibility.” These scarcely smack of the notion of serving as consultant.

I note further that, in 10 C.F.R. § 2.4 as cited by my colleagues, the Regulations make specific provision for the circumstances under which employees of other agencies come beneath the umbrella. Section 2.4, as cited *supra*, specifies that, for the purposes of 10 C.F.R. §§ 2.720 and 2.740 “NRC personnel” includes “officers or employees of Government agencies, including military personnel, *assigned to duty at the NRC.*” (Emphasis added.) No one, to my knowledge, claims that the FEMA employee whose deposition Suffolk County would take is “assigned to duty at the NRC.”

It is well established that exceptions to general rules are to be construed narrowly. *A fortiori*, where the general rule is one which, as a matter of equity, permits a party before us to exercise discovery rights, a narrow construction of exceptions to that rule seems well-advised. I therefore do not believe the Regulations themselves extend any protection to FEMA employees.

I turn now to the question of whether, as a matter of interagency comity, we should seek to extend the aegis of §§ 2.720 and 2.740 to the employees of another agency in circumstances other than those specified by regulation. I am convinced we should not.

Two decades ago the notion of an agency's bending its rules to protect a sister agency from the prying nose of John Q. Public might have seemed a sound one indeed. But times have changed. In the enlightened era of Government in Sunshine and Freedom of Information, the Weltanschauung is reversed. Public servants must expect to live in a



goldfish bowl. In this case, where comity contests with equity, equity wins hands down.

I would grant Suffolk County the relief it requests.

**ATOMIC SAFETY AND  
LICENSING BOARD**

**Frederick J. Shon  
ADMINISTRATIVE JUDGE**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Peter B. Bloch, Chairman  
Dr. Oscar H. Paris  
Mr. Frederick J. Shon**

**In the Matter of**

**Docket No. 50-155  
(Spent Fuel Pool Amendment)**

**CONSUMERS POWER COMPANY  
(Big Rock Point Plant)**

**September 30, 1983**

The Board denies intervenor's motion to reopen the record based on new information it had obtained about the appropriate standards to be applied in determining whether applicant has complied with the NRC Staff's criticality requirements (neutron multiplication factor requirements) for a spent fuel pool. The Board holds that the alleged difference in standards is moot. Since applicant is now required to show that the water in its spent fuel pool will not rise above 150°F, the maximum temperature at which the integrity of the concrete pool can be assured, it is no longer necessary for applicant to show that the neutron multiplication factor ( $K_{eff}$ ) would not exceed 0.95 at temperatures higher than the 150°F.

**LICENSING BOARDS: JURISDICTION**

The Licensing Board has jurisdiction over issues remanded to it by the Appeal Board even if the decision ordering the remand has been appealed to the Commission.

## SPENT FUEL POOL: NEUTRON MULTIPLICATION FACTOR

When applicant must show that the water in its fuel pool will not rise above 150°F in order to retain the integrity of the pool concrete, that maximum temperature value establishes the maximum temperature at which applicant must show that the neutron multiplication factor ( $k_{eff}$ ) in its fuel pool must not rise above 0.95.

### TECHNICAL ISSUE DISCUSSED

Neutron multiplication factor ( $k_{eff}$ ).

## MEMORANDUM AND ORDER (Reopen Record on Criticality)

On August 24, 1983 Christa-Maria, *et al.* (Christa-Maria) requested that we reopen the hearing record on the criticality contention. The motion was based on information appearing in affidavits filed by Dr. Walter L. Brooks and Mr. Daniel B. Fieno, members of the Nuclear Regulatory Commission's Staff (staff), subsequent to the time applicant filed its appeal from our initial decision on criticality.

Consumers Power Company (applicant) contends that we lack jurisdiction over the motion to reopen because such motions are permitted by 10 C.F.R. § 2.718(j) only prior to the time that we issue an initial decision. However, we find that this argument lacks merit and that we have jurisdiction: the Appeal Board remanded the criticality issue to us and has required us "to make [our] finding on the adequacy of the applicant's criticality analysis contingent upon the reliability of the makeup line."<sup>1</sup> The pendency of an appeal to the Commission from this order of the Appeal Board does not stay its effect.

Consequently, we would now turn to the merits of Christa-Maria's motion. But when we turn our attention to the issue raised by Christa-Maria we find that the alleged grounds for reopening are now moot.

Christa-Maria argues that the subsequent staff testimony indicates that applicant's criticality analysis did not meet staff requirements because the analysis omitted the required conservative assumption of a constant temperature and a constant void fraction across the fuel rods. Since Christa-Maria had no notice that staff guidance might not have

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<sup>1</sup> ALAB-725, 17 NRC 562, 572 (1983).

been followed in this case, it considers the subsequent staff depositions to have provided new information about the legal context in which the criticality contention would be decided.

However, the march of events has antiquated Christa-Maria's approach. Applicant is no longer claiming that its "makeup line" will merely replace water lost to the fuel pool through boil-off during a Three-Mile Island (TMI) type incident. It now claims that its makeup line will serve as an "overflow line," adding enough 100°F water to cause the average temperature of the fuel pool to remain below 150°F even if the pool cooling system were lost during a TMI type incident. The 150°F upper limit to temperature is essential because that is the maximum temperature at which the applicant can demonstrate that the concrete in its fuel pool will retain its integrity.<sup>2</sup>

In order to avoid the loss of water from the fuel pool caused by a failure of the concrete, applicant must demonstrate that its overflow line will function successfully. If the line fails, there would be a risk of criticality or melt-down (and possibly of Zirconium fire). Consequently, to maintain the level of water in the pool and comply with General Design Criterion 61, which requires that the fuel pool be designed "to prevent significant reduction in fuel storage coolant inventory under accident conditions,"<sup>3</sup> applicant must demonstrate that its overflow line will maintain the temperature of the water below 150°F (or such other temperature as is necessary to assure the integrity of the concrete).

To demonstrate compliance with the criticality requirements (General Design Criterion 62), applicant must demonstrate that the neutron multiplication constant ( $k_{eff}$ ) will not exceed 0.95 for any permissible condition of the water in the fuel pool. This does not require any showing about  $k_{eff}$  for the prohibited condition of boil-off or other prohibited loss of water.<sup>4</sup> Hence; applicant need not demonstrate that it would avoid criticality at any temperature above 150°F in a full fuel pool. This it has already done, under any interpretation of the existing evidence or staff guidance.<sup>5</sup>

The sole question left for us to decide about criticality is whether the overflow line will successfully fulfill its assigned function of preserving the integrity of the concrete in the pool.<sup>6</sup>

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<sup>2</sup> Further Testimony of David P. Blanchard (Reliability of Makeup Line) (September 23, 1983) at 7-9.

<sup>3</sup> See ALAB-725, 17 NRC at 567.

<sup>4</sup> *Id.*, *passim*.

<sup>5</sup> We do not interpret the deposition of Mr. Fieno as raising any serious question about the maximum enrichment assumptions adopted by Dr. Kim in his criticality analysis. See Fieno Deposition at 50, 58; Dr. Kim at Tr. 1454-55.

<sup>6</sup> The issue concerning a possible steam/zirconium reaction also is relevant because it relates to the consequences if the overflow line should be unsuccessful.

## **ORDER**

For all the foregoing reasons and based on consideration of the entire record in this matter, it is, this 30th day of September 1983,

**ORDERED**

The motion to reopen the hearing record filed by Christa-Maria, *et al.* on August 24, 1983 is denied.

**THE ATOMIC SAFETY AND  
LICENSING BOARD**

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

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

**Mr. Frederick J. Shon  
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland**



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**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  
THROUGH AND TO ILLINOIS**

**September 13, 1983**

The Director of the Office of Nuclear Material Safety and Safeguards denies a request from Edward Gogol to postpone all shipments of high-level waste through and to Illinois and to hold a series of public hearings on the radioactive waste shipments.

**TECHNICAL ISSUE DISCUSSED: TRANSPORTATION OF  
NUCLEAR MATERIAL**

The transportation of radioactive materials, including the transport of irradiated reactor fuel, is governed by a comprehensive set of regulations established by both the NRC and the Department of Transportation.

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

By letter dated July 27, 1983, Edward Gogol, on behalf of Citizens Against Nuclear Power — Chicago, Pollution and Environmental Problems — Palatine, Lake County Defenders — Lake County, Citizens for a Better Environment — Chicago, and Greenpeace-Great Lakes — Chicago (hereinafter jointly referred to as "petitioners"), requested James Keppler, Regional Administrator of the Nuclear Regulatory Commission (NRC) to order that all shipments of high-level nuclear waste

through and to Illinois be postponed and to hold a series of public hearings on the radioactive waste shipments. Petitioners also asked a number of factual questions about the shipments. Petitioners based their request on the likelihood of accidents involving the spent fuel during transportation which could result in "the deaths of thousands of people within 30 days and hundreds of thousands later from cancer." They asserted such accidents are likely because:

1. None of the casks of the type presently in use have been physically tested against possible highway and rail accident conditions. Cask welds were not tested for failure during construction.
2. The casks are not designed to withstand common highway and rail accidents.
3. An accident-caused fire could be even more dangerous than the collision itself.
4. A 1970 federal study (ORNL-4451) notes that the cask's pressure relief valve will pop open if the cask is involved in a fire, coolant will be lost, and radioactive gases and volatile particulates could then escape through the open valve.

Because the question of the appropriate regulations for transportation of spent fuel is within the area of responsibility of NRC Headquarters, the petition has been referred to this office for response.

## BACKGROUND

The transportation of radioactive materials, including the transport of irradiated reactor fuel, is governed by a comprehensive set of regulations established by both the NRC and the Department of Transportation (DOT). The respective roles of the agencies are set forth in a Memorandum of Understanding agreed to on June 8, 1979. 44 Fed. Reg. 38,690 (1979). The NRC regulations are set forth in 10 C.F.R. Part 71.<sup>1</sup> The applicable DOT regulations are found in 49 C.F.R. Parts 170 through 189. Together, these regulations are designed to assure that the following basic safety requirements are met when transporting radioactive materials:

1. Adequate containment of the radioactive material;
2. Adequate control of the radiation emitted by the material; and
3. Prevention of nuclear criticality.

In addition, the NRC has issued 10 C.F.R. Part 73 which provides requirements for the protection of certain radioactive materials based

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<sup>1</sup> Part 71 was revised, effective September 6, 1983, to make it compatible with regulations of the International Atomic Energy Agency; See 48 Fed. Reg. 35,600 (1983) and the correction notice published in 48 Fed. Reg. 38,449 (1983).



upon concern for deliberate acts to seize, damage or sabotage the shipments.

## DOT Regulations

Generally, the DOT is responsible for regulating safety in transportation of all hazardous materials including radioactive materials, and the NRC is responsible for regulating safety in receipt, possession, use and transfer of byproduct, source and special nuclear materials. More specifically, the DOT establishes certain requirements which shippers and carriers must meet during actual transport such as limits for radiation fields, requirements for marking and labeling of packages, and requirements for vehicle placarding, loading, storage, monitoring and accident reporting.<sup>2</sup>

Under the Hazardous Materials Transportation Act (HMTA), 49 U.S.C. §§ 1801-12, the DOT is authorized, among other things, to issue routing regulations for the safe transportation of radioactive materials. The DOT published a final rule requiring driver training of carrier personnel and for the highway routing of radioactive material shipments, including spent fuel, on January 19, 1981 (46 Fed. Reg. 5298). The rule became effective on February 19, 1982.<sup>3</sup> These routing requirements are set forth in 49 C.F.R. § 177.825.

Under 49 C.F.R. § 177.825(b), a carrier or any person who operates a motor vehicle to transport a package containing a "highway route controlled quantity" of radioactive material (spent fuel is such a material; see 49 C.F.R. § 173.389(b)), shall operate over a preferred route. Preferred routes are interstate highways and state-designated alternate routes. Carriers are authorized to use routes other than the interstate system only in specified instances such as to follow a state-designated route, in a documented case of emergency, to obtain necessary fuel or vehicle repairs, to travel to and from a pickup or delivery site not located on an interstate highway, or for security purposes.

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<sup>2</sup> In 1979, the NRC amended 10 C.F.R. Part 71 to require that all shipments of licensed material, except those subject to the regulations of the U.S. Postal Service, be made in accordance with the regulations of the DOT. See 10 C.F.R. § 71.5. This change to the regulations did not alter any substantive requirements but permitted the NRC to inspect the activities of its licensees in this area and to take enforcement actions if warranted. See Effective Rule, 44 Fed. Reg. 63,083 (1979).

<sup>3</sup> The rule was recently upheld by the Court of Appeals, *City of New York v. DOT*, Nos. 82-6094, 82-6200 (2nd Cir. Aug. 10, 1983).

## **NRC Regulations**

The NRC establishes safety and design standards for certain types of packages, known as Type B packaging, which apply to spent fuel casks. These standards require Type B packages, in addition to the ability to withstand conditions incident to normal transport, *see* 10 C.F.R. §§ 71.51(a) and 71.71, to be able to survive certain hypothetical accident conditions 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) and each Quality Assurance Program (10 C.F.R. § 71.101). The NRC also imposes various procedural, administrative and technical requirements designed to protect the public health and safety. The NRC regulations also specify Quality Assurance standards under which packages must be fabricated and used, and generally applicable preshipment quality tests (10 C.F.R. Part 71, Subparts G and H).

During the past several years the Commission has reexamined the adequacy of its regulation of the transportation of radioactive materials and has concluded that existing regulations are adequate to protect the public against unreasonable risk from transportation of licensed materials. On June 2, 1975 (40 Fed. Reg. 23,768) the NRC announced that it was reevaluating its then-existing regulations concerning the air transportation of radioactive materials, including packaging. As part of the rulemaking, the Commission prepared an Environmental Impact Statement (EIS) on the subject which included consideration of other transport modes because of the requirement to consider alternatives contained in the National Environmental Policy Act of 1969 (NEPA). Comments were sought on the draft EIS and the Final Environmental Statement, "Transportation of Radioactive Material by Air and Other Modes" (NUREG-0170), issued in December 1977. The Commission concluded, based upon the analysis developed in the rulemaking proceeding, the public comments received, the safety record of transportation of licensed materials and other information, that present regulations were adequate to protect the public against unreasonable risk from the transport of radioactive materials. *See* Withdrawal of Advance Notice of Rulemaking, 46 Fed. Reg. 21,619 (1981). The Commission specifically reaffirmed this conclusion on the adequacy of existing 10 C.F.R. Part 71 with respect to the safety of radioactive waste transportation in a subsequent rulemaking on Advance Notification. 47 Fed. Reg. 596 (1982).

## DISCUSSION

In their petition, petitioners do not ask that shipments of high-level waste through and to Illinois be postponed because they will not be made in accordance with the regulatory scheme described above. Rather, they take issue with specific aspects of the regulations themselves.

### **Packaging, Testing and Quality Assurance**

Petitioners' first concern is that casks in use have not been physically tested in highway or railway accident conditions nor were the welds on this type of cask tested during construction.

As described above, the NRC establishes standards to which casks must be designed and fabricated. As noted, the NRC has conducted a reassessment which demonstrated that current package standards provide an adequate degree of safety. The NRC test standards are not intended to bound every conceivable transportation accident. The test standards used for licensing are intended to provide a design basis such that casks will survive most accidents with little or no release of radioactive material to the environment. NRC studies show that the test standards provide an adequate degree of safety. Only under highly unlikely conditions would a cask fail to isolate its contents from the environment and the estimated health consequences of such a failure are small. The NRC requires applicants to demonstrate that proposed cask designs meet NRC safety standards. This demonstration may be by means of full-scale testing, scale model testing, engineering analysis, or a combination of these methods.

The use of engineering analysis techniques, including computer modeling, is a well established and verified engineering practice. A number of computer programs are available and have been used by engineers to accurately model a variety of different systems and to successfully predict their performance under specified conditions. Simplifying assumptions of a conservative or bounding nature are routinely used to reduce the amount of analysis required to obtain necessary safety assurances.

All of the spent fuel casks which are presently in use were constructed under NRC-approved quality assurance plans. We have no reason to believe that any cask presently authorized has faulty welds.

## **Adequacy of Package Test Standards**

Petitioners' second concern is that the highway accidents which casks must be designed to withstand do not adequately represent the kinds of highway and rail accidents casks may encounter.

NRC regulations require that casks be subjected to a free drop through a distance of 30 feet onto a flat essentially unyielding horizontal surface (10 C.F.R. § 71.73(c)(1)). The speed attained in such a drop would be 30 mph. But it is not valid to compare a 30 mph impact of a spent fuel cask onto an unyielding surface with the crash of a vehicle carrying that cask at the same speed. Casks are evaluated for impact onto an essentially unyielding surface. Thus, for purposes of engineering analysis, all the energy of impact is assumed to be absorbed by the cask. This is a convenient and conservative method of analysis. In an actual accident, there are very few (if any) objects or surfaces that would not yield considerably if struck by a spent fuel cask. Preliminary information from a recent study conducted for the NRC indicates that the mechanical forces produced by the NRC's 30-foot drop test (30 mph) are larger than for a 60 mph impact of a spent fuel cask onto a 20-inch thick concrete surface representative of a highway.<sup>4</sup> In addition, crushing of the truck cab, and energy absorbed in the trailer, in breaking tie-down devices, in rotary motion, and in demolishing objects in the path of the cask would all serve to reduce the amount of energy available to damage the cask.

## **Adequacy of Package Thermal Standard**

Petitioners' third basic concern is with the standards for fire resistance to which casks must be designed. They assert that government statistics show that the average temperature of highway or rail fires is 1850°F, and many commonly transported chemicals burn at over 3000°F, whereas regulations require casks to withstand only a 1475° fire for 30 minutes.

NRC regulations specify the test which a package must withstand as follows:

*Thermal.* Exposure of the whole specimen for not less than 30 minutes to a heat flux not less than that of a radiation environment of 800°C (1475°F) with an emissivity coefficient of at least 0.9. For purposes of calculation, the surface absorptivity must be either that value which the package may be expected to possess if ex-

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<sup>4</sup> "Final Report on Severe Rail and Truck Accidents: Toward a Definition of Bounding Environments for Transportation Packages, Vols. 1 & 2," P. Eggers, *et al.*, Ridihalgh, Eggers & Associates, to be published as NUREG/CR Report.

posed to a fire or 0.8, whichever is greater. In addition, when significant, convective heat input must be included on the basis of still, ambient air at 800°C (1475°F). Artificial cooling must not be applied after cessation of external heat input and any combustion of materials of construction must be allowed to proceed until it terminates naturally. The effects of solar radiation may be neglected prior to, during, and following the test.

It should be noted that these NRC regulations specify a *thermal test* with a thermal radiation environment of 1475°F rather than a *fire test* with a flame temperature of 1475°F. The overall effectiveness of the NRC thermal test is approximately the same as a hydrocarbon fire having a flame temperature on the order of 1850°F. The technical literature shows that spent fuel casks respond to the NRC test about the same as they would to an actual hydrocarbon fire.

It is difficult to identify common industrial materials which are shipped in large enough quantities to fuel a large and long duration fire and which burn at temperatures greater than 3000°F without special burners and/or oxygen supplies. Studies of a large number of highway accidents indicate that the likelihood of exceeding the regulatory *thermal test* is in the order of  $3 \times 10^{-9}$  per truck mile. Beyond that, tests on actual spent fuel shipping casks with time-temperature input up to six times that required by the regulations did not cause failure of the casks.<sup>5</sup>

### Package Pressure Relief Devices

Petitioners' final concern is the implications of a 1970 federal study, ORNL 4451, which they assert concludes that the cask pressure relief valve will pop open if the cask is involved in a fire, all coolant will be lost and radioactive gases will escape.

The 1970 study, ORNL-4451, concluded that if a cask that has been designed for *water coolant* is involved in a fire, it is unlikely that the outer cask seal can be maintained. The report also concluded, in summary, that it appears likely, based on current design technology, that the specification regarding limits for the release of radionuclides can be met for all types of casks carrying fuel, fissile material, or waste, even if the casks are involved in the postulated 30-foot drop, followed by the puncture and 30-minute fire. Moreover, it should be noted that spent fuel casks currently in use do not use water coolant.

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<sup>5</sup> See Discussion in SAND 82-1250, May 1982, at 11.

## CONCLUSION

Petitioners' request that the Commission order the postponement of certain high-level waste shipments is based on their belief that the regulations governing transportation are inadequate. As described above, based on the information available to the NRC, we believe that the regulations governing the transportation of radioactive material including spent fuel are adequate to protect the public health and safety. Consequently, petitioners' first request regarding postponement of shipments is denied. Because of the extensive public participation involved in the Commission's recent reexamination of its transportation regulations, petitioners' second request regarding a series of public hearings is also denied.

Petitioners also asked for specific information concerning upcoming spent fuel shipments. That information is provided in Attachment 1 to this decision.

If the petitioners wish, they may file a petition for rulemaking pursuant to 10 C.F.R. § 2.802 with supporting information formally requesting the Commission to change its rules. A copy of the procedures are enclosed as Attachment 2.

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.

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

Attachments: as stated

Dated at Silver Spring, Maryland,  
this 13th day of September 1983.

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

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

OFFICE OF INSPECTION AND ENFORCEMENT

Richard C. DeYoung, Director

In the Matter of

Docket Nos. 50-266  
50-301

WISCONSIN ELECTRIC POWER  
COMPANY

(Point Beach Nuclear Plant,  
Units 1 and 2)

September 23, 1983

The Director of the Office of Inspection and Enforcement denies a petition submitted by Wisconsin's Environmental Decade requesting issuance of an order to the Wisconsin Electric Power Company to show cause why the operating license for the Point Beach Nuclear Plant should not be modified, suspended, or revoked due to serious deterioration of operator performance at the facility.

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

By petition dated February 14, 1983, Wisconsin Environmental Decade, Inc. (Decade) filed a request pursuant to 10 C.F.R. § 2.206 with the Director of the Office of Nuclear Reactor Regulation. Decade requested issuance of an order to Wisconsin Electric Power Company to show cause why the operating license for the Point Beach Nuclear Plant should not be modified, suspended, or revoked due to "serious deterioration of operator performance at the facility." See petition at 1. The request was referred to the Office of Inspection and Enforcement for consideration because the information presented by Decade as the basis for its request relates to matters normally handled by this office. Notice of

receipt of the request was published in the *Federal Register* on March 30, 1983 (48 Fed. Reg. 13,300). For the reasons set forth below, Decade's request is *denied*.

Part I of Decade's petition lists twelve incidents, occurring between June 1981 and October 1982, which it asserts represent evidence of deteriorating operator performance at the Point Beach facility. Each item cited in Part I of the petition is an excerpt from an NRC inspection report which was brought to the attention of the licensee by the NRC. Notices of Violation were issued to the licensee for these deficiencies, and accordingly, formal statements of proposed corrective action were required from the licensee. *See* 10 C.F.R. § 2.201. The Point Beach violations cited by Decade were evaluated under the NRC's enforcement policy as severity level IV and V violations. *See* General Statement of Policy and Procedures for Enforcement Actions, 10 C.F.R. Part 2, Appendix C (1982). Because these violations had limited safety significance, escalated enforcement action, such as issuance of civil penalties or orders, was not considered for such violations and no further enforcement action, such as issuance of a show cause order, is appropriate now.

In Part II of its petition, Decade points to the SALP 2 evaluation completed for the Point Beach facility, covering the period November 1, 1980 through March 31, 1982, to support its request for a show cause order. This SALP 2 evaluation found a decline in the overall high performance category in which Wisconsin Electric Power Company had previously achieved. The staff has examined the Systematic Assessment of Licensee Performance (SALP) reports for the Point Beach facilities to determine whether they illustrate a decline in performance that is significant enough to require issuance of an order to show cause why the license should not be modified, suspended, or revoked. The staff has concluded that they do not. For SALP 2, the overall assessment of licensee performance was not as high as for SALP 1, but the licensee's performance was considered satisfactory. The staff also considered the SALP review covering the period April 1, 1982 through March 31, 1983 (SALP 3). For SALP 3, the overall assessment of licensee performance noted the licensee's commendable efforts in upgrading the overall regulatory performance during the assessment period. In addition to overall performance, the SALP review evaluated a number of functional areas of licensee activities. One important functional area assessed is plant operations. With respect to this area, the SALP 3 review rated the licensee as a Category 1 (the highest performance rating), an improvement from a Category 2 rating during the SALP 2 review. Therefore, since the SALP 3 report rates the overall performance of the licensee as



improving and since the licensee's performance was never considered unsatisfactory, issuance of a show cause order does not appear to be appropriate or necessary.

Decade asserts in Part III of its petition that, because of specific or unique circumstances at the Point Beach facility, the items enumerated in Part I of the petition should be considered to be serious concerns which require issuance of an order to the licensee to show cause why the Point Beach operating license should not be modified, suspended, or revoked. The first circumstance raised by Decade in Part III of its petition is that "pressurized water reactor plant design provides less time for corrective operator action and less room for error than alternative reactor designs." See petition at 8. This statement is not entirely accurate. For some operating plant designs, where comparisons can be made, the pressurized water reactor (PWR) plant design provides for less time for operator action than the boiling water reactor (BWR) plant design. However, for both PWR and BWR plants, the NRC requires that plant designs provide for automatic protection features where a timely response is particularly important. In addition, as stated before, the last SALP evaluation (SALP 3) rated the licensee as Category 1 (the highest performance rating) in the functional area of plant operations, a functional area which encompasses operator performance. Thus, the combination of operator response and automatic protection features provides reasonable assurance that the plant can be operated safely and that issuance of a show cause order is unnecessary.

Decade's second concern in Part III of its petition deals, in part, with potential problems resulting from recent changes to operator instructions. Decade asserts that:

[l]essons learned instructions to operators to not throttle emergency core cooling, so as to not inadvertently starve the core of water, has the effect of increasing pressure shock. Instructions to terminate reactor pumping during a loss-of-coolant accident has the effect of also disengaging the core spray cooling equipment, imposing greater cooling demand on other heat removal systems such as the steam generator.

See petition at 8-9. Termination of reactor coolant pump operation is a matter which is still under review and is being handled by the NRC on a case-by-case basis. See Letter from Darrell G. Eisenhut, Director, Division of Licensing, Office of Nuclear Reactor Regulation, to All Licensees with Westinghouse Designed Nuclear Steam Supply Systems, Generic Letter 83-10d (Feb. 8, 1983). Stopping reactor coolant pumps is unrelated to "core spray cooling equipment," which is accomplished by other safety equipment. Stopping reactor coolant pumps will instead prevent

normal pressurizer spray. However, the normal pressurizer spray function has a backup alternate spray from the discharge of the charging pump. Therefore, pressure control is still available even if the reactor coolant pumps are lost.

Decade's second and third points in Part III of its petition primarily focus on the dual concerns of pressure vessel embrittlement and steam generator tube degradation. See petition at 9. Decade asserts that, where both problems occur in the same plant, operator performance is particularly critical because measures taken to ameliorate one problem may exacerbate the other.

Embrittlement of reactor vessels is of concern because it may impair a vessel's continued ability to withstand an overcooling event or pressurized thermal shock (PTS). The pressure vessel embrittlement for pressurized water reactors (PWRs) under PTS conditions has been extensively evaluated by the staff. In a policy position paper on this subject, SECY-82-465, dated November 23, 1982, which was subsequently approved by the Commission on January 5, 1983, the NRC staff described the screening criteria it has developed for evaluating the susceptibility of reactor vessels to PTS risk. Based on NRC studies of PTS operating events and calculations of PTS events that have occurred, the staff has concluded that plants which do not exceed the screening criteria have a predicted frequency of vessel failure due to PTS events that is acceptable. Staff calculations indicate that neither Point Beach facility will reach the screening criteria for embrittlement of the pressure vessel within the remaining effective full-power years of operation under the licenses. See Table 4, Appendix I of Enclosure A to SECY-82-465. Nor will either plant need to take particular measures, such as reracking the core, to avoid reaching the screening criteria during the remaining service life. Vessel embrittlement is not an operational problem for either unit. It should also be noted that Decade's statement that "primary system temperature reductions to retard tube corrosion increase embrittlement" is incorrect. Embrittlement is a function of neutron flux and, in fact, lower temperatures reduce leakage from the core, thereby lessening the neutron flux on the vessel.

Steam generator tube degradation at the Point Beach facilities has been recognized as a potential problem and has been dealt with, initially, through increased monitoring of tube conditions. During the March 25 through June 30, 1983 Unit 2 refueling outage, approximately 3000 tubes were sleeved to deal with corrosion problems. During the Unit 1 refueling outage presently scheduled for October 1983 through

June 1984, the steam generators will be repaired. Although steam generator tube degradation at the Point Beach facility is a problem, it is being appropriately addressed.

Decade's main point in Part III is that for any postulated operational event, prompt and adequate operator response is required. NRC agrees with this, and for this reason requires a licensed operator to be at the controls of the reactor. The quantity and type of violations at Point Beach do not represent a significant deterioration of operator performance. On the basis of the NRC's licensing reviews, results of past inspections and the ongoing inspection program, the NRC has reasonable assurance that licensed operators will take prompt and adequate actions if such actions are required. For the foregoing reasons, Decade's request pursuant to 10 C.F.R. § 2.206 for issuance of a show cause order to Wisconsin Electric Power Company 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.

Richard C. DeYoung, Director  
Office of Inspection and  
Enforcement

Dated at Bethesda, Maryland,  
this 23rd day of September 1983.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

John G. Davis, Director

In the Matters of

COMMONWEALTH EDISON COMPANY

Docket Nos. 50-10  
50-237  
50-249

NEW YORK STATE ENERGY RESEARCH  
AND DEVELOPMENT AUTHORITY

Docket No. 50-201

WISCONSIN ELECTRIC POWER COMPANY

Docket Nos. 50-288  
50-301  
(10 C.F.R. § 2.206)

(Shipment of Irradiated Nuclear Fuel  
from West Valley, N.Y.)

September 30, 1983

The Director of the Office of Nuclear Material Safety and Safeguards denies petitions by Marvin Resnikoff, on behalf of the Sierra Club, and the State of Ohio, through its Attorney General, requesting that, among other actions, the Commission stay the transport of irradiated nuclear fuel from the Western New York Nuclear Service Center in West Valley, New York to the Point Beach and Dresden power reactor sites. The decision also forms the basis for the unpublished October 28, 1983 denial of the petition of Fred Millar, on behalf of the Environmental Policy Institute.

**TRANSPORTATION OF SPENT FUEL: LEGAL AUTHORITY**

Authority of NRC licensees to deliver spent fuel to a carrier for transport is provided by 10 C.F.R. § 71.72, which provides a general license

to any licensee of the Commission to transport or deliver to a carrier for transport certain radioactive material, including irradiated reactor fuel in packages for which a Certificate of Compliance has been issued by the NRC.

The operating licenses of reactor licensees, pursuant to the Atomic Energy Act and 10 C.F.R. §§ 30.34 and 70.41, authorize possession of such byproduct and special nuclear material as may be produced by the operation of their facilities, including the receipt of byproduct and special nuclear material originated at their facilities.

#### **TRANSPORTATION OF SPENT FUEL: ROUTING**

To the extent that the petitioners' concern as to the routes selected for transport of the spent fuel arises from questions of highway safety, that concern is within the jurisdiction of the Department of Transportation.

#### **NATIONAL ENVIRONMENTAL POLICY ACT: NEED FOR ENVIRONMENTAL IMPACT STATEMENT**

The Commission is taking no major federal action significantly affecting the quality of the human environment such that preparation of an environmental impact statement is required.

#### **TRANSPORTATION OF SPENT FUEL: SAFEGUARDS**

Questions of physical security concerning movement of spent fuel are within the jurisdiction of the Nuclear Regulatory Commission.

#### **SAFETY EVALUATION REPORT: NEED FOR**

The Safety Analysis Reports for the Point Beach and Dresden facilities covered the proper functioning of fuel handling equipment and spent fuel movement, including the possibilities of malfunction and a fuel drop accident. The Commission's regulations at 10 C.F.R. § 50.59 permit licensees to change procedures described in the safety evaluation report unless the change involves a change in the technical specifications of the license or on an unreviewed safety question. The actions involved in the receipt of spent fuel, and the potential accidents and consequences, are similar to those involved in the packaging and loading of spent fuel for transport away from a reactor. Since these actions, potential accidents and consequences have been evaluated, there is no

need for a new safety evaluation to address the receipt of spent fuel at the reactor site.

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

By letter dated August 24, 1983, Marvin Resnikoff, on behalf of the Sierra Club requested that the NRC require any licensee prospectively involved in the shipment of irradiated reactor fuel from the Western New York Nuclear Service Center in West Valley, New York, to submit a license amendment application, a safety evaluation and other reports with respect to the fuel shipment. In support of its request, the Sierra Club identifies several "[i]mportant safety, environmental and policy issues [which] need to be resolved before these shipments take place." Resnikoff Letter at 1.

On September 9, 1983, the State of Ohio, through its Attorney General, requested, pursuant to 10 C.F.R. § 2.206:

1. That the NRC institute a show cause proceeding pursuant to 10 C.F.R. § 2.202 to modify, revoke, or suspend the licenses of the New York State Energy Research and Development Authority, Wisconsin Electric Power Company and Commonwealth Edison Company in connection with the transport of spent nuclear fuel from West Valley, N.Y.;
2. That NRC prepare an Environmental Impact Statement with respect to transportation of the spent fuel from West Valley; and
3. That NRC stay the transport of spent fuel from West Valley pending the resolution of issues the Attorney General would raise.

Both the Sierra Club's and the Ohio Attorney General's letters are being treated as requests for action under 10 C.F.R. § 2.206.<sup>1</sup> The requests are

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<sup>1</sup> In connection with their requests for the initiation of appropriate proceedings, the Sierra Club and the Ohio Attorney General also request that the Commission provide proper notice of such proceeding and grant an opportunity to intervene in the proceeding. The Ohio Attorney General also requests that a hearing be held in connection with the proceeding. Since these requests concern the procedural aspects of any proceeding that might be instituted as a result of this decision under 10 C.F.R. § 2.206, such questions as the sufficiency of notice and standing to participate are addressed more appropriately in the context of any such proceeding and need not receive further consideration in this decision. Consideration of a request for action under 10 C.F.R. § 2.206 does not initiate any formal proceeding or give rise to any hearing or intervention rights under the Atomic Energy Act. See *Illinois v. NRC*, 591 F.2d 12 (7th Cir. 1979).

(Continued)

being handled by the Office of Nuclear Material Safety and Safeguards in view of this office's primary responsibility in matters concerning the West Valley facility and in questions concerning the shipment and transport of radioactive material. For the reasons stated in this decision, the requests are denied.

To put the requests of the Sierra Club and the Attorney General and this decision in context, a discussion of past and present activity at the Western New York Nuclear Service Center is appropriate.

## BACKGROUND

The Center was established as a cooperative venture by New York State (NYSERDA) and Nuclear Fuel Services, Inc. (NFS) to commercially reprocess irradiated nuclear reactor fuel. Under contract with the State, NFS built and operated the reprocessing facilities at the Center. The construction and operation of the Center was licensed by the Atomic Energy Commission.<sup>2</sup> The Center's features include a Fuel Receiving Facility, at which irradiated (spent) nuclear reactor fuel was received and stored pending reprocessing. Spent fuel was reprocessed at the Center from 1966 until March 1972, when reprocessing was suspended to permit enlargement and modification of the Center's facilities. While NFS sought NRC approval for the facility modifications, it formed agreements with Wisconsin Electric Power Company, Commonwealth Edison Company, General Public Utilities Service Corporation (as agent for Jersey Central Power & Light Company), and Rochester Gas and Electric Company to receive and store spent fuel owned by the utilities pending the resumption of reprocessing. The anticipated reprocessing never occurred and the spent fuel remains in storage at the Center's Fuel Receiving Facility.

As a result of the reprocessing which occurred before its permanent cessation, a substantial quantity of high-level liquid radioactive waste

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The Sierra Club letter also requests the initiation of a proceeding to cover any movements of fuel by a utility whether specifically identified in its petition or not. The NRC has no indication of a plan to move spent fuel from the Center to other reactors, except possible movements to General Public Utilities' Oyster Creek Station or Rochester Gas and Electric Company's Ginna plant. Therefore modification of the Oyster Creek or Ginna licenses is not within the scope of the Sierra Club's request. Nor is it within the scope of the Attorney General's petition. If we read the Sierra Club request to include Oyster Creek and Ginna, we would deny it as premature.

<sup>2</sup> The New York State Energy Research and Development Authority (NYSERDA) is the successor to the New York State Atomic Research and Development Authority, to which the Atomic Energy Commission (AEC) issued a construction permit in 1963, and the New York State Atomic and Space Development Authority, to which the AEC issued a provisional operating license, CSF-1, in 1966. Nuclear Fuel Services was also a licensee under the provisional operating license.

was generated at the Center. In 1980, the Congress enacted the West Valley Demonstration Project Act, which directs the U.S. Department of Energy (DOE) to solidify and remove this high-level waste from the Center. NYSERDA has placed the Center in the exclusive possession and control of DOE. To comply with the congressional directive to solidify the high-level liquid waste, DOE plans to use the Fuel Receiving Facility where the utilities' spent fuel is now stored.

NYSERDA, which owns the Center, has demanded that the utilities remove their spent fuel from the Fuel Receiving Facility. A federal court has held that the utilities involved in the litigation have a duty to heed that demand and remove the spent fuel as expeditiously as is reasonably possible.<sup>3</sup> Although the court has held that Wisconsin Electric and Commonwealth Edison have a duty to remove the spent fuel at NYSERDA's request, neither the court nor the NRC has ordered the utilities to remove their fuel from the Center. Wisconsin Electric and Commonwealth Edison have taken action in preparation for returning the spent fuel to their nuclear reactor sites in Wisconsin and Illinois. One hundred fourteen spent fuel shipments are planned for Wisconsin's Point Beach plant and thirty shipments for Commonwealth Edison's Dresden station. In accordance with 10 C.F.R. § 73.37, the NRC on September 14, 1983, approved transportation routes in connection with these shipments.

### NYSERDA LICENSE AUTHORITY

The Sierra Club and the Attorney General assert that NYSERDA presently has no license to ship nuclear fuel and that a license amendment is needed if NYSERDA is to ship spent fuel from the Center.

NYSERDA does not appear to have any plan for nor any interest in directly participating in any handling of spent fuel at the Center. The utilities' agreement with DOE, which is addressed more fully later, confirms our understanding. In the absence of any indication that NYSERDA plans to play an active role in the operation of the facility, the handling of the fuel, or its shipment from the Center, the Sierra Club's request to initiate a proceeding to modify NYSERDA's license is denied.

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<sup>3</sup> *New York State Energy Research and Development Authority v. Nuclear Fuel Services, Inc.*, CIV 82-426 (W.D.N.Y., filed June 30, 1983). See also, *New York State Energy Research and Development Authority v. Nuclear Fuel Services, Inc.*, 561 F. Supp. 954 (W.D.N.Y. 1983). Rochester Gas and Electric Company reached an agreement with NYSERDA on the removal of Rochester's spent fuel from the Center and was not a party to the litigation.



## UTILITY LICENSE AUTHORITY

The Sierra Club's request and the Attorney General's petition for amendment of the utility licenses are based on the conclusion that the utilities do not have sufficient authority to undertake or complete the shipment of spent fuel from West Valley to the utilities' reactor sites.

The utilities on September 21, 1983, by letter from legal counsel to the NRC, informed the Commission that the utilities will rely on DOE to undertake all activities at the Center in connection with loading the spent fuel for shipment.<sup>4</sup> These activities include removing the empty shipping cask from the truck upon arrival at the Center; performing necessary preload surveys; moving and loading the fuel into the cask; installing the cask cover; purging and drying the cask; conducting a contamination survey and reloading the cask on the truck. DOE will prepare procedures for the handling and loading of the casks and for related quality assurance and quality control activities. The utilities have determined that the DOE procedures for handling and loading the spent fuel are consistent with the utilities' NRC-approved quality assurance programs. DOE will certify to a utility representative that each shipment has been prepared and loaded in accordance with these procedures. DOE will also certify that the shipping package has been prepared, marked and labeled in accordance with applicable Department of Transportation (DOT) regulations. Upon review of the certifications, a utility representative will execute the shipping papers.

Together, the Sierra Club and the Attorney General assert that neither utility has authority to package, or load the spent fuel at the Center, or to transport it from the Center. The Sierra Club and the Attorney General conclude that a license amendment authorizing these activities is required.

It is noted, however, that the utilities will neither package nor load the spent fuel. DOE, through its contractor, is performing those activities. The West Valley Demonstration Project Act directs DOE to solidify the high-level liquid waste at the Center and to do certain other tasks associated with the solidification project.<sup>5</sup> DOE has retained a contractor to perform the solidification and other necessary tasks. DOE has determined that the Fuel Receiving Facility will be needed in the course of the West Valley Demonstration Project. As a result, the DOE contractor must remove the spent fuel from the Fuel Receiving Facility.

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<sup>4</sup> Letter from Gerald Charnoff, Counsel for Wisconsin Electric Power Company and Commonwealth Edison Company to Charles E. MacDonald, Chief, Transportation Certification Branch, NRC (Sept. 21, 1983).

<sup>5</sup> Pub. L. 96-368, 94 Stat. 1347 (1980).

Except with respect to a few clearly defined actions (e.g., decontamination and decommissioning of the facilities used in the course of the project), NRC has a limited role at West Valley. That role does not include deciding whether DOE needs the Fuel Receiving Facility to conduct the West Valley Demonstration Project. Neither does it include licensing or regulating the activities of DOE's prime contractor. Under the provisions of 10 C.F.R. §§ 30.12 and 70.11 the activities of DOE's prime contractor are presently exempt from NRC license requirements.

The West Valley Demonstration Project Act limits NRC review of DOE's activities at the Center to informal, consultative procedures. By law, the Commission may not examine DOE's administration of the project in formal proceedings. *Nuclear Fuel Services, Inc.* (Western New York Nuclear Service Center), ALAB-679, 16 NRC 121, 126 (1982).

To the extent that the utilities take action with respect to the spent fuel at the Center, they are within NRC's jurisdiction. The utility contractors (Nuclear Assurance Corporation and Transnuclear, Inc.) will provide an NRC-approved shipping cask and the utility carriers will haul the loaded casks from the Center. The utilities' representatives will execute the shipping papers and authorize the loaded casks to be delivered to the carriers' vehicles.

Wisconsin Electric and Commonwealth Edison, both NRC licensees, do need authority to deliver the spent fuel to a carrier for transport. That authority is provided by 10 C.F.R. § 71.12, as amended, 48 Fed. Reg. 35,600, 35,610 (1983). That section of the Commission's regulations provides a general license to any licensee of the Commission to transport or deliver to a carrier for transport certain radioactive material including irradiated reactor fuel in packages for which a Certificate of Compliance has been issued by the NRC. The general license of § 71.12 authorizes the delivery of spent fuel to a carrier for transport if the requirements of the general license are met. A principal requirement of the general license is that the licensee have a Commission-approved quality assurance program satisfying the provisions of 10 C.F.R. Part 71, Subpart H. Both utilities have NRC-approved quality assurance programs which satisfy the requirements of Part 71, Subpart H. As noted above, the handling and loading procedures to be used at the Center are consistent with the approved quality assurance plans. The casks to be used have been previously certified by the NRC for use.

## THE TRANSPORT ROUTE

Both the Sierra Club and the Attorney General have expressed concern over the routes selected for transport of the spent fuel from the

Center. To the extent that the concern arises from questions of highway safety, it is within the jurisdiction of the DOT. *See* 49 U.S.C. §§ 1801-12. The Sierra Club's concern appears to focus on the ability of the roads in and around West Valley to accommodate a loaded transport vehicle. This is clearly a highway safety issue of the type governed by DOT regulations. DOT has established specific requirements for the carriers of spent fuel in transport, including routing requirements.<sup>6</sup> The NRC's regulatory process does not require examination in advance of any particular transportation route as to its degree of risk to the public health and safety. To the extent that the Sierra Club's highway safety concern has implications for radiological safety, those implications have been considered and judged to be of small potential risk. The casks in which the spent fuel will move are designed to withstand both the normal conditions of transport and specified accident conditions.<sup>7</sup> The designs for the casks proposed for use in the West Valley fuel move have been certified by the Commission as meeting the Commission design criteria.<sup>8</sup> To the extent that the Sierra Club and Attorney General's concern arises from questions of physical security, they are within the jurisdiction of the Commission. Nuclear Assurance Corporation and Transnuclear, Inc., applied to the Commission for route approvals for the spent fuel movements from West Valley. The Governor of Ohio, through the Ohio Adjutant General's Disaster Service Agency, requested a change in the proposed route through Ohio. The Commission's route survey team surveyed the routes and found that they satisfied the requirements for physical protection of irradiated reactor fuel in transit found at 10 C.F.R. § 73.37. Based on the team's findings and the Governor's request, the route proposed by the Governor was approved on

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<sup>6</sup> Under the Hazardous Materials Transportation Act (HMTA), 49 U.S.C. §§ 1801-12, the DOT is authorized, among other things, to issue routing regulations for the safe transportation of radioactive materials. The DOT issued regulations for driver training of carrier personnel and for the highway routing of radioactive material shipments, including spent fuel, on January 19, 1981 (46 Fed. Reg. 5298). The regulations became effective on February 1, 1982. These routing requirements are set forth in 49 C.F.R. § 177.825. Under 49 C.F.R. § 177.825(b), a carrier or any person who operates a motor vehicle containing a package of large quantity radioactive material (spent fuel is a "large quantity," *see* 49 C.F.R. § 173.389(b)), shall operate over a preferred route. Preferred routes are interstate highways and state-designated routes. Carriers are allowed off the interstate system only to follow a state-designated route, in a documented case of emergency, to obtain necessary fuel or vehicle repairs, or to travel to and from a pick-up or delivery site not located on an interstate highway. Variations are also permitted from the preferred routes for security purposes and as otherwise imposed by the NRC in 10 C.F.R. Part 73. *See* 49 C.F.R. § 177.825(e).

<sup>7</sup> *See* 10 C.F.R. Part 71, Subparts D through H for NRC's package approval requirements; package approval standards; package tests; operating controls and procedures; and quality assurance requirements.

<sup>8</sup> *See* Certificate of Compliance for Radioactive Materials Packages No. 9010, Revision 12 (Docket No. 71-9010) and No. 9016, Revision 5 (Docket No. 71-9016).

September 14, 1983, as the primary route through Ohio.<sup>9</sup> There is no safeguards (*i.e.*, physical security) reason to reject the route proposed by Nuclear Assurance and Transnuclear. Their route was approved as an alternate route. Neither the Sierra Club nor the Attorney General suggests any threat of radiological sabotage, theft or diversion which would cause us to doubt the correctness of the route approvals.

The Attorney General suggests that an Environmental Impact Statement should be prepared with respect to the transport of the spent fuel. The Attorney General concedes that the proposed fuel move "does not fall really within any of the specified circumstances requiring the preparation of an environmental impact statement." The National Environmental Policy Act of 1969 requires the preparation of an Environmental Impact Statement in connection with a major federal action significantly affecting the quality of the human environment. The NRC is taking no action significantly affecting the environment. The NRC has examined the environmental impact of its transportation regulations and has found the regulations to be adequate.

On June 2, 1975 (40 Fed. Reg. 23,768), the NRC announced that it was reevaluating its then-existing regulations concerning the air transportation of radioactive materials, including packaging. As part of the rulemaking, the Commission prepared an Environmental Impact Statement on the subject which included consideration of other transport modes because of the requirement to consider alternatives contained in the National Environmental Policy Act of 1969. Comments were sought on the draft EIS and the Final Environmental Statement, "Transportation of Radioactive Material by Air and Other Modes" (NUREG-0170), issued in December 1977. The Commission concluded, based upon the analysis developed in the rulemaking proceeding, the public comments received, the safety record of transportation of licensed materials and other information, that present regulations were adequate to protect the public against unreasonable risk from the transport of radioactive materials. See Withdrawal of Advance Notice of Rulemaking, 46 Fed. Reg. 21,619 (1981). The Commission specifically reaffirmed this conclusion on the adequacy of existing 10 C.F.R. Part 71 with respect to the safety of radioactive material transportation in a subsequent rulemaking on Advance Notification. 47 Fed. Reg. 596 (1982).

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<sup>9</sup> Letter from Theodore S. Sherr, Material Transfer Safeguards Licensing Branch, NRC, to F.L. Danese, Supervisor, Cask Operations, Nuclear Assurance Corp. (Sept. 14, 1983). Letter from Theodore S. Sherr, to John Mangusi, General Manager, Operations, Transnuclear, Inc. (Sept. 14, 1983).

Both the Attorney General and the Sierra Club raise the question of whether the entities involved in the spent fuel move would be indemnified in the event of a transport accident. Because of amendments to the Price-Anderson Act in 1975, public injury and damage claims would be paid through private insurance rather than government indemnity. In those amendments, the Congress recognized that under a newly adopted system, government indemnity would eventually be phased out. In the event of a nuclear incident, funds available to pay personal injury and property damage claims would come from three sources:

- (1) third party liability insurance (a primary layer of financial protection) purchased from the nuclear insurance pools (this amount is currently \$160 million);
- (2) retrospective premium insurance (a secondary layer of financial protection) to be collected from the utilities by the insurance pools at the rate of \$5 million per large nuclear power plant licensed to operate (with 82 such plants licensed to operate the amount of this layer is currently \$410 million); and
- (3) if the sum of the primary and secondary layers is less than \$560 million, government indemnity, which would fill the gap between the limits of private insurance coverage and \$560 million, the indemnity ceiling.<sup>10</sup>

Both Wisconsin Electric and Commonwealth Edison are presently required to and do maintain \$570 million in financial protection through the primary and secondary levels of private insurance. Under the private insurance policies (the Nuclear Energy Liability Policy, Facility Form), a shipment of spent fuel to a covered facility from any location except an indemnified facility is an insured shipment. See 10 C.F.R. § 140.91, Appendix A. The shipment of spent fuel from the Center, whose indemnity coverage has been suspended for the duration of the West Valley Demonstration Project, to a utility reactor site, a covered facility, is thus an insured shipment covered by \$570 million in nuclear liability insurance.

### ACTIVITY AT THE REACTOR SITE

The Attorney General asserts that the utility licenses contain no language allowing receipt of irradiated spent nuclear fuel at the respective reactor sites. The Attorney General suggests that this absence of license language requires the conclusion that authority to receive the spent fuel is also absent. The licenses authorize the utilities, pursuant to the

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<sup>10</sup> See 1975 U.S. Code Cong. & Ad. News 2259-62.

Atomic Energy Act and 10 C.F.R. Parts 30 and 70, to possess such byproduct and special nuclear material as may be produced by the operation of their respective reactor facilities. Section 30.34 of the Commission's regulations provides that, except as otherwise provided in the license, a license issued pursuant to Part 30 shall carry with it the right to receive byproduct material. Similarly, section 70.41 of the Commission's regulations provides that, except as otherwise provided in the license, each license issued pursuant to Part 70 shall carry with it the right to receive special nuclear material. The utility licenses contain no provision which suggests that § 30.34 or § 70.41 do not apply or do not operate as their language suggests. The utilities are authorized by the Commission's regulations to receive the byproduct and special nuclear material which constitute the spent fuel to be removed from the Center.

The Sierra Club raises questions regarding the need for a safety evaluation addressing receipt of the spent fuel. The Commission's regulations at 10 C.F.R. § 50.59 permit licensees to change procedures described in the safety analysis report unless the change involves a change in the technical specifications of the license or an unreviewed safety question. An unreviewed safety question exists if the probability or consequences of a previously evaluated accident or safety equipment malfunction increase; if the possibility for an accident or malfunction of a type not previously evaluated may be created; or if the margin of safety defined in the basis for any technical specification is reduced. The Safety Analysis Reports for the units at Wisconsin's Point Beach plant and Commonwealth Edison's Dresden station cover the proper functioning of fuel handling equipment and spent fuel movement. The possibility of malfunction and a fuel drop accident were considered in the safety analysis reports. The Sierra Club presents no evidence of increased probability or consequences of a fuel handling accident or of a type of accident not previously considered; or of any reduction in the margins of safety in fuel handling from the receipt of spent fuel from the Center. The actions involved in receipt of spent fuel and the potential accidents and their consequences of these actions are similar to those involved in the packaging and loading of spent fuel for transport away from a reactor. These actions, potential accidents and consequences have been evaluated. There is no need for a new safety evaluation to address the receipt of spent fuel at the reactor site.

## CONCLUSION

For the reasons stated in this decision, no license amendment or further authorization is required to permit the transfer of spent fuel from

the West Valley facility to the Point Beach and Dresden facilities. Accordingly, the requests of the Sierra Club and the Ohio Attorney General for initiation of proceedings and other relief in connection with the transfer of spent fuel is denied. The Attorney General's request for preparation of an environmental impact statement and a stay of the shipments is also denied. A copy of this decision will be filed with the Secretary of the Commission for the Commission's review in accordance with 10 C.F.R. § 2.206(c).

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

Dated at Silver Spring, Maryland,  
this 30th day of September 1983.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

OFFICE OF INSPECTION AND ENFORCEMENT

Richard C. DeYoung, Director

In the Matter of

Docket No. 50-309  
(10 C.F.R. § 2.206)

MAINE YANKEE ATOMIC POWER  
COMPANY  
(Maine Yankee Atomic Power  
Station)

September 30, 1983

The Director of the Office of Inspection and Enforcement grants in part, denies in part and defers in part, a petition submitted by David Santee Miller on behalf of Sensible Maine Power and others requesting that the Commission take action to ensure correction of emergency planning deficiencies identified by the Federal Emergency Management Agency and evaluate the adequacy of State Route 27 as an evacuation route. Pending the resolution of these matters, the petitioners had requested that the NRC institute proceedings to discontinue operation of the Maine Yankee Atomic Power Station.

**TECHNICAL ISSUE DISCUSSED: EMERGENCY PLANNING**

The Federal Emergency Management Agency is responsible for evaluating the status of offsite emergency preparedness for nuclear power plants, including the adequacy of evacuation routes that may be used in taking protective measures during an emergency.



## **TECHNICAL ISSUE DISCUSSED: EVACUATION PLAN**

The Commission has adopted a graduated approach to emergency planning in which evacuation is only one of several possible responses to an emergency.

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

In a Request for Issuance of an Order to Show Cause (Request) dated April 8, 1983, David Santee Miller, on behalf of Eleanor S. Miller, Stanley R. Tupper, Judy Flanagan and Sensible Maine Power (hereinafter referred to as petitioners) requested that the Director of the Office of Inspection and Enforcement initiate a proceeding pursuant to 10 C.F.R. § 2.202 of the Commission's regulations to modify, suspend or revoke the license of the Maine Yankee Atomic Power Company (the licensee) to operate the Maine Yankee Atomic Power Station.

The petitioners' request is based upon the Federal Emergency Management Agency's (FEMA) evaluation of the Joint State and Local Radiological Emergency Response Exercise held for the Maine Yankee facility on December 11, 1982. As characterized by the petitioners, FEMA identified several significant deficiencies in emergency preparedness at Maine Yankee such that FEMA was unable to conclude from the exercise that "the public would be adequately protected in the event of an accident at the Maine Yankee Power Plant." Request at 3, *citing* Final Exercise Report, Joint State and Local Radiological Emergency Response Exercise for the Maine Yankee Atomic Power Plant at iv (March 1983). In view of these findings, and additional concerns regarding the adequacy of State Route 27 to evacuate the population of Boothbay Harbor, Maine, the petitioners specifically requested an investigation be conducted to "pursue the promptest possible correction of the failures, inadequacies and insufficiencies noted, and otherwise to investigate, evaluate and analyze whether or not the peninsular populations within the [Maine Yankee] evacuation zone . . . could in fact be evacuated in a proper, safe and timely manner." Request at 3-4. Pending such investigation and review, the petitioners requested that the Commission order Maine Yankee to

discontinue operations until it has been affirmatively demonstrated that the population within [the facility's] evacuation zone can be evacuated in a safe, proper and timely manner, and that all entities responsible therefor [sic] can ensure "that the

public would be adequately protected in the event of an accident at the Maine Yankee Nuclear Power Plant."

Request at 4, *citing* Final Exercise Report at iv. The petitioners' request has been considered pursuant to section 2.206 of the Commission's regulations.

FEMA's evaluation of the deficiencies in emergency preparedness at Maine Yankee, along with the Final Exercise Report, were transmitted to the Commission by letter dated April 21, 1983. At that time, FEMA stated that "the [December] exercise did not demonstrate an adequate level of radiological emergency preparedness to protect the public in the event of a radiological accident at the Maine Yankee Atomic Power Plant." Letter from Dave McLaughlin, Deputy Associate Director, State and Local Programs and Support, FEMA to William J. Dircks, Executive Director for Operations, NRC (April 21, 1983).

Five significant deficiencies were identified in the Final Exercise Report: (1) inadequate demonstration of the capability to implement protective measures at the State Emergency Operations Center (EOC); (2) improper functioning of five of the eight fixed sirens utilized to alert the public; (3) insufficient training and equipment for radiological exposure control by local emergency workers; (4) inadequate capability for organized and systematic transmission of information from the licensee's Emergency Operations Facility to the State EOC; and (5) inadequate direction of the offsite radiological monitoring teams. *See* Final Exercise Report at iv-vi.

The staff has partially granted the relief sought by the petitioners by taking action to obtain correction of the deficiencies identified by FEMA. As described later in this decision, this office has also requested that FEMA evaluate the petitioners' concerns over the use of State Route 27. In response to FEMA's Final Exercise Report, the NRC initiated action pursuant to 10 C.F.R. § 50.54(s)(2)(ii) to ensure correction of the emergency preparedness deficiencies identified by FEMA. By letter dated May 4, 1983, the Acting Regional Administrator for Region I notified the licensee that, should the significant deficiencies identified by FEMA not be remedied within four months, the Commission would determine whether the reactor should be shut down until such deficiencies are remedied or whether other enforcement action would be appropriate. Further, the licensee was directed to respond to the Commission within thirty days describing plans for correcting each deficiency.

In letters dated June 2 and 6, 1983, from Maine Yankee Atomic Power Company to NRC Region I, the licensee provided the schedule for correction of the deficiencies identified in FEMA's Final Exercise Report. On June 1, 1983, the State of Maine conducted a mini-exercise

for the Maine Yankee Atomic Power Plant. FEMA observed this exercise to evaluate the adequacy of the corrective actions taken by the State and licensee. In its memorandum to the NRC transmitting its report on the June 1 exercise, FEMA stated that four of the five deficiencies cited in the December 11, 1982 joint exercise had been corrected. *See* Memorandum to Edward L. Jordan, Director, Division of Emergency Preparedness and Engineering Response, Office of Inspection and Enforcement from Richard W. Krimm, Assistant Associate Director, Office of Natural and Technological Hazards Programs, FEMA (August 11, 1983); Report on the June 1, 1983 State Radiological Emergency Response Mini-Exercise for the Maine Yankee Atomic Power Plant. Although the remaining deficiency concerning radiological exposure control had not been corrected as of the date of FEMA's memorandum, FEMA stated that sufficient progress had been made in this regard. FEMA based this determination on "imminent implementation of a State training program for local officials and the assumption by the utility of a supporting role in local exposure control, including the provision of equipment." FEMA further stated that "Local radiological exposure control will be closely evaluated during the exercise scheduled for October 22, 1983." Jordan Memorandum at 1. These findings enabled FEMA to conclude that an adequate level of emergency preparedness had been demonstrated such that the public would be protected in the event of a radiological accident at Maine Yankee. *Id.* Thus, suspension of operation at Maine Yankee on the basis of the deficiencies identified by FEMA is not warranted.

The petitioners have also expressed concerns regarding the adequacy of State Route 27 in the event of an accident at Maine Yankee for which an evacuation of the Boothbay Harbor area is required. Petitioners allege that this route is an inadequate evacuation route because it is a two-lane road and the entire population of the area, which petitioners allege can reach 100,000 people in the summer months, must be evacuated using this road. Furthermore, petitioners allege that in the event of an accident, the evacuees would be required to travel twelve or more miles along this road in the direction of the Maine Yankee plant. *See* Request at 2-3.

FEMA is responsible for evaluating the status of offsite emergency preparedness for nuclear power plants, including the adequacy of evacuation routes that may be used in taking protective measures during an emergency. *See* 10 C.F.R. § 50.47(a)(2); Memorandum of Understanding Between NRC and FEMA to Accomplish a Prompt Improvement in Radiological Emergency Planning and Preparedness (January 11, 1980). The Office of Inspection and Enforcement has asked FEMA to examine

the issue raised by petitioners and, consequently, I am deferring resolution of this part of the petition until after it receives FEMA's response. However, the petitioners' request for suspension of operation of the facility pending resolution of the issue involving Route 27 is denied. As noted above, the deficiencies identified by FEMA have been or are in the process of being corrected. The remaining issue raised by petitioners concerns whether State Route 27 is an adequate evacuation route. The Commission has adopted a graduated approach to emergency planning in which evacuation is only one of several possible responses to an emergency. See *Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants*, NUREG-0654/FEMA-REP-1, Rev. 1 (November 1980); *Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants*, NUREG-0396 (December 1978); 10 C.F.R. § 50.47(b)(10). It is unlikely that evacuation of the ten mile Emergency Planning Zone would be required in the event of an accident and the probability of a severe accident at the Maine Yankee plant is itself very low. Pending a FEMA determination on this issue, it is reasonable to conclude that the public health and safety will be reasonably assured in the interim by continued licensee compliance with Commission requirements aimed at keeping the probability of serious accidents very low. Cf. *Consolidated Edison Co.* (Indian Point, Unit Nos. 2 and 3), CLI-83-16, 17 NRC 1006 (1983). In view of these considerations, petitioners' request that operation of the plant be suspended at this time is denied.

Accordingly, the petitioners' request for action pursuant to 10 C.F.R. § 2.206 has been granted in part, denied in part, and deferred in part as described in this decision. Once FEMA provides the Commission with its findings regarding State Route 27, the staff will provide the petitioners with a copy of FEMA's evaluation and will inform the petitioners of the staff's decision as to whether further action should be taken.

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.

Richard C. DeYoung, Director  
Office of Inspection and  
Enforcement

Dated at Bethesda, Maryland,  
this 30th day of September 1983.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

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

**In the Matter of**

**Docket No. 50-289-SP**  
**(Design Issues)**

**METROPOLITAN EDISON COMPANY,**  
*et al.*

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

**October 6, 1983**

The Appeal Board denies an intervenor's request for reconsideration of its ruling in ALAB-729, 17 NRC 814 (1983), affirming the Licensing Board's determination that the issue of environmental qualification of safety-related equipment must be resolved outside the adjudicatory context.

**MEMORANDUM AND ORDER**

On May 26, 1983, we issued an opinion disposing of appeals regarding plant design and procedures and the separation of Units 1 and 2 at the Three Mile Island Nuclear Station. *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-729, 17 NRC 814 (1983). Among other things, we affirmed a Licensing Board determination that the issue of environmental qualification of safety-related equipment

must be resolved outside this adjudication. *Id.* at 891-94. Our opinion explained that all issues of environmental qualification as litigated in this case were fully embraced within the determinations announced by the Commission in pending rulemaking proceedings, including a determination made on June 30, 1982, to extend the deadline for completion of environmental qualification and permit all plants to operate pending such qualification. *See* 47 Fed. Reg. 28,363 (1982).

On August 18, 1983, intervenor Union of Concerned Scientists (UCS) sent us a letter enclosing a copy of a decision by the United States Court of Appeals for the District of Columbia Circuit that vacated the Commission's June 30, 1982 determination. *Union of Concerned Scientists v. NRC*, 711 F.2d 370 (D.C. Cir. 1983). UCS contends that the court's vacation of the Commission's decision now obliges us to examine independently whether the lack of environmental qualification of safety equipment poses an undue risk to the public health and safety if TMI-1 is permitted to resume operation. Although the letter is not in the form of a motion for reconsideration, UCS nevertheless urges us to reconsider and amend our earlier opinion.

We issued our decision disposing of all design issues on May 26 and a petition for discretionary review of that decision is now pending before the Commission. Thus, it is not at all clear that we have jurisdiction to entertain the request for reconsideration. *See Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-551, 9 NRC 704, 707 (1979); *Washington Public Power Supply System* (WPPSS Nuclear Project Nos. 3 and 5), ALAB-501, 8 NRC 381 (1978). We need not decide that issue, however, because other considerations lead us to conclude that the matter should not be reconsidered.

We do not believe that the court's decision either requires or encourages reconsideration of our earlier conclusion. The Commission originally decided to address the issue of environmental qualification generically. In the face of that decision, we rejected UCS' earlier claim that the Licensing Board was obligated to decide independently of Commission determinations whether TMI-1 can be operated safely while environmental qualification is undertaken. (We nonetheless approved a Licensing Board conclusion that there is no basis for treating TMI differently than other operating reactors, a conclusion UCS does not challenge in its letter.) Although the court overturned the Commission's June 30 decision, it expressly declined to address the question of whether any evaluation must be undertaken in separate adjudications or may be conducted generically. *See Union of Concerned Scientists, supra*, 711 F.2d at 380 n.24. This is a matter that the court left for the Commission to consider as part of the proceedings on remand. In the absence of a change

in the Commission's earlier position, the issue of environmental qualification remains outside the scope of this case.

UCS' request for reconsideration is *denied*.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

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

**In the Matter of**

**Docket Nos. STN 50-491**  
**STN 50-492**  
**STN 50-493**

**DUKE POWER COMPANY**  
**(Cherokee Nuclear Station,**  
**Units 1, 2 and 3)**

**October 12, 1983**

The Appeal Board grants the applicant's motion to terminate the Board's jurisdiction over the single remaining issue pending in this construction permit proceeding, upon being advised that the applicant had cancelled all three units of the facility and surrendered previously issued construction permits to the Director of the NRC Office of Nuclear Reactor Regulation.

**APPEARANCES**

**Albert V. Carr, Jr., Charlotte, North Carolina, and J. Michael McGarry, III, Washington, D.C., for the applicant, Duke Power Company.**



## MEMORANDUM AND ORDER

This construction permit proceeding involves the proposed three-unit Cherokee nuclear facility. In 1978, we affirmed a series of Licensing Board decisions on all but one of the issues considered and determined in those decisions. ALAB-482, 7 NRC 979. The exception was the question 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. We retained jurisdiction over that generic question to await its resolution by us in other pending licensing proceedings. *Id.* at 980-81.

Last November, in the context of the three consolidated proceedings in which it was contested, we announced our ultimate determination on the radon issue. See *Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-701, 16 NRC 1517 (1982). On May 27, 1983, the Commission entered an order indefinitely deferring the disposition of a petition filed with it for review of ALAB-701. CLI-83-14, 17 NRC 745. As a consequence of that action, we continued to retain jurisdiction over the radon issue in the proceeding at bar (and a number of other proceedings as well).

We are now advised by the Duke Power Company that all three units of the Cherokee facility have been cancelled and that, accordingly, the previously issued construction permit for each unit was recently surrendered to the Director of the NRC Office of Nuclear Reactor Regulation.<sup>1</sup> In light of this development, Duke requests that we terminate the appellate jurisdiction that had been retained in ALAB-482.

The sought relief is plainly warranted in the circumstances and therefore is granted.<sup>2</sup> *Public Service Co. of Oklahoma* (Black Fox Station, Units 1 and 2), ALAB-723, 17 NRC 555 (1983).<sup>3</sup>

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<sup>1</sup> The permits had been issued on the strength of the Licensing Board decisions, the effectiveness of which had not been stayed pending the outcome of appellate review.

<sup>2</sup> Units 2 and 3 were cancelled in early November 1982 and we were so informed in writing the following month. The determination to cancel Unit 1 was made on April 29, 1983. See September 21, 1983 letter from L.C. Dail to Harold R. Denton, attached to Duke's October 4, 1983 motion currently before us. That being so, we fail to understand why Duke waited so long to file the motion. It served no one's interest to have our docket unnecessarily encumbered with a proceeding involving a conclusively abandoned facility.

<sup>3</sup> In conformity with the course followed in *Black Fox*, we are not vacating ALAB-482 in its entirety. But it should be noted that, having been rendered on a *sua sponte* review of the Licensing Board decisions before us, ALAB-482 is without any precedential significance. Cf. 7 NRC at 981 n.4.

**It is so ORDERED.<sup>4</sup>**

**FOR THE APPEAL BOARD**

**C. Jean Shoemaker  
Secretary to the  
Appeal Board**

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<sup>4</sup> In taking this action, we of course do not pass upon the matter of what measures, if any, the applicant might now be legally required to take in order to ameliorate the environmental impact of the construction activities conducted on the Cherokee site prior to cancellation of the proposed units. At this juncture, that matter is within the exclusive province of the NRC staff; as above noted, our retained jurisdiction was restricted to the radon issue. In the event that the staff and Duke find themselves in disagreement on the redress question, the remedies available to the staff will be those that would have been at its disposal had the cancellation of all three Cherokee units followed, rather than preceded, the termination of the retained jurisdiction over the radon issue.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman  
Dr. John H. Buck  
Christine N. Kohl

In the Matter of

Docket No. 50-312-SP

SACRAMENTO MUNICIPAL UTILITY  
DISTRICT  
(Rancho Seco Nuclear Generating  
Station)

October 24, 1983

Upon receipt of the additional information it had requested, the Appeal Board completes its *sua sponte* review of the record and affirms the Licensing Board's initial decision (LBP-81-12, 13 NRC 557 (1981)), in this special proceeding, subject to the imposition of a license condition requiring additional radiographic inspections of certain high pressure injection nozzles.

**OPERATING LICENSE: TECHNICAL SPECIFICATIONS**

Technical specifications are to be reserved for those matters as to which the imposition of rigid conditions or limitations upon reactor operation is deemed necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to public health and safety. *Portland General Electric Co. (Trojan Nuclear Plant)*, ALAB-531, 9 NRC 263, 273 (1979). See 47 Fed. Reg. 13,369 (1982).

## TECHNICAL ISSUES DISCUSSED

Radiographic examination of high pressure injection (HPI) nozzles; Auxiliary Feedwater (AFW) system reliability.

## APPEARANCES

**Thomas A. Baxter**, Washington, D.C., for licensee, Sacramento Municipal Utility District.

**Roy P. Lessy** for the Nuclear Regulatory Commission staff.

## DECISION

Two issues remain outstanding in the *sua sponte* review of the Licensing Board's initial decision in this special proceeding: (1) the frequency of radiographic inspections of high pressure injection (HPI) nozzles C and D; and (2) the reliability of licensee's proposed modifications to the auxiliary feedwater system (AFWS).<sup>1</sup> We have now received substantially all the additional information relating to these items that we requested for the completion of our review.

1. In ALAB-703 we discussed the effect of thermal stress on HPI nozzles and determined the maximum allowable number of thermal cycles for each. 16 NRC at 1536-38. We expressed our satisfaction "that even if there is some increase in HPI actuations due to the modifications originally ordered by the Commission in this proceeding, it is unlikely to result in diminished effectiveness of the HPI nozzles." *Id.* at 1538 (footnote omitted). We also noted, however, our concern about the degradation (cracking, a missing thermal sleeve, and loose weld buttons) of two of the four HPI nozzles (A and B) at Rancho Seco. Although both of these nozzles were modified and the other two nozzles (C and D) showed no signs of deterioration, we tentatively concluded that a license condition should be imposed requiring a radiographic inspection of nozzles C and D at each future refueling outage, until these nozzles are modified or replaced. *Id.* at 1538-39.

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<sup>1</sup> See LBP-81-12, 13 NRC 557 (1981); ALAB-655, 14 NRC 799 (1981); and ALAB-703, 16 NRC 1533 (1982), for the background of this proceeding and the course of our appellate review.

In response to our invitation to comment, licensee proposes an inspection program that would exceed existing requirements (*i.e.*, inspections once every ten years) but would not be as rigorous as our suggestion. Specifically, it agrees to perform a radiographic examination at (1) the (now completed) 1983 refueling outage, (2) the third refueling outage thereafter, and (3) every fifth refueling outage after that. Affidavit of Robert A. Dieterich (December 13, 1982). Licensee gives several reasons why it believes its proposal is adequate. Nozzles C and D show no signs of degradation, are not used for continuous system makeup, and have experienced six years of plant operation. In licensee's view, the radiographic examination and associated work involve "considerable personnel exposure" (about 27 person-rem) and preclude the simultaneous performance of other activities within containment. Finally, licensee asserts that "a loose or missing [thermal] sleeve does not present a safety concern." *Ibid.*

The NRC staff proposes a more frequent inspection schedule: the unrepaired HPI nozzles should be radiographically examined at each of the next five refueling outages (beginning with the now completed 1983 outage) and, if no degradation has been detected, at every fifth refueling outage thereafter. The staff disputes the arguments for fewer inspections advanced by licensee. First, the staff points out that the number of allowable (design basis) thermal cycles rests on the assumption that the thermal sleeve for each nozzle (even those not used for continuous system makeup) will be in place. A loose or missing thermal sleeve would therefore reduce the safety margin associated with the integrity of the primary coolant pressure boundary. An added safety concern would arise were a sleeve to become a loose part and cause mechanical or other damage in the primary system. Affidavit of Sydney Miner (March 30, 1983) at 2; affidavit of George Johnson and C.Y. Cheng (March 30, 1983) at 2, 4. Second, proper procedures for the installation of the original thermal sleeves have not been proven, while poor installation has been identified as one of the root causes of the looseness and gaps between the thermal sleeve and safe end of the now repaired nozzles. Third, other facilities with failed HPI thermal sleeves have operated longer than Rancho Seco; thus, the prospect of future failure of the still intact sleeves remains. Affidavit of Johnson and Cheng, *supra*, at 2-4. Fourth, the radiation exposure incurred by personnel inspecting the HPI nozzles represents only two percent of the average annual occupational exposure for the facility. Affidavit of Charles S. Hinson (March 30, 1983) at 1. The staff notes further that its position is the same as that of the Babcock & Wilcox (B&W) Owner's Group. Licensee is the only member of that group that has not agreed with the Safe End Task Force recommendations. Affidavit

of Johnson and Cheng, *supra*, at 5-6. See Babcock & Wilcox 177 Fuel Assembly Owner's Group Safe End Task Force Report on Generic Investigation of HPI/MU Nozzle Component Cracking, B&W Doc. No. 77-1140611-00.

We adopt the staff and B&W Owner's Group position that the unrepaired HPI nozzles (C and D) should undergo radiographic examination at each of the next five refueling outages, beginning with that in 1983. If no degradation is evident by the last of these five inspections, the two nozzles need be examined at only every fifth refueling outage thereafter.<sup>2</sup> We order the Director of Nuclear Reactor Regulation (NRR) to impose this inspection regimen as a condition on licensee's operating license. Over time, this will result in only three such examinations more than licensee has proposed. We agree with the staff and B&W Owner's Group that the history of thermal sleeve failures in both HPI and makeup nozzles and the safety significance of the sleeves more than outweigh any inconvenience and the limited additional occupational exposure occasioned by the greater frequency of nozzle inspections that we order here.

One last matter involving the HPI nozzles warrants comment. In ALAB-703, we noted that the thermal sleeve missing from makeup nozzle A was believed to be lying at the bottom of the reactor vessel and was to be removed during the 1983 outage. 16 NRC at 1539 n.9. We have been advised that licensee located and removed from the lower grid assembly and the reactor vessel one large piece and four smaller pieces of the thermal sleeve. Licensee believes that essentially the entire sleeve has been found and that any remaining pieces would be "very small slivers and/or granules" that have probably dispersed throughout the system. On the basis of underwater video camera inspections, licensee has concluded that no pieces remain lodged in the grid and no damage has been done to the fuel assemblies. Letter from R.J. Rodriguez to John F. Stolz (June 13, 1983); letter from R.J. Rodriguez to J.F. Stolz (July 22, 1983). The staff has concluded that licensee has met its commitment to remove the missing sleeve and agrees that any small pieces or granules remaining in the primary system "will not adversely affect safe operation of Rancho Seco." Affidavit of Sydney Miner (September 27, 1983) at 3.

Despite our doubt that all remaining pieces of the sleeve in the system are small enough to be characterized as "granules," we do agree

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<sup>2</sup> At the recently completed 1983 refueling outage, the radiographic examination of nozzles C and D revealed no change in their condition, relative to the baseline measurements made in April 1982. The welds were satisfactory and there were no gaps between the thermal sleeves and the pipe walls. Affidavit of Sydney Miner (September 27, 1983) at 3-4.

that it is unlikely that such pieces are large enough to cause harm to any system component. We are thus satisfied that licensee has fulfilled its commitment to retrieve the missing thermal sleeve that traveled through the primary system.

2. In ALAB-655, we discussed the importance of the reliability of the AFW system at Rancho Seco. 14 NRC at 805. Indeed, the Commission ordered that a number of actions be taken to enhance AFWS reliability in the short term. *Id.* at 800-01. The Licensing Board and the staff determined that still other actions and system modifications would enhance reliability further over the long term, and licensee expressed its commitment to accomplishing them, essentially through a comprehensive upgrade of the entire AFW system. *Id.* at 806-07. We noted our concern that these commitments be honored and hence requested progress reports from both licensee and the staff on numerous items associated with the AFW system upgrade. *Id.* at 807-08, 817. As matters developed, the preparation and submission of this information was no small task and took substantially more time than we anticipated. First, licensee provided its own revised reliability analysis of the proposed AFWS modifications to the staff in January 1982. The staff contracted with Brookhaven National Laboratory for an independent reliability analysis, which it obtained in September 1982. The staff's own evaluation of both analyses took approximately a year, during which time the staff sought and received answers from licensee on specific questions concerning the proposed upgraded system. The staff's review resulted in its September 27, 1983, Safety Evaluation Report (SER).

The SER concludes, and the Brookhaven Report essentially agrees, that "[t]he proposed AFWS upgrade design represents a considerable and acceptable improvement over the existing design." Nonetheless, they both place the Rancho Seco AFWS in the medium-to-low range of the unavailability scale (*i.e.*, the Rancho Seco AFWS is considered to have a low quantitative reliability in comparison to the AFW systems at other nuclear power plants). SER at 40. *See* NUREG/CR-3013, "Review of the Rancho Seco Nuclear Generating Station Unit No. 1 Auxiliary Feedwater System Reliability Analysis" [Brookhaven Report], at 29. The reports strongly imply that this low reliability expectation results from the likelihood of both equipment failure and maintenance errors.<sup>3</sup> Consequently, increased reliance on plant procedures and operator training is necessary to ensure prompt availability of the AFW system.

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<sup>3</sup> *See, e.g.*, the Brookhaven Report, *supra*, at 14-17, which pinpoints miscalibration of steam generator level setpoints and likely failures in equipment such as the Integrated Control System, test line valve, and diesel generators.

As noted above, licensee has agreed to make a number of modifications in its equipment and operating procedures and has already implemented many of them, pursuant to staff approval. But in view of the medium-to-low reliability of the AFW system and the corresponding heavy reliance on prompt and correct operator action, we believe some of licensee's commitments should be formalized and, if not yet accomplished, undertaken immediately. Because licensee now does not expect to complete its upgrade of the AFWS until 1986 — several years beyond that projected while the case was still before the Licensing Board, but apparently a schedule acceptable to the staff — implementation of important operating procedures in the interim is even more essential. See Affidavit of Sydney Miner (September 27, 1983) at 2-3. To this end, we urge the staff, if it has not already done so, to require incorporation of at least the following two procedures in licensee's technical specifications:<sup>4</sup>

- a. to require an operator to be stationed at the AFW flow control valves and trained in the procedures necessary for local manipulation of these flow control valves in order to maintain proper AFW flow (SER at 24); and
- b. to establish test procedures for performing channel functional tests of the existing automatic initiation circuitry every 31 days until the safety-grade initiation and control system is installed (*id.* at 26).

Moreover, the staff should consider requiring licensee to install, before it completes the upgrades to the AFWS, the two additional diesel generators that are included in that design. In the interim, licensee has agreed to provide for automatic loading of the motor-driven AFW pump on the existing diesel generator-supplied emergency bus in the event of a loss of offsite power. *Id.* at 26-27. But automatic loading does not enhance the low reliability of the diesel generators.<sup>5</sup> On the other hand, installation of the additional diesels as soon as possible (*i.e.*, by the next shutdown) would provide extra backup in an offsite power loss and help to offset the demonstrated unavailability of the existing auxiliary feedwater system during the time before the scheduled 1986 installation of the upgraded system.

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<sup>4</sup> This is consistent with our view that "technical specifications are to be reserved for those matters as to which the imposition of rigid conditions or limitations upon reactor operation is deemed necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety." *Portland General Electric Co. (Trojan Nuclear Plant)*, ALAB-531, 9 NRC 263, 273 (1979) (footnote omitted). See 47 Fed. Reg. 13,369 (1982) (proposed rulemaking to reduce volume of technical specifications not significantly related to safety).

<sup>5</sup> Brookhaven estimates the diesel generator failure rate as  $3 \times 10^{-2}$  per demand. Brookhaven Report at 24.



Another dominant contributor to AFW system unavailability is apparently the failure, due to miscalibration, of the feed-only-good-generator (FOGG) logic. SER at 39. In short, this means that both steam generators could be automatically but inadvertently isolated from AFW flow in the event of a main steam line break. The staff states that licensee has verified that "no single active failure in the upgraded AFWS design will prevent AFW flow from being supplied to the intact steam generator or allow AFW flow to be supplied to the leaking steam generator." *Id.* at 17. See letter from R.J. Rodriguez to John F. Stolz (June 21, 1983), Enclosure at 2. It is not clear from the papers before us, however, by what means and for how long the upgraded design will ensure continued AFW flow to the intact steam generator. But the staff appears satisfied with licensee's assurances on that score.<sup>6</sup> We note in this connection that a similar matter was in dispute in *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-729, 17 NRC 814 (1983). There the Licensing Board directed licensee to propose a specific long-term solution to the problem and the staff to certify that licensee has made reasonable progress on its implementation. We affirmed that result. *Id.* at 834, 887-88.<sup>7</sup> Our concern here is for consistency in approach, to the extent feasible. Because of the similarities between these two B&W plants (*i.e.*, TMI-1 and Rancho Seco), we urge the staff to review again licensee's procedures, comparing them to those of the TMI-1 licensee already approved by the staff. See Docket No. 50-289, letter from John F. Stolz to Henry D. Hukill (November 10, 1982), Enclosure (Safety Evaluation).

The staff's review of licensee's proposed modifications of the AFW system, embodied in the September 1983 SER, is complete in all but a few respects. The most significant matter on which the staff is not yet able to reach a conclusion is whether the upgraded AFWS will be protected against the effects of internally generated missiles in accordance with the Standard Review Plan (SRP). Licensee and the staff disagree as to whether SRP Sections 3.5.1.1 and 3.5.1.2 require an evaluation of the effects of such missiles in conjunction with a single active failure of one AFWS train. SER at 5-6, 9-10; letter from R.J. Rodriguez to John F.

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<sup>6</sup> Not yet resolved to the staff's satisfaction is a main steam line rupture with failure of a single turbine stop valve, resulting in blowdown of both steam generators with consequent AFW pump runoff. The staff regards this matter as beyond the scope of its particular AFWS review in this case and consequently is considering it generically. SER at 17.

<sup>7</sup> We disagreed with the Licensing Board insofar as it delegated resolution of the issue to the staff, effectively removing it from the adjudicatory process. Because steam generator bypass logic was a contested issue, we concluded that the Commission, rather than the staff, should ultimately pass on the proposal and decide if the parties should be afforded an opportunity to address its merits. 17 NRC at 888. Here, of course, that factor does not arise because our review is on our own initiative and not pursuant to a contested appeal.

Stolz (June 21, 1983), Enclosure at 1. The staff, however, acknowledges that this is a "potential backfit" problem, which licensee may "appeal" to NRR management. Letter from John F. Stolz to Ronald J. Rodriguez (September 26, 1983). See 48 Fed. Reg. 44,173 (1983). We are satisfied that the NRR review procedure will provide an adequate means of resolving this dispute. Accordingly, the staff need only advise us as to its ultimate disposition.

Another task not yet accomplished is the staff's review of the final plans for the emergency feedwater instrumentation and control (EFIC) system and verification of its adequacy for AFWS initiation and control. Licensee is expected to provide these drawings no sooner than January 1984. SER at 13-14. The EFIC is obviously an integral part of the upgraded AFW system and should have been made available for staff review long ago. The extensive modifications to the exceptionally small control room at Rancho Seco appear to be the source of the delay in both submitting the final EFIC drawings and completing installation of the AFWS upgrades. Affidavit of Sydney Miner (September 27, 1983) at 2. Because the staff has apparently reviewed the preliminary instrumentation design (see SER at 12-13), we will not treat this as an open item in the SER. The delay in the final EFIC design, however, underscores the need for formalization of licensee's various interim commitments, as discussed above.

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We are now able, based on a *sua sponte* review of the record before the Licensing Board and the supplementary information provided by licensee and the staff in response to our requests, to affirm the Licensing Board's initial decision in this proceeding, subject to the imposition of the license condition discussed above (see p. 752, *supra*). In doing so, we agree with the Licensing Board that the various short and long-term actions, as broadly outlined by the Commission at the outset of the proceeding and subsequently fleshed out through more specific commitments by the licensee, are necessary and sufficient to provide reasonable assurance that Rancho Seco will respond safely to feedwater transients. Although the AFWS modifications are several years from completion and the staff has not yet reviewed each and every aspect of that system upgrade, a substantial part of the new design has been evaluated and approved. Thus, we see no reason for continuing our adjudicatory involvement, especially given the uncontested posture of this proceeding.

The Licensing Board's decision (LBP-81-12) is *affirmed*, subject to the following license condition:

Unless they are replaced or modified in the manner of nozzles A and B, HPI nozzles C and D are to undergo radiographic examination at each of the next five refueling outages, beginning with that in 1983; if no degradation is detected by the last of the five examinations, nozzles C and D are to be examined radiographically at every fifth refueling outage thereafter.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

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

**In the Matter of**

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

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

**October 6, 1983**

The Licensing Board decides that applicant is committed to the 1974 version of the ASME Boiler and Pressure Vessel Code and is not committed to subsequent versions that modified the design allowable for A500 Steel. However, the Code allowable was materially reduced because it was discovered that welding temperatures cause this cold-rolled steel to lose 17% of the strength previously allowed by the Code. Consequently, applicant should complete an analysis of whether Code safety margins have been unduly eroded because of the 17% reduction in material strength for A500 Steel used in welded pipe supports.

**GENERAL DESIGN CRITERIA: RELATIONSHIP TO  
ASME CODE**

Although applicant's only commitment was to the 1974 version of the ASME Code, applicant must show (pursuant to General Design Criteria

1 and 4) why it considers its pipe supports to be safe in light of a subsequent discovery that one of the 1974 Code allowables was in error.

## **RULES OF PRACTICE: COMPLIANCE WITH CODE**

Applicant's compliance with applicable Code provisions is not a complete defense to an allegation that margins of safety have been unduly eroded because of an error that has been discovered in a Code allowable.

## **TECHNICAL ISSUES DISCUSSED**

Cold-rolled steel  
A500 Steel  
ASME Code Case N-71-10  
Margins of safety  
Ratcheting, regulatory.

## **PARTIAL INITIAL DECISION (Change in Material Properties for A500 Steel)**

This partial initial decision resolves an important issue that has lurked among the many pending issues. It addresses one of the "Walsh/Doyle"<sup>1</sup> concerns, which are themselves a portion of Contention 5, dealing with quality assurance<sup>2</sup> issues. Although the parties were required to file findings on all of the Walsh/Doyle issues, we are issuing a separate opinion on this one issue so that Texas Utilities Generating Company, *et al.* (applicant) and the Staff of the Nuclear Regulatory Commission (staff) will have an adequate opportunity either to appeal this decision or to complete responsive analyses and to avoid unnecessary delay in the completion of the plant.

We conclude that applicant has failed to demonstrate compliance with General Design Criteria (GDC) 1 and 4<sup>3</sup> in the design of pipe supports using A500 Steel at Comanche Peak.

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<sup>1</sup> Most of these concerns were raised by witnesses Mark A. Walsh and Jack Doyle, engineers who used to work on the Comanche Peak plant and who are now assisting Mrs. Juanita Ellis in presenting evidence and pleadings on behalf of Citizens Association for Sound Energy. Although the Walsh/Doyle issues are included in the broadly-interpreted quality assurance contention (Tr. 714), they include concerns about the adequacy of the design of the plant as well as the adequacy of the quality assurance program for design.

<sup>2</sup> For variety of expression, we will use the terms quality assurance and quality control as synonyms.

<sup>3</sup> Appendix A of 10 C.F.R. Part 50.

The specific deficiency is that applicant has not demonstrated that welded supports using A500 Steel have been designed with adequate safety margins. In particular, applicant has relied on the 1974 version of the ASME<sup>4</sup> Boiler and Pressure Vessel Code (ASME Code), which erroneously calculated the strength of A500 Steel without recognizing a reduction in strength that occurs when this type of cold-formed steel is welded. Although applicant is not bound by Code Case N-71-10, which reduced the strength of A500 Steel by 15%<sup>5</sup> when it is welded, applicant has not adequately demonstrated that its analyses of yield values for A500 Steel used in pipe supports, pursuant to the ASME Code, have left an adequate margin of safety.

## I. LEGAL BACKGROUND

The point of departure is GDC 1, which requires: (1) that pipe supports be designed to quality standards commensurate with the safety importance of the functions they perform, and (2) that recognized codes and standards be used for pipe-support design but that they “shall be supplemented or modified as necessary to assure a quality product in keeping with the required safety function.” GDC 4 expands on the theme of GDC 1 by specifying conditions — from normal operation to loss-of-coolant accidents — that must be considered in designing the pipe supports.

Section 50.55a(d)(2) lends further substance to the GDC requirement of designing to “codes” by specifying that the ASME Code is applicable. To clarify the effect of the different revisions and addenda to the Code, the section also specifies that the date that a “component” (“not the contract date for the nuclear energy system”) is ordered is the date that governs the code revision applicable to the plant.<sup>6</sup> We interpret “component” to be the date of order for the piping on which the support is placed.

A question that we confront is that when the Commission adopted the 1974 edition of the ASME Code, it unwittingly endorsed a mistaken property value for A500 Steel. Since that time, the mistake — that A500

<sup>4</sup> American Society of Mechanical Engineers.

<sup>5</sup> CASE Exhibit 751, ff. Tr. 6794. At Tr. 6809, applicant’s witness (Mr. Reedy) says that the reduction in strength was about 6 or 7%. Then, Mr. Doyle suggested it was really 17% (*id.*) and Mr. Reedy appeared to accept that suggestion (*id.*). However, CASE’s Proposed Findings of Fact and Conclusions of Law (CASE’s Findings) indicates, at I-15, that applicant used a value of 23 instead of 19.6. We calculate this to be a 14.8% reduction in properties (or a 17% error calculated from the correct, revised value).

<sup>6</sup> See footnote 5 to 10 C.F.R. 50.55a(d)(2), which clarifies the meaning of “date of order” in a previous portion of § 50.55a.

Steel loses about 15% of its strength when welded — has been detected and the staff has accepted this reduced strength as correct.<sup>7</sup> Because this error was corrected subsequent to the time applicant placed its first order for each of its piping runs,<sup>8</sup> Code Case N-71-10 is not applicable to Comanche Peak and the Code's "error" is not corrected at Comanche Peak.

It is altogether proper that construction of nuclear plants not be continuously subject to tougher and tougher standards as the result of code cases and revisions. This is the essence of the regulatory scheme.

However, this freedom from automatic "ratcheting" does not excuse applicant from its basic obligation to build a safe plant pursuant to the General Design Criteria. To meet that basic obligation, applicant may disregard new knowledge about materials only by analyzing the effect of this new knowledge on its plant and showing that there are adequate safety margins remaining. It was never intended that an applicant rely entirely on code sections to assure safety. It certainly was never intended that applicant would rely on erroneous code sections to assure safety.

## II. MARGINS OF SAFETY

Engineers always have designed structures with margins of safety designed to protect their product from a variety of unconsidered or unforeseen forces. NRC Staff Exhibit 207, a report of the staff's Special Inspection Team (SIT Report), at 22, provides these important reasons for factors of safety:

*The philosophy behind specifying minimum factors of safety for any design results from the need to establish a reserve capability which will account for the possibilities of overload and understrength. Such possibilities may be due to variations in material dimensions, variations in construction procedure implementation, simplifications in calculation procedures, effects of erection tolerances, and disregard of secondary stresses.*

At the May hearings, the question of A500 Steel and the related margins of safety was discussed at some length. Applicant's witness, Mr.

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<sup>7</sup> See Regulatory Guide 1.85, Revision 21 (November 1982) at 1.85-11; citing Code Case N-71-10.

<sup>8</sup> The grandfathering of components does not extend to entire nuclear systems. Hence, grandfathering would not apply to piping runs for which no orders were placed before May 11, 1981 (the date of Council approval of Code Case N-71-10). Although the record is not entirely clear on this point, we believe that grandfathering does apply to all piping runs in both units. If applicant or staff examines applicable records and determines otherwise, we would expect to be notified. (Compare testimony of Mr. Roger Reedy at Tr. 6806-08.)



Roger Reedy, testified that the code case on A500 Steel was not applicable to Comanche Peak.<sup>9</sup> He then testified that a 15% reduction in materials properties<sup>10</sup> would not have a significant effect on safety because: (1) the very large safety factors built into the ASME Code make a 15% change in properties insignificant, (2) the primary safety factor in ASME is a safety factor based on "ultimate" and the safety factor for yield is only a backup value.<sup>11</sup>

As Mr. Reedy's testimony makes clear, the size of the safety margin at Comanche Peak depends on whether one is talking about the safety factor for ultimate or for yield values. Mr. Reedy states that safety factors for ultimate are 1/3 or 1/4 but that for yield they are 2/3 or 5/8.<sup>12</sup> This is roughly consistent with CASE's proposed finding of fact that the usual safety factor for yield of the ASME Code is 1.67 (equivalent to 3/5) and that the safety factor at Comanche Peak has been reduced to about 1.43 (about 5/7) because the correct materials property for A500 Steel is being ignored.<sup>13</sup>

We are not persuaded by Mr. Reedy's rationale relying on safety factors based entirely on ultimate. The Code specifies yield values that are crucial for cyclical stresses. We remember well that this basic item of civil engineering theory was colorfully explained to us by applicant's witness, Mr. Michael Vivirito, in connection with the thermal stress testimony in this proceeding. It is a reasonable use of the English language to inquire into the "safety factor" allowed for these calculations of yield, because there are uncertainties affecting these calculations for which a safety factor is important. Furthermore, it is our understanding that if yield is exceeded, plastic analysis (that applicant has not done) would be required.

We find the testimony inadequate to determine whether the safety factors built into the ASME Code are intended to cover possible errors in the materials properties found in the Code. Furthermore, assuming that some errors are covered by the safety factors, there is no testimony about the magnitude of the errors intended to be covered.

Under the circumstances, we find that the only prudent thing for applicant to do when code values are changed by a code case is to do some reanalysis to establish what safety margins remain.<sup>14</sup> This

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<sup>9</sup> Tr. 6801-10 (includes staff discussion of the same point).

<sup>10</sup> Mr. Reedy originally stated that the code case had reduced the properties by 6 or 7% but accepted Mr. Doyle's correction that it was 17% and generously stated that even a 20% change would fall within the principles he was explicating. Tr. 6809-10.

<sup>11</sup> Tr. 6923-24.

<sup>12</sup> Tr. 6925-26.

<sup>13</sup> CASE's Findings, summarized at I-15.

<sup>14</sup> We accept the suggestion of Mr. Walsh, at Tr. 6811-12.

reanalysis should seek extreme or limiting cases. It also should constitute a reasoned attempt to quantify the *combined* effect of errors in code values (recognized in code cases or amendments) and other variations typically covered by safety factors.

Only after reanalyses are performed will it be feasible for us to determine what safety margins remain. If margins have been materially eroded, further tests or redesign may be necessary to assure that the remaining margins are sufficient.

We consider ASME Code safety margins to be crucial. Any erosion in those margins must be permitted only after careful analysis. Without that analysis, we are unable to say that the safety factors at Comanche Peak are adequate.

## ORDER

For all the foregoing reasons and based on consideration of the entire record in this matter, it is, this 6th day of October 1983,

### ORDERED

1. That Texas Utilities Generating Company, *et al.* shall file analyses demonstrating that pipe supports manufactured with A500 Steel for the Comanche Peak Steam Electric Station, Units 1 and 2, have adequate safety margins.

2. The other parties and participants to this case shall have 15 days from the date of filing of the analyses required by ¶ 1 of this Order to file their replies.

3. This is an initial decision, subject to those sections of the procedural rules governing appeals.

**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

**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)**

**October 6, 1983**

The Licensing Board denies a motion for reconsideration of that portion of LBP-83-53 which denied a motion by deponents to quash deposition subpoenas.

**RULES OF PRACTICE: PROTECTIVE ORDER**

Where an applicant's attorneys receive information subject to a protective order, both the applicant and the attorneys could be subject to "serious sanction" if any of the information were revealed by those attorneys (absent further order by the Board).

**RULES OF PRACTICE: DISCOVERY**

Questions asked on deposition must be relevant to matters at issue in a proceeding. 10 C.F.R. § 2.743(b)(1).

## RULES OF PRACTICE: SUBPOENAS

The Licensing Board's authority to "condition denial of [a motion to quash a subpoena] on just and reasonable terms" (10 C.F.R. § 2.720(f)(2)) permits it to allow a deponent to decline in good faith to answer questions on grounds of lack of relevance, with disagreements settled through the filing of a motion to compel further responses.

### MEMORANDUM AND ORDER (Denying Motion for Reconsideration of LBP-83-53)

On August 31, 1983, we ruled on two motions to quash deposition subpoenas *duces tecum*. LBP-83-53, 18 NRC 282. The subpoenas were obtained by the Applicant and were directed at four officials of the Government Accountability Project (GAP). We granted the motion of Intervenor Mary Sinclair and Barbara Stamiris to quash those portions of the deposition subpoenas which sought the content of communications between those Intervenor and GAP, on the ground that those communications were protected by the attorney-client privilege. Although we denied the broader motion to quash filed by the GAP deponents, we required that information obtained by the subpoenas be subject to a protective order which, *inter alia*, limited dissemination of the information (insofar as the Applicant was provided access) to the Applicant's attorneys.

On September 19, 1983, the GAP deponents filed a motion for extension of time to September 30, 1983 within which they might file a motion for reconsideration of LBP-83-53. We granted that motion, requiring that any motion for reconsideration be in our hands by close of business on September 30. Memorandum and Order (Granting Extension of Time Within Which to File Motion for Reconsideration), dated September 26, 1983 (unpublished). In that Memorandum and Order, we pointed out that we were not at that time staying our earlier ruling.<sup>1</sup>

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<sup>1</sup> No request for a stay had been filed with us. We note that the GAP deponents on October 3, 1983 filed with the Appeal Board a request for a stay of our August 31, 1983 Order pending our ruling on the deponents' motion for reconsideration. (On October 4, the Appeal Board denied the stay request.) In filing that request, they represented that "[t]he Licensing Board, in an Order of September 26, 1983, denied GAP's request for a stay of their decision." October 3, 1983 Motion at 2 (emphasis supplied). Because of the obvious inaccuracy of this statement, we asked the GAP representative for an explanation during the conference call on October 5 (see *infra*, p. 768). He indicated that he had

(Continued)

Within the time frame specified in our September 26, 1983 Order, the GAP deponents filed a Motion for Reconsideration of LBP-83-53. (A corrected version was filed on October 3.) They also sought — for the first time — a stay of our earlier Order. We instituted a telephone conference call on October 5, 1983, to discuss certain aspects of the motion.<sup>2</sup> Participating, in addition to the Board, were Mr. John W. Karr for the GAP deponents, Messrs. David Stahl and James E. Brunner for the Applicant, Ms. Nathene Wright for the Staff, and Ms. Lynne Bernabei for Ms. Barbara Stamiris, Intervenor. (Ms. Mary Sinclair and Mr. Wendell Marshall, Intervenors, did not participate; Ms. Sinclair advised us she would rely on Ms. Bernabei's participation, and Mr. Marshall has not been directly involved in the subject matter of the call.)

As we advised the participants at the conclusion of the conference call, we are denying the Motion for Reconsideration (subject to certain conditions) and the request for a stay. Although the discussion in LBP-83-53 sets forth our general reasons, a few additional comments on our rationale both for denying GAP's original motion to quash and for rejecting the Motion for Reconsideration are warranted.

1. In seeking reconsideration, the GAP deponents correctly point out that in LBP-83-53 we declined to determine whether or not the claimed First Amendment or common law privileges were applicable to any of the information possessed by GAP and arising out of anonymous affidavits (the subject matter of the subpoenas). We did not perceive a need to do so because (1) the Applicant was neither seeking the identity of any anonymous affiant nor information which would tend to identify an affiant, and (2) we additionally imposed a stringent protective order governing all information discovered in response to the subpoenas.

The GAP deponents now assert that we should have determined that the privilege does apply and that, in accordance with the privilege, we must balance the Applicant's need for the information sought against the interests underlying the privilege. Motion for Reconsideration at 4. In LBP-83-53, we in fact undertook the balance which the GAP deponents now assert we should engage in. Although we did not determine whether the privilege was applicable, we noted that, even if it were, the lack of harm which we found would result from revealing the

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*misread our September 26, 1983 Order. We would observe that, if the GAP deponents had asked us to stay our Order of August 31, 1983 pending our receipt and consideration of their motion for reconsideration, we might well have granted that request. However, we warn representatives appearing before us that we will not tolerate deliberate misstatements before us and, if necessary, will take steps to discipline persons responsible for such statements.*

<sup>2</sup> In our September 26, 1983 Order, we advised parties that they need not respond to the petition for reconsideration unless requested by us to do so. During the call we advised parties that, to the extent we needed a response, the information provided in the call was sufficient.

information subject to a protective order would dictate our denial of the GAP deponents' motion to quash. 18 NRC at 288-89.

In undertaking that balance, we were particularly influenced by the circumstance that the information in question would be revealed (insofar as the Applicant was involved) only to the Applicant's attorneys and *not* to any of their other personnel. If it turned out that (absent further order by us) any of the information were revealed by those attorneys, both the Applicant and the attorneys in question could be subject to "serious sanction." *Cf. Consumers Power Co.* (Midland Plant, Units 1 and 2), CLI-83-2, 17 NRC 69, 70 (1983). Thus, we have in effect considered the balancing factors which the GAP deponents now urge us to consider, albeit on an assumption rather than a determination that the privilege applies.<sup>3</sup>

Given the circumstances described above, we fail to see how reconsideration of the privilege question could alter the result which we previously reached.

2. In LBP-83-53, we observed that the GAP deponents had expressed apprehension concerning a possible breach of the protective order but presented no particular evidence of more than a theoretical risk of such breach. On reconsideration, the deponents assert that there is an "actual risk." They cite an instance where one of the Applicant's attorneys allegedly promised that a GAP witness' identity would be maintained within a small control group and this promise, they claim, was not kept. They also cite the asserted distrust of Consumers' workers for promises of anonymity made by the Company.

In the first place, even if the Consumers attorney in question failed to live up to the promises he made to GAP, he would not have been violating a protective order issued by this Board. He would not have been faced with the severe consequences to both himself and the Company (to which we previously have alluded) which violation of our protective order could engender.

We do not, of course, approve of the failure of any attorney appearing before us to adhere to promises made in conjunction with the litigation, even though such failure would not constitute a violation of one of our orders. We therefore posed a number of questions during the

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<sup>3</sup> We do not read the new cases cited by the GAP deponents in their Motion for Reconsideration as calling for any different type of balancing or necessarily dictating a different result from that we previously reached. See *In re Application of Consumers Union of the United States, Inc. (Starks v. Chrysler Corp.)*, 32 Fed. R. Serv. 2d 1373 (S.D.N.Y. 1981); *United States v. Cuthbertson* (Appeal of CBS), 630 F.2d 139 (1980). In *Consumers Union, supra*, upon which the GAP deponents particularly rely, the Court placed heavy reliance on a State legislative policy to discourage compulsory production of the sources of professional journalists. Consumers Union is, of course, the publisher of *Consumers Reports*. The Court also stressed that the information could be obtained through other means.

conference call designed to elucidate more details concerning the instance mentioned by the GAP deponents. The Applicant's attorney denied that either he or the other Consumers member of the control group had violated any confidence.<sup>4</sup> The GAP deponents' representative stated that GAP had no knowledge that any particular person had violated any confidence. That being so, we find no basis for ascertaining that there was any revealing of information by the Consumers attorney in question or any activity by such attorney which would undermine our reliance on the protective order approved in LBP-83-53.<sup>5</sup>

3. In the affidavits submitted with the Motion for Reconsideration, the GAP deponents stress that, in carrying out its whistle-blowing operations, GAP permits persons reporting information to it ("GAP witnesses") to specify what use GAP may make of this information. GAP makes separate agreements with each reporting witness. Affidavit of Billie Pirner Garde (Garde Aff.), dated September 30, 1983, at 1-2 (Motion for Reconsideration, Exh. B). The information provided to GAP is not routinely turned over to the person or persons requesting the GAP investigation. Affidavit of Louis Clark, dated September 30, 1983, at 1-2 (Motion for Reconsideration, Exh. A). But in describing the scope of information dissemination permitted by four "illustrative" agreements with GAP witnesses, GAP stated that under three of those agreements the information in question could be provided to newspapers in varying degrees of detail and without revealing the identities of the witnesses (Garde Aff., at 2, 5 and 6).

The contentions which question the QA practices of the Applicant or its contractors to which the anonymous affidavits submitted to GAP may relate were based in part on newspaper accounts (Tr. 8359, 19,118) — not improperly, in our view. Indeed, given the opportunity for public participation in the resolution of safety issues provided by the Atomic Energy Act and implementing NRC regulations, the use of newspaper accounts of asserted safety problems arising out of nuclear plant construction as a foundation for contentions is virtually inevitable. Moreover, GAP does not appear to have exerted any effort to prevent anonymous GAP witnesses from circulating selected information to newspapers. That being so, GAP's desire to shield its operations from scrutiny while nevertheless permitting allegations against the Applicant

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<sup>4</sup> The Consumers attorney offered to provide affidavits by control group members to this effect, if required. At the present time, we see no need for any such affidavits.

<sup>5</sup> During the conference call, several quite plausible explanations for the asserted release of information were discussed. The release of information — assuming it occurred — could have resulted despite the best efforts of those in the control group and without any breach of confidence by control group members. We are making no determination at this time either as to whether information was released or, if so, the mechanism of such release.



made to it to be revealed anonymously to newspapers is grossly unfair to the Applicant and to the adjudicatory system itself.

In sum, the description of GAP operations provided to us in the Motion for Reconsideration reinforces the finding we made in LBP-83-53 that the Applicant has a need to discover information relevant to the contentions asserted against it. Given the lack of harm which we find will result from the limited disclosure we have authorized, the Applicant's need must prevail in the circumstances before us. We emphasize that this balancing applies *solely* to the limited disclosure which we have authorized and does not extend to further disclosures which the Applicant has indicated it may seek in the future.

4. A final argument advanced by the GAP deponents is that the depositions are being sought by the Applicant not to obtain information relevant to contentions but rather to discredit or undermine the operations of GAP. In support of that claim, the GAP deponents have forwarded excerpts from Consumers' deposition of Ms. Morella Bachner, which was taken on July 19, 1983. Motion for Reconsideration, Exh. C. The GAP deponents claim that over one-fourth of the deposition (41 of 151 pages) "was concerned not with an effort to learn the substance of \* \* \* allegations of unsafe practices but rather with Consumer's efforts to discredit Ms. Bachner because she sought assistance from GAP" (Motion for Reconsideration at 4-5 n.5).

We have examined the pages in question. For the most part, those pages do not appear to represent an attempt to discredit either GAP or the witness who sought GAP's assistance. Rather, they generally reflect an effort to elucidate background as to the witness' training and education, the method by which the witness responded to Consumers' document requests, her contacts with both GAP and the NRC, and the reasons for and methods by which she provided the details of certain incidents to the press. We agree that certain questions were not relevant to any contention — particularly those relating generally to GAP's activities and to problems at other plants than Midland. In general, therefore, we would not disallow on relevance grounds most of the questions appearing on the transcript pages provided to us.

In LBP-83-53, we responded to similar relevance objections of the GAP deponents (*e.g.*, Tr. 19,079, 19,102-03) by emphasizing that "the scope of the depositions and the documents which GAP must supply is *limited* to 'those relevant to the matters already at issue'" in the OL/OM proceedings (including admitted contentions). 18 NRC at 287. We again stress that scope limitation, which derives from limitations upon discovery appearing in the NRC Rules of Practice. 10 C.F.R. § 2.743(b)(1).

Because the fears expressed by the GAP deponents concerning over-broad inquiries into GAP activities did not appear to be entirely baseless, we proposed in the conference call that, at the depositions, the deponents be permitted to decline to answer questions on grounds of relevance and that, if it disagreed, the Applicant could file a motion to compel with us. (The alternative procedure would be for the deponents to object to questions, to answer them, and thereafter to move to strike.)

The GAP deponents concurred in the desirability of the proposal, assuming that any depositions were to be allowed. The NRC Staff offered no objection. The Applicant questioned our authority to require the procedural method which we proposed. Additionally, it urged that the deponents be required to pay the extra expenses of the Applicant which would result from utilizing those procedures.

In our view, requiring the use of the proposed procedures falls within our authority to "condition denial of [a motion to quash a subpoena] on just and reasonable terms" (10 C.F.R. § 2.720(f)(2)). During the conference call, we advised that we were denying the Motion for Reconsideration but were permitting the GAP deponents to utilize the procedures we had outlined. We added that, to the extent that the GAP deponents made "good faith" relevance objections, we would not impose on them the extra costs which might result from their using those procedures.

To assist in determining relevance, we offer the following guidelines. The information must bear on contentions or issues admitted in the OL/OM proceedings and cannot relate solely to GAP's activities with respect to other reactors or to Midland matters (if any) not comprehended by the admitted contentions or issues. The manner in which GAP generally obtains information is not relevant; the manner in which it obtained particular information relevant to particular contentions or issues in the OL/OM proceedings would likely be relevant (*see* LBP-83-53, 18 NRC at 287). Similarly, GAP's general operating methods would be beyond the scope of permissible inquiry; the operating methods used by GAP to obtain and/or disseminate information relevant to particular contentions or issues in the OL/OM proceedings is relevant. These guidelines are not exclusive but are intended to be illustrative of our view of the proper scope of discovery which can be obtained at this time from the GAP deponents.

5. Since (as discussed in the conference call) none of the depositions in question is now proposed to commence prior to October 18, 1983, and given the result we are reaching herein, we need not further consider the GAP deponents' request for a stay of our earlier Order.

For the reasons stated, it is, this 6th day of October 1983,  
**ORDERED**

That, subject to the conditions outlined, the GAP deponents' Motion for Reconsideration of LBP-83-53 and for a stay of the depositions is *denied*.

**FOR THE ATOMIC SAFETY AND  
LICENSING BOARD**

**Charles Bechhoefer, Chairman  
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland  
October 6, 1983**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Presiding Officer:**

**Dr. Robert M. Lazo, Administrative Judge**

**In the Matter of**

**Docket No. 70-25  
(ASLBP No. 83-488-01-ML)**

**ROCKWELL INTERNATIONAL  
CORPORATION  
(Energy Systems Group Special  
Nuclear Materials License  
No. SNM-21)**

**October 7, 1983**

In this Memorandum and Order the Licensing Board terminates the proceeding on the ground that none of the submissions received from prospective intervenors fulfilled the requirements for intervention by an "interested person" so as to mandate that a hearing be convened.

**RULES OF PRACTICE: INTERVENTION**

In the absence of at least one submission fulfilling the requirements for intervention by interested persons so as to mandate that a hearing be convened, there is no authority to hold a hearing.

**MEMORANDUM AND ORDER  
(Terminating Proceeding)**

In an unpublished Memorandum and Order dated July 26, 1983, the presiding officer directed the Energy Systems Group of Rockwell Inter-

national Corporation (ESGRI) to file an answer to the statements that have been filed by members of the public in response to the Commission's order of June 2, 1983 (CLI-83-15, 17 NRC 1001). Specifically, ESGRI was asked to address the question whether any person has filed a proper intervention statement in this proceeding. ESGRI filed a timely response dated August 29, 1983<sup>1</sup> although service of that document did not take place until September 13, 1983.

On August 31, 1983, the NRC staff (staff) filed a response entitled "Staff Motion to Terminate the Proceeding" in which the staff advised the presiding officer that it deemed it appropriate to appear as a party, in order to present its views on the question of standing and to participate in any further proceeding.

Both ESGRI and the staff argue that none of the petitioners has filed a proper intervention statement, that standing should be denied to all persons submitting requests for a hearing and that this hearing proceeding should be terminated. For the reasons set forth in this opinion, the presiding officer agrees.

## BACKGROUND

This proceeding concerns an application filed by ESGRI for renewal of its Special Nuclear Materials License No. SNM-21 under which ESGRI is authorized to engage in nuclear fuel element manufacturing and fuel element decladding at its Canoga Park and Santa Susana facilities in southern California. In its renewal application, by letter dated August 20, 1982, ESGRI stated that it was not requesting any increase in the scope of the licensed activities or changes in its special nuclear material possession limits. However, in a subsequent letter dated December 17, 1982, ESGRI modified the license application to reduce the present possession limit for U-235 from 1500 kilograms to 10 kilograms, to delete its authorization to manufacture nuclear fuel elements and to possess U-233, and to delete Building 001 at Headquarters and Building 055 at the Santa Susana Field Laboratories as authorized facilities for possession and use of special nuclear material.

The Commission has received in excess of 700 postcards and letters from individuals allegedly living in the vicinity of the ESGRI facilities, each of whom has requested a public hearing on the license renewal application. On June 2, 1983, the Commission ordered that an informal hearing be instituted (CLI-83-15, *supra*). However, because of the

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<sup>1</sup> By order dated August 9, 1983 (unpublished), the time for filing an answer was extended to August 31, 1983.

change in circumstances surrounding the renewal application, as well as the terse nature of the large number of hearing petitions then pending before the Commission, the Commission found it necessary to request further filings to clarify the intentions of those who had lodged submissions and to determine whether they could fulfill the requirements for intervention by "interested persons" so as to mandate that a hearing be convened. Accordingly, persons wishing to intervene were given forty-five days in which to file statements with the Docketing and Service Branch of the Office of the Secretary. The statements were to set forth with particularity: (1) the interest of the person in the proceeding; (2) how that interest might be affected by the results of the proceeding, including a delineation of the reasons why that person should be permitted to intervene that makes particular reference to (a) the nature of the person's right under the Atomic Energy Act to be made a party, (b) the nature and extent of the person's property, financial or other interest in the proceeding, and (c) the possible effect of any order that may be entered in the proceeding on the petitioner's interest; and (3) the specific aspect or aspects of the subject matter of the proceeding that the petitioner seeks to have litigated.

The Commission's order instituting an informal hearing directed the Chairman of the Atomic Safety and Licensing Board Panel (ASLBP) to designate a single member of that Panel to act as the presiding officer. A notice appointing the undersigned as Presiding Officer was issued June 6, 1983, by the Chief Administrative Judge, ASLBP (48 Fed. Reg. 27,170 (1983)).

On July 26, 1983, the presiding officer issued a Memorandum and Order directing ESGRI to file an answer to the statements which had been filed in response to the Commission's order and to address specifically the question of whether any person has filed a proper intervention statement. The staff was advised that if it wished to appear as a party that it too should file an answer to the intervention statements which had been received in response to the Commission's June 2, 1983 order.

### **STANDING OF PERSONS SEEKING TO INTERVENE AS PARTIES**

In its June 2, 1983 order, the Commission stated expressly that determinations by the presiding officer on the standing of persons seeking to intervene as parties to the proceeding shall be governed by existing agency precedents regarding 10 C.F.R. § 2.714(d).

Under 10 C.F.R. § 2.714(d) the presiding officer must consider the following factors: (1) the nature of the petitioner's right under the

Atomic Energy Act to be made a party; (2) the nature and extent of the petitioner's property, financial, or other interest in the proceeding; and (3) the possible effect of any order which may be entered in the proceeding on the petitioner's interest. As applied in *Nuclear Engineering Co.* (Sheffield, Illinois, Low-Level Radioactive Waste Disposal Site), ALAB-473, 7 NRC 737 (1978), the practical tests are that the petition must show (1) that the petitioner will or might be injured in fact by one or more of the possible outcomes of the proceeding, and (2) that the asserted interest of the petitioner in achieving a particular result is at least arguably within the zone of interests protected by the statute involved.

## THE INTERVENTION STATEMENTS

The Commission's order requesting further filings was dated June 2, 1983. Accordingly, intervention statements were due on or before July 18, 1983. Ten responses (two letters and eight postcards) were received before that date. Individuals who have filed letters are Mrs. Lori Belknap and Leslee Cook. Postcards have been received from Allen Winogura, Helene Winogura, Katherine Winogura, Judith Chason, Rae R. Wilkin, Karen Grovedurer, Kathy Jackson and Shein Wineland.

Four additional postcards postmarked before July 18, 1983 were served by the Docketing and Service Branch of the Office of the Secretary on August 10, 1983. These cards bear the signatures of Brian Maskovitz, Michael Vivian, Louie Carrillo and Noel Donabedian. One other postcard bearing the signature Kathryn Winogura which was also served on August 10, 1983 is postmarked July 25, 1983 and is clearly out of time.

From even a casual reading of the filings which have been received in response to the Commission's request, it is manifestly evident that none of the persons submitting the postcards and letters is interested in actively participating in the litigation of any specific aspect of the subject matter of the proceeding.<sup>2</sup> The presiding officer has carefully studied each of the postcards and letters which have been received. Other than a vague and generalized allusion to danger or potential injury from radiation, not one of the responses filed has set forth with particularity the petitioner's interest in the proceeding, the nature and extent of the person's property, financial, or other interest in the proceeding, the

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<sup>2</sup> Mrs. Belknap has submitted two additional letters. In the first dated August 3, 1983, she states expressly that she would like to make a limited appearance in the hearing. On September 22, 1983 she wrote to the presiding officer to request permission to review certain documents which are on file in this docket. ESGRI is requested to make these documents available so that Mrs. Belknap may inspect them.

possible effect of any order which may be entered in the proceeding on the petitioner's interest, or the specific aspect or aspects of the subject matter of the proceeding that the petitioner seeks to have litigated.

It is also patently clear that each of the persons submitting responses desires that a public hearing be held so that they might attend the hearing and voice their concern. If a hearing were to be convened, they most certainly would be afforded the opportunity to attend and make a written or, if appropriate, an oral statement on any issue in the proceeding by way of a limited appearance. However, no one has petitioned to intervene as a *party* to any informal adjudicatory proceeding that may be conducted with regard to the ESGRI renewal application. In the absence of at least one submission fulfilling the requirements for intervention by an "interested person" so as to mandate that a hearing be convened, there is no authority to hold a hearing. Thus, there will not be an opportunity for the presiding officer to entertain written or oral presentations from those persons desiring only to make a limited appearance.

## ORDER

For the foregoing reasons and in consideration of the entire record in this matter, it is, this 7th day of October 1983,

### ORDERED

1. That because none of the postcards or letters submitted in response to the Commission's order issued on June 2, 1983, meets the Commission's minimal requirements for the content of an intervention petition, each of the requests for public hearing is *denied* for lack of standing to intervene in this proceeding;

2. That pursuant to the Commission's order of June 2, 1983 (CLI-83-15); this decision denying intervention on the basis of lack of standing shall become final agency action within thirty days unless the Commission, on its own motion, undertakes a review of that decision; and

3. That the staff is authorized to renew Special Nuclear Materials License No. SNM-21 as modified in accordance with ESGRI's request thirty days after the date of issuance of this Memorandum and Order



and after satisfying itself that all regulatory requirements have been met, unless the Commission notifies the staff that it is undertaking a review.

Dr. Robert M. Lazo  
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,  
October 7, 1983.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Herbert Grossman, Chairman  
Glenn O. Bright  
Dr. Jerry Harbour**

**In the Matter of**

**Docket No. 50-460-OL  
(ASLBP No. 82-479-06-OL)**

**WASHINGTON PUBLIC POWER SUPPLY  
SYSTEM, *et al.*  
(WPPSS Nuclear Project No. 1)**

**October 14, 1983**

The Licensing Board issues a memorandum and order admitting a number of contentions and an organizational petitioner which had been held to have standing in a prior order. Because of a hiatus in construction, anticipated to last for up to five years, and the NRC Staff's allocation of resources to the license application only on a "manpower available" basis, the proceeding is held in abeyance.

**MEMORANDUM AND ORDER**

**(Admitting Intervenor, Ruling on Contentions, and Establishing a  
Further Schedule)**

**MEMORANDUM**

On June 23, 1983, this Board issued a Memorandum (unpublished) determining that Petitioner, the Coalition for Safe Power (CSP), had met the interest requirements of 10 C.F.R. § 2.714. We did not rule on

contentions and, since we did not determine that Petitioner had raised at least one litigable contention, we could not rule on granting the petition to intervene. On that same date, we granted the motion of the State of Washington to participate as an interested state and gave it until July 12, 1983 to respond to Petitioner's contentions. The State of Washington did not avail itself of the opportunity.

We now rule on contentions. Since we admit several of these contentions, we admit the Petitioner as an Intervenor in this proceeding. For reasons discussed below, we also are suspending discovery.

## I. RULING ON CONTENTIONS

### Contention 1

Contention 1 states as follows:

Petitioner contends that there is no reasonable assurance that WNP-1 will be substantially completed, in a timely fashion as required by 10 C.F.R. Part 2, Appendix A, Section VIII(b)(1) and 10 C.F.R. 50.55(b)&(d) which provided that an application for an Operating License will be filed "at or about the time of completion of the construction . . . of the facility" and that a license may be issued when there is "reasonable assurance that the construction of the facility will be substantially completed, on a timely basis."

This contention questions whether the application for an operating license is ripe rather than raises a substantive issue to be litigated. It is, perhaps, an argument for the Board's not entertaining the operating license application at this time, but not a matter to be litigated in this proceeding. To the extent that it raises the issue of whether the facility is being completed on a timely basis, that issue can only properly be raised in the context of Applicant's application for an extension of its construction permit completion date. A Licensing Board has been convened and a proceeding is in progress with regard to that proposed construction permit extension in which CSP is also an Intervenor.

The contention is *denied*.

### Contention 2

Contention 2 states as follows:

Petitioner contends that Applicant has neither adequately nor correctly assessed the somatic, teratogenic and genetic effects of ionizing radiation which will be released by WNP-1 during normal, transient and accident conditions and thus underestimates the human cost of the project in the cost-benefit analysis required by 10 C.F.R. 51.21, 51.20(b)&(c) and 51.23(c).

The contention itself would be too broad to litigate. However, Petitioner has supplied approximately four pages of specifics with regard to Applicant's alleged underestimation of the human cost of the nuclear project. Supplement to Request for Hearing at 3-6. We would limit any litigation on this contention to the matters specified in the basis.

Staff opposes this contention because, while it questions the cost-benefit balance, it does not allege that the errors would tilt the cost-benefit balance against issuance of the operating license. We see little merit in Staff's objection. Given that Petitioner questions the cost-benefit analysis in the context of opposing the issuance of the operating license, we see it as implicit in the contention that Petitioner is alleging that a proper assessment of the cost would result in an unfavorable balance. See discussion at Tr. 129-32. There is no need to rewrite the contention to take cognizance of that allegation.

Applicant raises certain objections that have little relevance to the contention. Applicant challenges as impermissible any attack by Petitioner on the standards established by the Commission in Appendix I to 10 C.F.R. Part 50 or applicable regulations. We agree. However, the contention does not question the values adopted by the Commission in Appendix I. It questions only the health effects of radiological releases from the facility — an area not proscribed by Commission regulation.

Applicant also objects (Tr. 138) to Petitioner's assertion that Applicant has misstated the total and cumulative impact required for multi-reactor sites, on the ground that the regulations do not require combining the doses from multiple plants on the site. Applicant is correct with regard to Part 50 dose limitations unless Applicant has elected not to comply with the requirements of ¶ D of Appendix I, § II. See second paragraph of Appendix I, § II.D. If Applicant has not so elected, only the more liberal limitations of 10 C.F.R. § 100.11, rather than those of Part 50, need be met by combined doses from multi-reactors.

Finally, the Licensing Board will not entertain any matters covered in the basis to the contention that were published prior to the issuance of the notice for opportunity for hearing on the construction permit or were actually considered at the construction permit hearing.

Limited to the matters specified in the basis for the contention and by our discussion of the contention, the contention is *admitted*.

### Contention 3

Contention 3 states as follows:

Petitioner contends that Applicant should be required to conduct an evaluation of and provide protection from the potential problems posed by Electromagnetic Pulse

(EMP) to meet the requirements of 10 C.F.R. 50.40(c). Licensing WNP-1 without protection from EMP unreasonably jeopardizes the common defense and safety by (1) impairing defense responses which might release EMP over the State of Washington and thereby cause a major release of radiation from WNP-1 and (2) acting as a potentially large source of lethal radioactivity which might be released by means of an EMP trigger which could be activated by any power, friend or foe, able to deliver a nuclear device over the U.S., (3) placing the U.S. population hostage to threats of EMP attack against WNP-1, and (4) placing the people of Washington State at risk of major peacetime loss for which no compensation can be expected.

As Petitioner recognizes (Supplement to Request for Hearing at 6; Tr. 140-41), 10 C.F.R. § 50.13 provides, *inter alia*, that an Applicant is not required to provide design features for protection against the effects of "attacks and destructive acts \* \* \* directed against the facility by an enemy of the United States." This regulation has been held by other Licensing Boards to preclude the admission of similar contention involving electromagnetic pulse (EMP): *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), LBP-81-42, 14 NRC 842, 843-45 (1981); *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), LBP-82-16, 15 NRC 566, 587-88 (1982); *Consumers Power Co.* (Midland Plant, Units 1 and 2), LBP-82-28, 15 NRC 759 (1982), *aff'd on other grounds*, ALAB-674, 15 NRC 1101 (1982).

Here, however, Petitioner provides scenarios under which a thermonuclear device is detonated over the United States thereby creating EMP that adversely affects the facility, by accident, by friendly forces, or by the United States as a defense measure.

We view these scenarios as cosmetic devices to circumvent the prohibition of § 50.13 against hearing the subject matter of this contention, and too speculative to achieve that result. We agree with the Board in *Perry, supra*, that the nature of the act itself of detonating a thermonuclear device over the facility with an adverse impact on the facility constitutes *a priori*, a destructive act directed against the facility by an enemy of the United States.

The contention is *denied*.

#### Contention 4

Contention 4 starts as follows:

Petitioner contends that Applicant has not provided sufficient information to show that WNP-1 can operate without hazard to the public health and safety in the event of an ash eruption of the Mount St. Helens, or other active, volcano as required by Appendix A of Part 50, 10 C.F.R.

Applicant objects to the contention on the grounds that it ignores the discussions of potential ashfall in the WNP-1 FSAR and overlooks Applicant's commitment to assure compliance with Part 50, Appendix A. Applicant's Opposition to Supplement to Request for Hearing at 28-30; Tr. 146-52. As Applicant indicates, however, the thrust of the FSAR discussion is that Applicant has not yet complied with the regulatory requirements with regard to ashfall but merely commits itself to do so before the issuance of the operating license. Where Applicant has a present regulatory requirement, albeit one that it has committed to satisfy, Petitioner has every right to raise as a contention the failure to currently satisfy the requirement. The contention, involving only the ash eruption from Mount St. Helens, is narrow enough to satisfy the specificity requirements.

This situation is unlike that passed on by the Commission in *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041 (1983), involving contentions which lack specificity because the information to be relied upon would be in future licensing-related documents, to be submitted on Commission-established schedules. Here, Applicant has a current obligation to demonstrate in the FSAR that it can operate WNP-1 without hazard to the public health and safety in the event of an ash eruption of Mount St. Helens, and Petitioner's contention does not lack specificity.

The contention is *admitted*.

## Contention 5

As originally submitted in Petitioner's Supplement to Petition for Hearing (at 10), Contention 5 reads as follows:

Petitioner contends that Applicant will not, and, in fact, does not have the ability to, implement a QA/QC program which will function as required by 10 C.F.R. Part 50 Appendix A, GDC 1, 10 C.F.R. 50.40 and Section VIII(2)&(3) of Appendix A to Part 2 to assure public health and safety. Moreover, Applicant has repeatedly violated 10 C.F.R. 50.55(e)(2)(i) in not reporting the numerous breakdowns in its QA/QC program.

In order to accommodate certain objections by Staff and Applicant (*see* Tr. 164, 170-71), Petitioner reworded the contention (Tr. 279) to read: "Petitioner contends that Applicant will not adequately implement a QA/QC program at the operating-license stage."

The purpose of the change was to clarify the thrust of the contention as being directed toward the operating QA/QC, rather than the construction QA/QC. Notwithstanding the rewording of the contention, Staff

and Applicant continued to oppose its admission, primarily on the grounds that it lacked specificity and basis, and for raising matters which are not within the scope of this operating license proceeding. Applicant's Response at 30-32; Staff Response at 10-11; Tr. 170-71, 279-80. The matters raised in Petitioner's basis relate to defective construction practices with regard to WNP-1 and WNP-2. Applicant and Staff insist that the problems encountered with regard to WNP-2 are unrelated to WNP-1, and that, in any event, whatever transpires during construction is unrelated to any quality assurance program implemented for plant operation.

We do not agree. In *Duquesne Light Co.* (Beaver Valley Power Station, Unit 2), ALAB-240, 8 AEC 829 (1974), relied upon by Petitioner, the Appeal Board reviewed an initial decision in which it found that the Licensing Board had inadequately considered the quality assurance program at the Applicant's nuclear unit 2 in light of quality assurance problems encountered at unit 1. The Appeal Board stated (at 833):

Certainly, the applicant's and architect-engineer's actual performance at an ongoing construction program is a factor which must be taken into account in evaluating the likelihood that the established QA program for another project will be implemented. [Footnote omitted.]

Nor did the Appeal Board limit its concern with the quality assurance programs during construction of one unit only to the *construction* of another unit, but acknowledged the implication that faulty quality assurance at construction might carry over to plant operation, as follows (at 840):

What we have said here involves construction activity. It goes without saying, however, that the same concerns are applicable at the operating license stage. It is equally important that the applicant be committed to, and that properly qualified people be available to carry out adequately, the operational quality assurance program.

In addition to the quality assurance problems discussed in the basis for Contention 5, Petitioner also discussed quality assurance problems in the basis for Contention 20. Petitioner has requested that the Board consider both bases for each of these contentions. Tr. 268-69. Whether or not the basis for Contention 20 is included, we accept the examples given in the basis for Contention 5, even to the extent that they relate to the construction of WNP-2, as being sufficient to support the questions raised by Petitioner concerning the implementation of the quality assurance program for the operation of the plant.

Contention 5, as restated, is *admitted*.

## Contention 6

Contention 6 states as follows:

Petitioner contends that Applicant has not demonstrated the ability to remove decay heat from WNP-1 using natural circulation in the event of an accident and thus violates GDC 34 & 35 of 10 C.F.R. 50 Appendix A.

In its written response to Petitioner's Supplement to Request for Hearing, Staff did not object to the admission of Contention 6 provided that the scope of the contention is limited to the issues stated in the basis supporting the contention. Staff Response at 11. At the prehearing conference, however, Staff conceded that the contention is narrowly worded. Tr. 173. The Board agrees that it is narrowly worded and would not further limit its scope.

Staff had approved the admission of this contention on the basis of the Appeal Board's consideration of this issue in *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-708, 16 NRC 1770 (1982), but offered that the resolution of these issues in the eyes of the Appeal Board and the NRC Staff would moot Petitioner's concern. Staff Response at 12. Although the Appeal Board has now spoken on this issue in *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-729, 17 NRC 814, 829-55 (1983), the decision has not yet been reviewed by the Commission. To the extent that the final disposition of that proceeding is on a generic basis, this contention can be resolved by appropriate motions for summary disposition.

Similarly, Applicant's objections (Applicant's Response at 33-34; Tr. 172-73), that the FSAR demonstrates that the allegations in the contention are in error, are arguments on the merits that are appropriate for summary disposition, rather than for the pleading stage. We also do not agree with Applicant (Applicant's Response at 32-33) that Petitioner has not stated a sufficient basis for the contention.

The contention is *admitted*.

## Contention 7

Contention 7 states as follows:

Petitioner contends that the improvements proposed by the Applicant to the Power Operated Relief Valve and Safety & Relief Valves will not meet the requirements of NUREG-0737 and 10 C.F.R. Part 50, Appendix A, GDC 14 and the defense-in-depth principle of the Commission.



In the basis stated for its contention (Petitioner's Supplement to Request for Hearing at 14-15), Petitioner failed to list any particulars in which the PORV failed to meet the requirements of NUREG-0737 and GDC 14. Although offered a further opportunity to state these particulars at the prehearing conference, Petitioner was unable to do so. Tr. 177-83.

The contention does not meet the specificity requirements of 10 C.F.R. § 2.714(b) and is *denied*.

### **Contention 8**

Contention 8 states as follows:

Petitioner contends that methods proposed by Applicant to meet instrumentation for detection of inadequate core cooling, NUREG-0737, are inadequate.

Petitioner withdrew Contention 8 at the prehearing conference. Tr. 183-84.

### **Contention 9**

Contention 9 states as follows:

Petitioner contends that there are systems, equipment and components classified as non-safety related that were shown in the accident at TMI-2 to have a safety function or an adverse effect on safety and that such systems should be required to meet safety-grade criteria. Moreover, Applicant should be required to perform an analysis to identify all such systems, equipment and components.

With regard to the first sentence in the contention, Petitioner has not particularized any systems, equipment or components that it asserts are classified as nonsafety-related but should be required to meet safety grade criteria. Therefore, that portion of the contention lacks the required specificity.

With regard to the second sentence of the contention, requiring Applicant to perform an analysis to identify all systems, equipment and components that have a safety function, there appears to be an established process by which those items are categorized as being required to meet safety grade criteria. Tr. 185-88. Petitioner has failed to identify any deficiencies in the process or any example of a mischaracterization of any item. Consequently, the second sentence of the contention fails to meet the specificity requirements of the regulations.

The contention is *denied*.

## Contention 10

Contention 10 states as follows:

Petitioner contends that the B&W Once Through Steam Generator (OTSG) design used for WNP-1 is overly sensitive to secondary side perturbations and has not been adequately analyzed as required by 10 C.F.R. 50, Appendix A.

Staff does not oppose the admission of the contention provided that the scope is limited to the issues stated in the basis to the contention. The basis gives a number of specifics with regard to the alleged oversensitivity of that particular steam generator design. We would allow Petitioner to litigate all of the specifics mentioned in its basis. However, given what we view as a fairly narrow area of controversy, *i.e.*, the alleged oversensitivity of the steam generator, we do not see any utility to restricting further the scope of what is already limited by the wording of the contention itself.

Applicant's objection (Applicant's Response at 39-40) is a factual rebuttal, more appropriate to disposition at some later stage in the proceeding than an objection to admissibility.

The contention is *admitted*.

## Contention 11

Contention 11 states as follows:

Petitioner contends that the Applicant has not shown that safety-related (electrical and mechanical) equipment and components are environmentally qualified to a degree that would provide adequate assurance that the requirements of GDC 1 and 4 of 10 C.F.R. 50, Appendix A are satisfied.

Staff and Applicant object to this contention, in part because a new environmental qualification rule was approved by the Commission on January 6, 1983, which provides a deadline (that has not yet passed) for meeting the requirements. Staff Response at 16; Tr. 191-93. We do not consider that objection valid because the Commission amended its regulations to promulgate that new rule only to "clarify and strengthen the criteria for environmental qualification" of the equipment. 48 Fed. Reg. 2729, 2730 (1983). If Applicant has not met the old criteria, upon which the new rule was primarily based, it would not meet the "strengthened" criteria.

However, the contention itself is so vague that it clearly cannot meet the specificity requirements of the rules. Neither, for the most part, can the underlying basis. The allegations therein that Applicant has not met

the criteria of Regulatory Guides 1.70 and 1.89, IE Bulletin 79-01B, DOR guidelines, NUREG-0588, etc., are not supported by concrete and substantial instances to make them litigable issues.

Only one matter raised by Petitioner appears specific enough at this juncture in the proceeding to be litigable. Petitioner alleges that the present testing methods underestimate the long-term effects of radiation exposure on polymers found in cable insulation and jackets, seals, rings and gaskets, because they use high levels of radiation over short periods of time, rather than low levels over long periods of time. Petitioner refers to certain NRC documents and articles to support its allegations.

We *admit* as a contention only that portion of the basis relating to the testing of polymers.

## Contention 12

Contention 12 states as follows:

Petitioner contends that Applicant has not provided reasonable assurance that the Asiatic clam (*Corbicula fluminea*) and other aquatic debris will not befoul the intake/discharge structure of WNP-1 in both normal and emergency operating conditions, thus endangering the public health and safety.

Applicant opposes this contention purely on factual grounds. It attempts to demonstrate that even if the intake/discharge structure were clogged, there would be no adverse effect upon the ability to shut down a plant safely and maintain it in that condition. Applicant's Response at 43-45; Tr. 198. Staff appears to agree with Applicant's analysis, but believes that the contention should be disposed of by summary disposition. Tr. 199, 203.

From the discussion at prehearing conference (Tr. 197-204), it appears likely that Applicant could easily establish by reference to the FSAR and relevant safety criteria that the contention is factually invalid. Nevertheless, the Appeal Board has prohibited Licensing Boards from dismissing contentions on the merits at the pleading stage even if demonstrably insubstantial. *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542, 550 (1980). But, *cf.* dissenting opinion in that proceeding, at 553-58. We cannot entertain Applicant's challenge to the contention prior to a motion for summary disposition.

The contention is *admitted*.

## Contention 13

Contention 13 states as follows:

Petitioner contends that the Babcock and Wilcox Emergency Core Cooling System (B&W ECCS) Model relied upon by Applicant does not meet the requirements of 10 C.F.R. 50.46, Appendix K of Part 50 or GDC 35.

In its basis, Petitioner relies primarily upon the investigation into the adequacy of the B&W ECCS model in the TMI Restart Proceeding and on Applicant's not yet having responded fully to the requirements of NUREG-0660 and NUREG-0737 with respect to the conformance of the computer model to 10 C.F.R. Part 50, Appendix K.

Staff does not object to the admission of Contention 13, although it would limit the scope of the contention to the issues raised in the basis, but suggests that the resolution of the issue by the TMI Appeal Board will moot Petitioner's concerns. Staff Response at 18-19.

We do not agree with Staff (and Applicant) that the contention is too vague and general to be litigated without limiting it to the basis stated by Petitioner. In addition, we have reviewed ALAB-729, *supra*, issued subsequent to Staff's response to the contentions, and do not discern a decision on this issue that would resolve Petitioner's contention in this proceeding. *See* 17 NRC at 842 *et seq.* If Applicant and Staff think otherwise, their recourse is to move for summary disposition when appropriate. We also do not agree with Applicant (Applicant's Response at 47) that its failure to fully comply with 10 C.F.R. Part 50, Appendix K because the regulatory review process has not yet been completed is grounds for not admitting the contention. For purposes of this operating license proceeding, Applicant is assumed to be obligated to fulfill all the regulatory requirements for the issuance of an operating license unless otherwise provided by the Commission. Having satisfied the specificity requirements of the rules, Petitioner's contention is currently valid. If and when Applicant fully complies with the requirements, the issue can then be resolved.

The contention is *admitted*.

## Contention 14

In Petitioner's Supplement to Request for Hearing (at 21), Contention 14 stated as follows:

Petitioner contends that the fire-protection measures at WNP-1 do not meet the requirements of 10 C.F.R. 50.48, Appendix R to Part 50, and GDC 3 in that Applicant has not demonstrated that redundant systems, equipment and components necessary for safety will not be damaged in the event of a fire.

At the prehearing conference, Petitioner reworded Contention 14, as follows (Tr. 278):

Petitioner contends that the fire-protection measures at WPPSS-1 do not meet the requirements of 10 C.F.R. 50.48, Appendix R to Part 50, and GDC-3, in that Applicant has not demonstrated that safety-related systems, equipment and components will not be damaged in the event of a fire.

In its basis, Petitioner refers to only two fire protection items: the requirement of separation of cables used to power redundant safety systems; and the seismic qualification of fire protection components such as fire pumps. Petitioner's Supplement at 21-22.

Staff does not object to admitting the contention to the extent of the issue of separation of cables stated in the basis, but it opposes admitting the issue of seismically qualifying the fire pumps because the regulations do not require them to be seismically qualified. It also opposes admitting the contention for any broader litigation than the separation of cables.

We agree with Staff that the contention is overly broad to be admitted without limiting it to the basis stated, and that litigating the question of whether the fire pumps should be seismically qualified would conflict with the regulatory requirements.

Applicant's further point (Applicant's Response at 48) that its commitments to satisfy the requirements of cable separation should suffice cannot be entertained by the Board as a challenge to admissibility.

Contention 14 is *admitted* only insofar as it relates to the separation of cables.

## Contention 15

Contention 15 states as follows:

Petitioner contends that Applicant has not met the requirements of NUREG-0737 II.K.2.9, II.E.5.2(f) and I&E Bulletin 79-27 by not completing a plant-specific Failure Mode and Effects Analysis (FMEA) of the Integrated Control System for WNP-1.

Petitioner withdrew this contention. Tr. 212.

## Contention 16

Contention 16 states as follows:

Petitioner contends that the Emergency Diesel Generators as designed and installed are unreliable as a source of onsite emergency power necessary for safety. Failure of the diesel generators should be considered a design basis accident.

Implicit in the second sentence of the contention is the Petitioner's position that this Board should impose a more stringent requirement on Applicant's emergency diesel generators than the Commission has provided in General Design Criterion 17 of Appendix A to Part 50 in which onsite electric power supplies need to perform their safety functions assuming only "a single failure." Petitioner relies upon *Florida Power and Light Co.* (St. Lucie Nuclear Power Plant, Unit 2), ALAB-603, 12 NRC 30 (1980) in which the Appeal Board considered a loss of all AC power on site, at variance with GDC 17. However, in that proceeding the Appeal Board's justification for not following the GDC was the special circumstance of the location of the St. Lucie plant in the Florida peninsula so that the applicant's electrical distribution system (grid) could be connected to only the grids of other utilities to the north, making the system less reliable than ones interconnected with multiple grids.

Here, Petitioner has offered no such weighty reason for not following the Commission's rule enunciated in GDC 17, as required by 10 C.F.R. § 2.758(a). The reason given (Supplement to Request for Hearing at 23) of emergency diesel generator unreliability, is a generic problem that the Commission has already considered and determined not to require designating a station blackout as a design basis event in the absence of exceptional circumstances such as at St. Lucie. *Florida Power and Light Co.* (St. Lucie Nuclear Power Plant, Unit 2), CLI-81-12, 13 NRC 838 (1981). The second sentence of Contention 16 must be denied.

Although the first sentence of the contention appears to be broad, the supporting basis raises specific, litigable issues. To begin with, Petitioner alleges that three defects exist with regard to the emergency diesel generators at WNP-1 which the Applicant has admitted requires further corrective action.

Furthermore, the last paragraph of the supporting basis states as follows (Supplement to Request for Hearing at 24):

Additionally the diesel generator medium and large motors, and small motors lack necessary environmental and seismic qualification. FSAR Appendix 3.11B, Table 3.11B-1 (Sheet 3 of 6). Also lacking qualification are the diesel generator engine control panel and diesel generator control panel. *Supra*. Given the above there is no reasonable assurance that the emergency diesel generators will operate as planned.

Applicant objects to the admission of this paragraph as a contention because of alleged lack of specificity. Applicant's Response at 51-52; Tr. 222-24. It submits that the simple statement that Applicant has not yet

met the burden of demonstrating the environmental and seismic qualification of this equipment is overly broad in that there has been no suggestion, allegation, demonstration or other offer to the effect that Applicant will not meet that burden. Tr. 223.

Staff, on the other hand, does not consider this paragraph as overly broad and would admit the issue of seismic qualification but demurs to the environmental qualification because the environmental qualification rule that will govern this operating license is not yet effective with regard to Applicant (*see* discussion on Contention 11, above). Tr. 224-25, 233-34.

We agree with Staff that this paragraph is specific enough in light of Applicant's not having met the requirements *in toto* at this point in time. If it had attempted to meet the requirements and had failed in some particulars, Petitioner would be required to specify those particulars in greater detail. But under the circumstances, Petitioner's allegations are as specific as can be raised. As to Staff's argument with regard to the effective date of the new environmental qualification rule, we read Petitioner's allegation as requiring compliance with whatever environmental qualification rules are appropriate for the issuance of this operating license (*i.e.*, the current rules or whatever they may be superseded by before the license is issued).

The first sentence of Contention 16 is *admitted*.

## Contention 17

Contention 17 states as follows:

Petitioner contends that WNP-1 Seismic Category I systems, components, and equipment, during a seismic event at the site, at or below the SSE, would fail in such a manner as to prevent safe shutdown of the plant. Such a failure violates GDC 2 and presents an undue risk to the public health and safety. Furthermore the Architect/Engineer's response spectra is wholly defective and can not be relied upon for a seismic analysis.

Clearly, this contention is extremely broad. In its basis, however, Petitioner has raised a number of concrete issues. Supplement to Petition for Hearing at 24-26. Applicant objects to these issues primarily on the merits and, where applicable, to allegations that Applicant has not yet completed what it has committed itself to do. We cannot entertain Applicant's objections on the merits at this juncture. Nor, where Applicant has safety obligations it has not yet satisfied, can we accept its commitment in resolution of the issues raised.

Because of the fragmented presentation of the issues underlying this contention in Petitioner's Supplement to Petition for Hearing, we accept the Staff's reworded, comprehensive statement of the issues (Staff's Response at 22-23) as follows:

(1) whether the as-built seismic capability of the cable tray supports is substandard; (2) whether the Applicant has used Quality Class II equipment in place of Quality Class I as required for seismic category I systems, components and equipment with respect to pipe rupture restraints, cable trays and the containment purge system; (3) whether the Applicant has completed a program to assure snubber operability; (4) whether the Applicant has provided Reg. Guide 1.70 critical damping values; (5) whether the Applicant has identified adequate seismic analysis methods to verify pipe support baseplate flexibility and the design of structural steel framing for platforms that support safety-related systems in the containment; (6) whether the Applicant has provided adequate design and analysis procedure to verify the adequacy of the containment; (7) whether there are adequate soil damping values for structures, systems and components in the nuclear steam supply system (NSSS); (8) whether the electrical equipment listed in FSAR Appendix 3.11B has been seismically qualified; (9) whether the Architect/Engineer's amplified response spectra is reliable for HVAC equipment and modified structural steel framing; and (10) whether the Applicant has performed an adequate dynamic analysis of ASME class piping.

We *admit* as Contention 17 the basis given by Petitioner, as restated by Staff, above.

### Contention 18

Contention 18 states as follows:

Petitioner contends that Applicant has failed to conduct an adequate assessment of the interactivity of WNP-1 and surrounding nuclear/chemical facilities including the ability (of WNP-1 *or* the other facilities) to continue safe operation in the event of an accident (at WNP-1 or the other facilities) and the consequences of loss of operability as required by 10 C.F.R. 51.20 and 10 C.F.R. 100.10.

Staff objects to the admission of this contention, first, on the grounds that it is very broad and ambiguous and, secondly, because the parentheticals used in the contention would place into controversy the ability of non-NRC licensed facilities to operate safely in the event of an accident at WNP-1. Staff Response at 23. Staff points out that the NRC does not have jurisdiction to consider, particularly in an operating license proceeding, the ability of surrounding facilities to operate safely in the event of an accident at WNP-1. *Ibid.*

We agree with Staff that the safe operation of the other facilities in the event of an accident at WNP-1 is outside the scope of what this Board



can consider. Although we do not necessarily agree with Intervenor's choice of regulatory basis (10 C.F.R. § 51.20 and 10 C.F.R. § 100.10 relate to construction permits and site evaluations), we agree with the parties (Tr. 244) that external hazards to the WNP-1 plant (including those from surrounding nuclear/chemical facilities) must be analyzed to ensure the continued safe operation of the plant. We do not agree with Staff that the contention is too broad and ambiguous, considering the few nuclear/chemical facilities in the surrounding area. Nevertheless, Petitioner feels (Tr. 238) that it has identified all the facilities of concern to it in its basis and would not see any difficulty in limiting the contention to those facilities. Staff has restated the contention, limited to the six items listed in the basis, in a comprehensible manner (Staff's Response at 24) that we would adopt as follows:

WNP-1 has not been designed to withstand the effects of: (a) an explosion at the Department of Energy's Fast Flux Test Facility; (b) potential hazards from military overflights; (c) an aircraft collision into a power line tower; (d) an accident at the N-reactor which is located approximately 18 miles away; (e) the PUREX facility which is scheduled to operate in 1984; and (f) the transportation of potentially dangerous radioactive materials on a mainline railroad track within the exclusion area of WNP-1.

Applicant's objections to the contention go mostly to the merits of the adequacy of Applicant's analysis of the interaction of the facilities. We cannot consider the merits in ruling on admissibility.

Petitioner had also raised in its basis the alleged inadequacy of Applicant's emergency plans in considering the nuclear and chemical facilities in the vicinity. Petitioner's Supplement at 27. At the prehearing conference, Petitioner deleted its reference to emergency plans in Contention 18, in order to include all of the emergency planning considerations in Contention 19. Tr. 243.

We *admit* Contention 18 as restated above to limit it to the six enumerated items in Petitioner's basis.

## Contention 19

Contention 19 states as follows:

Petitioner contends that the emergency plans proposed by Applicant are insufficient to assure that adequate protective measures can and will be taken in the event of a radiological emergency as required by 10 C.F.R. 50.33, 50.47, 50.54 and Appendix E to Part 50.

Although the contention is very broadly stated so as to challenge the entirety of Applicant's emergency plans, Petitioner has supported it with six pages of specifics in its basis. Petitioner's Supplement at 30-35. Since the facility is not expected to be operational until at least 1988, the emergency plans are necessarily in an incipient stage, notwithstanding that the WNP-2 plans are nearing completion. Consequently, Applicant and Staff challenge Petitioner's specific allegations with regard to insufficiencies in the plan as being premature. Staff opines that Petitioner will have an opportunity to raise contentions at a later date after the state and local plans are filed. Staff's Response at 25. At the time of Staff's response, only the Appeal Board had spoken to the matter of filing late contentions, in *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460 (1982). The Appeal Board held that licensing boards have no authority to admit a contention conditionally that falls short of meeting the specificity requirements because of the unavailability of relevant documents that make it impossible to assert a sufficiently specific contention. But, when the documents are issued, a reworded contention containing the required specifics could be admitted by the licensing board without a showing that the five-factor test had been satisfied. Since our prehearing conference, the Commission has stated its disagreement with the Appeal Board and asserted that any refiled contention would have to meet the five-factor test of 10 C.F.R. § 2.714(a)(1), if not timely filed, even if the specifics could not have been known earlier because the documents on which they were based had not yet been issued. *Catawba*, CLI-83-19, 17 NRC 1041 (1983).

Viewing Contention 19 in the context of the Commission's ruling, we cannot dismiss it so lightly on the understanding that a revised contention would be accepted at some later date. We must examine the contention closely at this point to see whether it meets the specificity requirements even while we acknowledge that the specifics of Applicant's emergency plans will necessarily change before the issue is close to an evidentiary hearing. With that in mind, we find that the six pages of specifics raised by Petitioner as its basis (and the emergency planning matter raised in the basis to Contention 18) are certainly adequate to support the contention at this time. If the specifics change while the emergency plans evolve, Petitioner will be required during the prehearing stages of this proceeding to refocus its concerns.

In its basis, Petitioner has questioned, *inter alia*, the propriety of not including the City of Richland, the nearest part of which is 12 miles away, in the 10-mile emergency planning zone (EPZ) by using an exact 10-mile radius. Petitioner's Supplement at 32. Although Applicant (Applicant's Response at 60) and Staff (Staff's Response at 26) object to

enlarging the EPZ as a challenge to the regulations (10 C.F.R. § 50.47(c)(2)), Staff could not rule out a variation in the zone's 10-mile radius to 12 miles at some location as being a challenge to the regulations. See discussion at Tr. 247-56. Under 10 C.F.R. § 50.47(c)(2) the exact size and configuration of the EPZ (of "about 10 miles") may be affected by conditions such as demography, topography, land characteristics, access routes and jurisdictional boundaries. We would not hold the contention to be inadmissible at this juncture with regard to the 12 miles, but would require that Petitioner prove at the evidentiary hearing that special circumstances require varying the 10-mile zone to include the City of Richland.

The contention is *admitted*.

## **Contention 20**

As originally submitted in Petitioner's Supplement to Request for Hearing (at 35), Contention 20 is stated as follows:

Petitioner contends that there is no reasonable assurance that WNP-1 will be completed on a timely basis and that the project has not been constructed "in conformity with the construction permit and the application as amended, the provisions of the Act, and the rules and regulations of the Commission" as required by 10 C.F.R. Part 2, Appendix A, VIII(b)(1). Numerous deficiencies, both known and unknown, exist in the construction of WNP-1 such that its operation would cause an undue risk to the public health and safety. The halt in construction, in addition to the previously existing delays, will prevent completion of the project on a timely basis. Continued conformance with the construction permit by Applicant is unlikely due to inadequate measures at the present and into the future, taken to protect the portions of the plant that are already built and the systems that are already installed.

However, at the prehearing conference, Petitioner reworded the contention, as follows (Tr. 260-61):

Petitioner contends that there is no reasonable assurance that construction of WNP-1 has been substantially completed in conformity with the construction permit and the application, as amended, provisions of the Act and Rules and Regulations of the Commission, as required by 10 C.F.R. 50.57, ¶ 1.

The discussion of Contention 20 (Tr. 260-76) indicated that it had been rewritten by Petitioner in consultation with the Staff and perhaps Applicant. Petitioner intended to separate more clearly the issues of Contention 5 from Contention 20: Contention 5 was intended to question the adequacy of Applicant's quality assurance/quality control program in light of alleged deficiencies with the QA/QC program during construction; Contention 20 was intended to question the safety of the

plant because of construction defects, some of which may have arisen because of an inadequate QA/QC program during construction.

Even as rewritten, however, Staff and Applicant object to the contention, primarily upon the grounds that it is too broad and vague, that it would open for litigation every conceivable item of construction, and that Applicant would be unfairly put to the burden of demonstrating that it meets all of the requirements of the regulations without being on notice as to what it must demonstrate in order to meet those requirements. Staff has no objection to admitting the contention provided it is limited to the construction defects concerning WNP-1 that were mentioned in the underlying basis (and in the basis to Contention 5, which Petitioner cross-referenced to Contention 20). In the basis to Contention 20, there were questions raised with regard to welding, electrical cable installations, the use of unqualified personnel, and the use of drugs among construction workers. In the basis to Contention 5, an inspection report for WNP-1 was mentioned, covering the welding of skewed joints of piping support structural steel. In addition, in Contention 20 Petitioner questioned the adequacy and propriety of "mothballing" or otherwise attempting to preserve the plant during the hiatus in construction, which Petitioner contended would result in additional construction defects.

Although Petitioner resisted limiting the contention to the specific matters covered in their bases to Contentions 5 and 20, and claimed to offer those items only as examples, we agree with Staff and Applicant that it would be inappropriate to permit Petitioner to expand its "shopping list" of construction defects under its broadly worded contention. We would therefore limit the contention to the specifics mentioned, including unnamed construction defects that may result from Applicant's method of preserving the construction, a procedure which Petitioner contends should not be permitted in the first instance. That aspect of this contention will, of course, be litigated after construction resumes, at which time Petitioner will be required to specify the complained of construction defects.

The contention is *admitted* as limited by the discussion above.

## II. FURTHER SCHEDULING

At the special prehearing conference, the Board asked the parties to submit briefs on further scheduling in view of the fact that Applicant had announced a suspension of construction of the facility for up to five years. Tr. 225-32. Applicant's position was that there should be no deferral of this proceeding because the areas of concern raised by Petitioner

are now ripe for resolution. Applicant's Memorandum on Scheduling at 7-10.

Staff informed the Board that, due to the announced delays in construction, Staff was proceeding on a "manpower available" basis, pursuant to which it is reviewing only those portions of the WNP-1 operating license application which parallel other current applications of similar design or with similar features. Staff's Position on Timetable at 3. Under these circumstances, Staff continued, it would be premature and unproductive to schedule any further proceedings until the Board satisfies itself that certain issues are ripe for adjudication. Staff felt that proceeding with discovery would be largely unproductive; might require substantial supplementation at later stages of the proceeding; and would be burdensome to the Staff because Staff does not currently have extra manpower available to devote to the review of WNP-1. *Id.* at 3-4.

Staff suggested that, upon its informing the Board and the parties of its completion of review of certain contested issues, the Board could then set a schedule for discovery, summary disposition and hearing on these limited issues. Litigation of the remaining contested issues would await the resumption of construction activities at WNP-1. Staff further proposed that the Board direct the Applicant to keep the Board and the parties informed, quarterly, as to the status of construction at the plant. *Ibid.*

Petitioner's position generally paralleled that of Staff in requesting that the proceeding be deferred at this time. Among other things, Petitioner opposed having to commit its limited resources to litigating issues that might have to be relitigated, or to discovery that might have to be supplemented, to arrive at findings that are unlikely to retain their validity in light of expected advances in the technology of nuclear power engineering and associated scientific fields. *See* Petitioner's Position on Scheduling at 3-6. Petitioner went further than Staff in requesting that the entire proceeding be suspended until construction is restarted.

All of the parties relied upon *Potomac Electric Power Co.* (Douglas Point Nuclear Generating Station, Units 1 and 2), ALAB-277, 1 NRC 539 (1975) to support their respective positions on either deferring the proceeding or continuing with it. In that case, the Appeal Board indicated (at 547), that among the principal factors to be taken into account in deciding whether to hear the issues during suspension of construction are:

- (1) the degree of likelihood that any early findings on the issue(s) would retain their validity; (2) the advantage, if any, to the public interest and to the litigants in having an early, if not necessarily conclusive, resolution of the issue(s); and (3) the extent to which the hearing of the issue(s) at an early stage would, particularly if the

issue(s) were later reopened because of supervening developments, occasion prejudice to one or more of the litigants.

In *Douglas Point*, the Licensing Board had denied in its entirety the applicant's motion to proceed with evidentiary hearings on its construction permit application even though applicant had postponed construction for some years. Considerable effort had already been expended in trial preparation on a number of issues and certain of the parties (including Staff) had expressed concern that part of the fruits of that effort might be lost were a hearing on those issues to be postponed for a substantial period. *Id.* at 551. The Appeal Board suggested that, under the factors to be considered, certain of the site-related issues might appropriately be heard at that time, and directed the Licensing Board to reconsider its deferral of the proceeding in light of the views expressed by the Appeal Board.

In *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 2), ALAB-570, 10 NRC 679 (1979), the Appeal Board applied the principles it had enunciated in *Douglas Point* to decide to continue with an evidentiary hearing after a catastrophic accident had occurred to the plant. The hearing had been scheduled three weeks before the accident, to begin four weeks later. In accordance with an established schedule, the parties served and filed written testimony and Staff caused the issuance of subpoenas to prospective witnesses. After the accident occurred, the hearing was postponed indefinitely. In applying the *Douglas Point* principles, the Appeal Board decided to proceed with the evidentiary hearing.

In the instant proceeding, we are not concerned with site suitability issues, as in *Douglas Point*, or in concluding the evidentiary process with the culminating evidentiary hearing after all of the prehearing matters had been completed, as in *Three Mile Island*. The issues before us are, for the most part, ones that involve a nuclear technology that may advance rapidly during the hiatus in construction. Any discovery taken now would, in all likelihood, have to be supplemented at a later date. Moreover, Staff is not even prepared to participate in discovery because of its decision to conduct the review of the licensing application only on a "manpower available" basis.

Applying the *Douglas Point* factors in general to this proceeding, it is doubtful that many early findings on any of the issues would retain their validity; there would be little benefit to the public interest to having an early resolution on the issues; and, if the issues were later reopened because of supervening developments, the parties with the most limited resources would find it extremely difficult to redo their litigation efforts.

It appears to us that the wisest procedure is to defer discovery until, at least, Staff indicates that it has completed its review of an issue encompassed by the contentions. At *that* point, we would ascertain the views of the parties on whether to proceed with discovering and litigating that issue, taking into account the factors discussed in *Douglas Point*. We wish to be informed, as Staff proposed (Staff Position on Timetable at 4), of the status of construction at the plant by means of quarterly reports from Applicant to the Board and parties setting forth in summary fashion the progress, if any, in construction at the plant and any anticipated near-term change in status of construction activity.

## ORDER

For all of the foregoing reasons and based upon a consideration of the entire record in this proceeding, it is, this 14th day of October 1983,

### ORDERED

- (1) That CSP's Contentions 4, 5, 6, 10, 12, 13 and 19 are *admitted*;
- (2) That CSP's Contentions 2, 11, 14, 16, 17, 18 and 20 are *admitted as limited* above;
- (3) That CSP's Contentions 1, 3, 7 and 9 are *denied*;
- (4) That CSP is *admitted* as an Intervenor in the proceeding;
- (5) That the proceeding is held in abeyance;
- (6) That Staff notify the Board and the parties when it has completed its review of any issues covered by the admitted contentions;
- (7) That the Applicant file quarterly reports, with the first one due by January 1, 1984, regarding construction activities at WNP-1 as discussed above; and
- (8) That any party opposing the admission of CSP shall have until ten (10) days after service of this Order, pursuant to 10 C.F.R. § 2.714a, to appeal this order and any prior orders of the Board relating to standing which led to the admission of CSP.

FOR THE ATOMIC SAFETY AND  
LICENSING BOARD

Herbert Grossman, Chairman  
ADMINISTRATIVE JUDGE

Bethesda, Maryland  
October 14, 1983

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. 80-444-05-OL)  
(Proposed Renewal of  
Facility License)**

**THE REGENTS OF THE UNIVERSITY  
OF CALIFORNIA  
(UCLA Research Reactor)**

**October 24, 1983**

The Licensing Board rules on Staff's Motion for Reconsideration of LBP-83-25A. The Board reverses that portion of its ruling which held that sealed plutonium-beryllium neutron sources are to be considered for purposes of determining whether a formula quantity of strategic special nuclear material exists for purposes of 10 C.F.R. § 73.60. Staff's Motion is denied in all other respects.

**SECURITY PLAN: 10 C.F.R. § 73.60 DETERMINATION**

The republished version of a proposed amendment to Part 73 (48 Fed. Reg. 34,056 (1983)) indicates that the Commission intends that the § 73.67(b)(1)(ii) exemption for plutonium-beryllium neutron source be included in § 73.60.



## **MEMORANDUM AND ORDER**

**(Ruling on Staff's Motion for Reconsideration -- Contention XX)**

The Committee to Bridge the Gap (CBG) has advanced Contention XX which challenges UCLA's security measures for the Nuclear Energy Laboratory (NEL). Contention XX asserts that UCLA is taking inadequate fixed site physical security precautions to protect against radiological sabotage as well as against theft and diversion of special nuclear materials. The Contention alleges that UCLA must comply with 10 C.F.R. §§ 73.60 and 73.67.

In its motion for summary disposition of this contention, Staff took the position that UCLA is only required to comply with 10 C.F.R. § 73.67, and that consequently UCLA need not comply with 10 C.F.R. § 73.60 or take measures to protect against radiological sabotage.

In our Memorandum and Order ruling on Staff's Motion (LBP-83-25A, 17 NRC 927 (1983)), we held that UCLA must comply with 10 C.F.R. § 73.60 and must take measures to protect against radiological sabotage. Our Memorandum and Order specifically permitted motions for reconsideration of these holdings. Staff so moved on August 15; UCLA supported Staff's Motion on August 25, and CBG opposed it on September 12, 1983.

In LBP-83-25A, we also noted that it was impossible to determine from the papers precisely how much special nuclear material is on hand at the NEL. Consequently, we directed Staff to inventory the material and report its findings. Staff filed reports on this matter on July 12 and 28. CBG commented on these reports on August 30, and UCLA responded to CBG's comments on September 9, 1983.

### **THE AMOUNT OF SPECIAL NUCLEAR MATERIAL ON HAND AT THE NEL**

Because the amount of SNM on hand at the NEL is a threshold question, we deal with it first. None of the parties dispute the proposition that the presence of a formula quantity of strategic special nuclear material (SSNM) requires compliance with 10 C.F.R. §§ 73.40 and 73.60. Contention XX takes the position that UCLA must comply with these provisions of the regulations. CBG questions whether Staff's inventory of the SNM on hand at the NEL provides a sufficient factual basis on which to resolve the matter.

Following its inventory, Staff reported that there are 4921.13 g U-235 and 32 g plutonium on hand at the NEL pursuant to the facility

operating license (R-71), 32 g plutonium under license SNM-974, and another 32 g plutonium under state license 1335-70. Each of the 32-g quantities of plutonium is incorporated in a plutonium-beryllium neutron source. One of these sources is located in the NEL, one in the Cs-137 calibration source building, and one in Kundsens Hall.

Staff physically inventoried the fresh fuel at the NEL and identified the irradiated fuel in the reactor through source documents. Fuel fabricator's data were used to determine the total weight of U-235 contained. (See Inspection Report 50-142/83-02, 70-223/83-01 attached to Staff Counsel's letter to the Board of July 28, 1983 for details.)

CBG questions this inventory. CBG points out that the Staff's inventory of fresh fuel plates indicates that the average quantity of U-235 per plate is 14.04 g. Multiplying this figure by the number of fuel plates in the reactor core and subtracting for burn-up of U-235 indicates that there are 3683.56 g U-235 in the core, or 152.39 g more than reported by Staff. Totalling this figure for U-235 in the core with the total for fresh fuel indicates that there are more than 5000 g U-235 at the NEL.

CBG also points out that information furnished by Staff on March 29, 1983 concerning shipments of fresh fuel offsite by UCLA yields even higher average concentrations of U-235 per fuel plate. (See CBG's Response and Comment of August 30, 1983 for details.)

UCLA responded to these comments by indicating the precise U-235 content of the fuel assemblies in question as well as of those shipped offsite. UCLA has done this by reference to the so-called "Exhibit G" inventory. The Exhibit G inventory was prepared by the UCLA staff and was apparently submitted to NRC on December 12, 1974. It was attached to CBG's February 8, 1983 supplemental response to Staff's motion for summary disposition of this contention. UCLA has again submitted it as an attachment to the instant response and has annotated it with explanatory notations prepared by Mr. Ostrander. (See UCLA's response of September 9, 1983 for details.)

The Exhibit G inventory of fresh fuel, as annotated, agrees with the Staff's inventory precisely. The Exhibit G inventory of irradiated fuel is 25.3 g higher than the Staff's inventory, a difference which indicates that Staff took account of fuel burn-up, while the Exhibit G inventory expressly did not. In any event, the higher Exhibit G figure, when added to the fresh fuel inventory, yields 4946.43 g U-235, compared with 4921.13 g U-235 reported by Staff. We also note that the figure reported by Staff for U-235 shipped offsite on July 21, 1982 agrees with Mr. Ostrander's annotations on Exhibit G.

We are thus prepared to accept the Staff's inventory as confirmed by Mr. Ostrander's annotations on Exhibit G. These inventories demonstrate that there is no genuine issue as to any material fact concerning the inventory of SNM at UCLA. 10 C.F.R. § 2.749(d).

Unfortunately, this result does not resolve the question whether UCLA must comply with 10 C.F.R. § 73.60. This provision of the regulations requires that specific safeguards be implemented by non-power reactor licensees who possess a formula quantity of SSNM. If any of the Pu-Be neutron sources must be included in determining whether a formula quantity exists at the NEL, the total quantity of material will exceed 5000 g. This is because, under the formula, the 32 g of plutonium must be multiplied by 2.5, yielding 80. When this figure is added to the 4921 g of U-235, the result is 5001. (See LBP-83-25A, 17 NRC at 929.) Consequently, we must address Staff's motion for reconsideration of Part B of LBP-83-25A in which we held that the plutonium must be included.

#### THE APPLICABILITY OF 10 C.F.R. § 73.60

In LBP-83-25A, we held that UCLA must comply with 10 C.F.R. § 73.60. We based our holding on the presence at the NEL of the Pu-Be neutron source, holding that it must be included in the computation to determine whether a formula quantity of SNM is present.

In so holding, we noted that § 73.60 incorporates § 73.67(a), (b), (c), and (d) and that § 73.67(b)(1)(ii) provides an exception for Pu-Be neutron sources. However, we also noted that the exception for fuel which is self-protecting (*i.e.*, which emits more than 100 rems per hour, unshielded, at a distance of three feet) which is stated in § 73.67(b)(1)(i) is also stated in § 73.60. This is not the case for the Pu-Be neutron source exemption. We also noted that, in adopting the exemption for Pu-Be neutron sources, the Commission was dealing with the protection which should be afforded SNM of moderate and low strategic significance. When the Commission addressed itself to formula quantities of SSNM, it specifically adopted the self-protection exemption and made no mention of the Pu-Be source exemption. This led us to conclude that the Commission intended that these sources be included in computations under § 73.60 to determine whether a formula quantity of SSNM was on hand, but at the same time granted them an exemption for purposes of the protection requirements mandated for SNM of moderate and low strategic significance. (See LBP-83-25A, 17 NRC at 936-37.)

Staff asserts, and UCLA concurs, that we erred. Staff's position is that the § 73.67(b)(1)(ii) exception is specifically incorporated in § 73.60, that the enumeration of the exemption for self-protecting material in § 73.60 is merely redundant, and that the Board's interpretation results in an inconsistency in that it results in the conclusion that UCLA's material amounts to both a formula quantity of SSNM and SNM of moderate strategic significance. Staff asserts that, once exempted for purposes of one level of protection, their sources must be exempted for all levels.

Staff cites the Statement of Considerations (44 Fed. Reg. 43,280 at 43,281 (1979)) accompanying the promulgation of § 73.67 as authority for the proposition that Pu-Be neutron sources "have been exempted for all licensees because of their lack of significance for safeguards concerns." (Staff Petition at 6.) We believe Staff gives too broad a reading to this statement. First of all, we must point out that the Statement, because it accompanies § 73.67, applies only to SNM of moderate and low strategic significance. Second, the exemption contained in § 73.67 for Pu-Be neutron sources does not eliminate them from the definitions of "special nuclear material of moderate strategic significance" (§ 73.2[x]), "special nuclear material of low strategic significance" (§ 73.2[y]), "strategic special nuclear material" (§ 73.2[aa]), or "formula quantity" (§ 73.2[bb]). Rather, it exempts them from the protection requirements of § 73.67 only. The portion of the Statement of Considerations quoted by Staff says no more than this.

CBG takes the position that our interpretation of §§ 73.60 and 73.67 is entirely consistent with the Commission's policy enunciated in Part 73. CBG points out that it is reasonable to exempt Pu-Be neutron sources from the protection requirements of § 73.67, but to include them within the protection requirements of § 73.60. CBG bases this position on the proposition that licensees possessing SNM of low and moderate strategic significance are not targets for adversaries wishing to divert SNM. Thus the exemption does not run afoul of the need to protect the health and safety of the public and the common defense and security.

Where a licensee possesses a formula quantity of SSNM, CBG sees a need to protect Pu-Be sources. Such a licensee, according to CBG, could well be a target for adversaries and thus it is necessary to protect Pu-Be neutron sources. CBG relies on SECY-79-38, which was attached to the Staff's petition, as authority for its position.

We grant Staff's petition with respect to this point. Sections 73.60 and 73.67 are far from clear and the applicable statements of considerations furnish little or no guidance. Although we find Staff's position that § 73.60 incorporates the § 73.67(b)(1)(ii) exemption and that its

repetition of the § 73.67(b)(1)(i) exemption must be viewed as simply redundant as no more persuasive than our contrary interpretation in LBP-83-25A, we are guided by the clear inferences of the Commission's interpretation of these sections furnished by the proposed amendments to these sections.

In LBP-83-25A, we pointed out that a proposed amendment to Part 73 which would eliminate § 73.60 and set out protection requirements for formula quantities of SSNM in § 73.67 was consistent with the Staff's position. (See LBP-83-25A, 17 NRC 937; 46 Fed. Reg. 46,333 (1981).) Subsequent to the issuance of LBP-83-25A, the Commission republished that proposal for comment. (48 Fed. Reg. 34,056 (1983).) The republished revision retains the treatment for Pu-Be neutron sources contained in the original version. It is thus clear that the Commission intends to adopt this treatment. We note that the republished proposal does not indicate that any comments were received with respect to this treatment.

Whatever the merits of CBG's position that the interpretation of §§ 73.60 and 73.67 in LBP-83-25A was mandated by Commission policy may be, the Commission has not seen fit to comment upon this interpretation in the course of publishing two proposals which would change it. Thus it seems clear that the Commission did not share that interpretation when it promulgated § 73.60. Had the Commission viewed §§ 73.60 and 73.67 as we did, it certainly would have indicated that the proposed amendments would make a change in that interpretation. Consequently, we must reverse our earlier ruling on this point.

## THE NEED TO PROTECT AGAINST SABOTAGE

In LBP-83-25A, we held that the general requirements of 10 C.F.R. § 73.40(a) require that UCLA take some measures to protect against sabotage. In so holding, we noted that there are no requirements in Part 73 which specify the precise measures to be taken by licensees possessing less than a formula quantity of SSNM. Nonetheless, our review of the history of amendments to Part 73 disclosed no basis to conclude that the Commission had in any way abrogated the universal sweep of § 73.40(a) or the Appeal Board's holding in *Trustees of Columbia University*, ALAB-3, 4 AEC 349 (1970). Indeed, at one time the Commission appeared to reaffirm that holding when it noted, in response to comments on a proposal to amend Part 73 that "[c]overage for research reactors having less than the formula quantity of strategic special nuclear

material would continue . . . under § 73.40.” (See LBP-83-25A, 17 NRC at 941; 43 Fed. Reg. at 35,235.)

Again Staff takes the position that we erred, and UCLA concurs. CBG supports our ruling.

First, Staff points to the second sentence of § 73.40(a) which states that “[p]hysical security systems shall be established and maintained by the licensee in accordance with security plans approved by the Nuclear Regulatory Commission.” Staff notes that it has approved UCLA’s physical security plan. Although it does not say so, the inference must be drawn that Staff believes this somehow insulates the sabotage question from further inquiry. Obviously, this does not square with the hearing requirements of § 189 of the Atomic Energy Act. CBG is entitled to question the propriety of Staff’s approval.

Second, Staff maintains that our interpretation of § 73.40(a) is contradictory because of the fact that § 73.67 contains specific physical security requirements applicable to UCLA. Staff sees our holding that, even in the absence of specific requirements pertaining to sabotage, § 73.40(a) lays down a general requirement to be addressed on an *ad hoc* basis as somehow contradicting the specific requirements of § 73.67. This argument appears to assert that § 73.67 has somehow “occupied the field” and repealed § 73.40 to the extent that the latter section is inconsistent. We are not prepared to accept this argument. Had the Commission so intended, it could easily have abrogated § 73.40 to the extent necessary to achieve this result when it promulgated § 73.67. Its failure to do so, when coupled with its recognition of the general requirements of § 73.40 cited above, leads to the contrary conclusion.

In connection with this argument, Staff also asserts that § 73.67 may not be viewed as specifying the general requirement of § 73.40 that licensees must take steps to protect against theft. To make this argument, Staff draws a distinction between *detection of theft*, required by § 73.67, and *protection against theft*, required by § 73.40. We are not prepared to draw the conclusion that theft is permissible under the rules so long as one knows it has occurred. We view detection as one aspect of protection against theft, an aspect which the Commission has decided provides sufficient protection in this case.

Third, Staff points out that it has studied the potential problem of sabotage at nonpower reactors and concluded that “no significant consequences would result from sabotage of the Argonaut-UTR.” (Staff Petition at 13). If this is so, Staff should take appropriate steps to obtain Commission approval of an amendment exempting Argonaut-UTRs from the protection-against-sabotage requirements of § 73.40.

Finally, Staff takes the position that the promulgation of § 73.67 abrogates the holding in *Columbia University, supra*, because, when that decision was rendered, no applicable safeguards regulations existed. We view § 73.67 as setting out the specific protective measures against theft which are required by § 73.40(a). However, no such specific measures have been promulgated with respect to sabotage. To that extent, we view the *Columbia University* holding as binding. Consequently we adhere to our ruling set out in § E of LBP-83-25A.

## **PROPRIETY OF THE DENIAL OF SUMMARY DISPOSITION**

Staff takes the position that we erred in denying its summary disposition motion because we did not rule on the specifics of Contention XX. We denied the motion because, aside from the question regarding the amount of SNM on hand at the NEL, we viewed our ruling that UCLA must comply with §§ 73.60 and 73.67 as requiring that result. No party contends that UCLA meets the standards of both those regulations.

Our reversal of that ruling puts the matter on a different footing. We are inclined to agree with Staff's characterization of Contention XX to the extent that it views the contention as arguing for higher standards of protection than those set out in § 73.67. However, during the forthcoming evidentiary hearing, set to commence November 29, we will wish to hear the positions of the parties with regard to what portions of Contention XX, in addition to those pertaining to sabotage, remain in controversy. In this connection, we note that LBP-83-25A only addressed those issues raised by Staff's motion which could be addressed without access to sensitive information and which, when resolved, could influence the scope of further proceedings on this matter. Pending argument, we will withhold our ruling on this portion of Staff's petition.

## **ORDER**

In consideration of all of the foregoing, it is this 20th day of October 1983,

### **ORDERED**

1. Staff's petition for reconsideration of § B of LBP-83-25A is granted and that section is vacated;
2. Staff's petition for reconsideration of § E of LBP-83-25A is denied;

3. A ruling on Staff's petition for reconsideration of our denial of its motion for summary disposition is held in abeyance pending argument; and
4. CBG's objections to Staff's inventory of SNM at the NEL are denied.

**THE ATOMIC SAFETY AND  
LICENSING BOARD**

**Dr. Emmeth A. Luebke  
ADMINISTRATIVE JUDGE**

**Glenn O. Bright  
ADMINISTRATIVE JUDGE**

**John H Frye, III, Chairman  
ADMINISTRATIVE JUDGE**

**Dated at Bethesda, Maryland,  
this 24th day of October 1983.**



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

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

In the Matter of

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

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

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

October 24, 1983

In this issuance the Licensing Board reports its findings and recommendations addressing seven questions originally presented by the Commission and related contentions proffered by Intervenors. The Board concludes that with the implementation of certain safety improvements recommended by it, Indian Point Units 2 and 3 may operate with reasonable assurance that the public health and safety will be protected.

**RISK ASSESSMENT**

Risk estimates based on the Maximum Likelihood Principle are more realistic and less intuitive than those obtained using Bayes' Theorem.

## **RISK ASSESSMENT**

Risk estimates for an existing multiple-plant site are appropriately expressed as the combined risk from all units, *i.e.*, a per-site-year rather than a per-reactor-year risk.

## **RISK ASSESSMENT**

In assessing societal risk, the Board recommends that the Commission consider not only expected risks, defined as the arithmetical product of probability and consequences, but also the absolute value of the consequences. It may be desirable to require the expected risk value to decrease for low-probability, high-consequence accidents.

## **RISK ASSESSMENT**

In assessing overall societal risk from the operation of the Indian Point plants, the Commission should consider not only the expected annual risk obtained by multiplying probability per year times consequences but also the cumulative risk to the population of continued plant operation.

## **FILTERED, VENTED CONTAINMENT SYSTEMS**

It appears that filtered, vented containment systems and separate containment systems are costly and ineffective safety measures at present.

## **EMERGENCY PLANNING**

The fears that emergency workers will not respond to a radiological emergency and that the general public will not comply with instructions are unwarranted provided proper training and improved planning can be implemented.

## **EMERGENCY PLANNING: POTASSIUM IODIDE (KI)**

The evidence in support of the predistribution of potassium iodide to the public does not outweigh the medical risk of its possible misuse. Potassium iodide should be stockpiled for use by emergency workers and persons who cannot be evacuated.

## RISK ASSESSMENT

Because so few comprehensive probabilistic risk assessments have been made to date, and because those probabilistic risk assessments that have been made lack comparability, there does not exist a body of statistics upon which dependable risk comparisons of different plants can be based.

## SYLLABUS

The following Opinion addresses the results of the Indian Point Special Proceeding and comprises the findings, conclusions, and recommendations of this Atomic Safety and Licensing Board. The Board was convened to address seven Commission Questions. After extensive hearings on these questions and concomitant contentions, the Board concludes and recommends as follows:

### Commission Question 1, Contention 1.1, and Board Question 1.1

#### Commission Question 1 asks:

What risk may be posed by serious accidents at Indian Point 2 and 3, including accidents not considered in the plants' design basis, pending and after any improvements described in (2) and (4) below?

#### Contention 1.1 states:

The probabilities and consequences of accidents at Indian Point Units 2 and 3 combine to produce high risks of health and property damage not only within the plume exposure EPZ but also beyond the plume exposure EPZ as far as the New York City metropolitan area.

#### Board Question 1.1 asks:

What are the consequences of serious accidents at Indian Point and what is the probability of occurrence of such accidents? In answering this question the parties shall address at least the following documents: (a) the *Indian Point Probabilistic Safety Study* (IPPSS) prepared by the Licensees; (b) the Sandia Laboratory "Letter Report on Review and Evaluation of the Indian Point Probabilistic Safety Study" (Letter Report), dated August 25, 1982; and (c) any other reviews or studies of the IPPSS prepared by or for the Licensees, the NRC Staff, or the Intervenor, or any other document which addresses the accuracy of the IPPSS.

The Board adopted risk estimates calculated by the NRC Staff/Sandia National Laboratory rather than those obtained in the Indian Point Probabilistic Safety Study (IPPSS) because (1) the Board considers estimates obtained based on the Maximum Likelihood Principle more realistic and less intuitive than those obtained using Bayes' Theorem, and (2) the Board found the Staff/Sandia modeling to more closely represent the Indian Point plants than the IPPSS modeling.

From the Staff/Sandia estimates, the Board found the risk of fatalities from an accident at Indian Point (including early fatalities and those from latent cancers) to be at least  $3.5 \times 10^{-1}$  person per site year, and the risk of injuries to be at least about  $1.3 \times 10^{-1}$  person per site year. These risks are a very small fraction of the competing non-nuclear background risks to which the population around Indian Point is exposed. The financial risk of continued operation of Indian Point 2 and 3 is at least \$6 million per year. The cumulative risk to society of operating both plants until expiration of their current operating licenses includes between about one-half to one early fatality, about eight fatalities from latent cancers, and about \$139 million. These risks will be incurred mainly by the population of about 15.5 million people who live within 50 miles of Indian Point. The Board recommends that the Commission consider not only these risk estimates, obtained from multiplying the consequences of serious accidents by their conditional probabilities, but also the cumulative risk to the population in the vicinity of the plant that will result from the operation of Units 2 and 3 for the remainder of their licensed lifetimes. Furthermore, the Board recommends that the Commission factor into its deliberations the potential consequences of a low-probability accident at Indian Point (as we would suggest for Zion, Limerick, and Salem) as well as the expected risk values accepted in the Opinion; the Board believes such considerations weigh in favor of adopting the measures we recommend for improving safety at Indian Point.\*

## Board Question 1.2

Board Question 1.2 asks:

What bearing, if any, do the results reported in NUREG/CR-2497, "Precursors to Potential Severe Core Damage Accidents: 1969-79, A Status Report" (1982), have upon the reliability of the IPPSS?

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\*See Dissenting Opinion, p. 865.

The Board finds that the results of the Precursor Study do not suggest deficiencies in the IPPSS.

### **Board Question 1.3**

Board Question 1.3 asks:

What are the probabilities associated with the consequences presented in the testimony of Dr. Beyea and Mr. Palenik?

Intervenors' witnesses Brian Palenik and Dr. Jan Beyea estimated the consequences of a catastrophic accident at Indian Point under meteorological conditions that would carry radioactive material to New York City without assessing the probability of these consequences. They estimated that there could be 6,000 to 50,000 delayed cancer deaths from such an accident. Staff provided probability estimates of  $1 \times 10^{-5}$  for Unit 2 and  $5 \times 10^{-6}$  for Unit 3 applicable to the lower fatality figure, and  $1 \times 10^{-9}$  for Unit 2 and  $1 \times 10^{-9}$  for Unit 3 applicable to the higher fatality figure. Licensees offered estimates that could not be compared, and the Intervenors offered none. Using Staff's per-reactor-year estimates, we calculated a per-site-year probability of  $1.5 \times 10^{-5}$  of 6,000 fatalities (early deaths plus latent cancer deaths) resulting from a serious accident at Indian Point. The probability figures have little probative value because they are based on assumptions that are very different from those used by Palenik and Beyea, but they suggest that the probability of several thousand fatalities resulting from a severe accident at Indian Point may be on the order of one in a hundred thousand.

### **Board Question 1.4**

Board Question 1.4 asks:

What risk to public health and safety is presented by the Indian Point plants through a chain of events including pressurized thermal shock to the reactor pressure vessels?

The Board finds that the probability of a core melt sequence due to pressurized thermal shock is very low — orders of magnitude below the total probability of a core melt sequence at Indian Point.

## **Commission Question 2**

**Commission Question 2 asks:**

What improvements in the level of safety will result from measures required or referenced in the Director's Order to the licensee, dated February 11, 1980?

The Board finds that the measures required or referenced by the Director's Order had a small, positive effect on risk reduction; and that the effect is not amenable to quantification, but is probably considerably less than an order of magnitude.

The Board also finds that the design changes studied by the Staff, changes proposed in addition to those in the Director's Order, are not warranted. We do, however, recommend that the Commission require the Licensees to develop and implement the Staff's proposed Safety Assurance Program, similar to that set forth in this report, under the advice, consent, and oversight of the NRC Staff.

Finally, the Board recommends that the Commission direct the Staff to investigate thoroughly whether Indian Point 2 should be required to take appropriate protective action if the National Weather Service issues a tornado watch or a tornado warning for the Indian Point area.

### **Contentions 2.1(a) and 2.1(d)**

**Contention 2.1(a) states:**

A filtered vented containment system for each unit must be installed.

**Contention 2.1(d) states:**

A separate containment structure must be provided into which excess pressure from accidents and transients can be relieved without necessitating releases to the environment, thereby reducing the risk of containment failure by overpressurization.

The Board finds that installation of a filtered vented containment system or a separate containment system is not needed at this time. The Board notes that the Commission's Proposed Policy Statement on Severe Accidents may stimulate further evaluation of such systems as these and urges reexamination of this conclusion in the light of future developments.

## **Contention 2.2(a)**

**Contention 2.2(a) states:**

The cooling system at the plants should be changed so that it no longer uses brackish Hudson River water. This change is needed to combat safety-related corrosion problems.

The Board does not believe that any appreciable increase in safety could be realized by retrofitting a closed, purified water cooling system to these plants. The leakage already experienced seems to have been the result of faulty construction and design. The steps taken to preclude further leakage and to cope with it should it occur despite precautions appear to be adequate.

### **Board Question 2.2.1**

**Board Question 2.2.1 asks:**

Should any of the requirements proposed at the July 29, 1982, meeting of the NRC Staff and members of the SGOG be required for Indian Point Units 2 and/or 3, considering the risk of a steam generator tube rupture in this high population area?

The Board concludes that a loose parts monitoring system should be installed at Indian Point Unit 3 and that Indian Point Unit 2 should be required to conform to the proposed Standard Technical Specification limit for primary system radioiodine.

### **Commission Question 3 and Contention 3.1**

**Commission Question 3 asks:**

What is the current status and degree of conformance with NRC/FEMA guidelines of state and local emergency planning within a 10-mile radius of the site and, of the extent that it is relevant to risks posed by the two plants, beyond a 10-mile radius?

**Contention 3.1 states:**

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

As of the close of the record, emergency planning at Indian Point was inadequate in that the present plans did not meet several of the 16

mandatory standards of 10 C.F.R. § 50.47(b) and were not in conformance with NRC/FEMA guidelines. Planning and preparedness in Rockland County was generally deficient. In Westchester County, public information brochures were not distributed, letters of agreement for bus drivers were not executed, and insufficient attention was given to the identification of the non-institutionalized, mobility-impaired populace and the assessment of their needs. In Westchester, Putnam, and Orange Counties, insufficient attention was given to protective actions during a severe winter storm, plans for protecting schoolchildren were not finalized, and training of emergency workers was inadequate. In addition, letters of agreement with reception and congregate care facilities were not attached to the county emergency plans.

Several issues remain unresolved. The record is inconclusive with respect to the existence of or need for route alerting or other procedures in the event the siren system fails; the record is inconclusive with respect to the adequacy of communications with emergency workers; the record is inconclusive with respect to the adequacy of the State's protective response planning in the ingestion pathway EPZ; and the record is inconclusive with respect to the adequacy of provisions for disposal of contaminated wastewater.

### **Contention 3.2**

**Contention 3.2 states:**

The emergency plans for Indian Point Units 2 and 3 do not conform with NRC/FEMA guidelines because the assumptions made therein with respect to human response factors during a radiological emergency are erroneous. Hence, the estimates of evacuation times and of the feasibility of timely evacuation for certain areas are incorrect.

The human response assumptions made in the Indian Point emergency planning are reasonable if the emergency plans are completed and properly implemented.

### **Contention 3.3**

**Contention 3.3 states:**

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



Licensees' evacuation time estimates are based on acceptable, verified methodology, and on reasonable assumptions with respect to normal and moderately adverse weather conditions. The estimates do not cover severe winter storms, and the Board recommends that the adverse weather time estimate tables clearly state: (1) that they do not include the time necessary to clear roads; and (2) that the time to be added is the time necessary to clear *all* lanes of all roads.

### **Contention 3.4**

Contention 3.4 states:

The administrative control of notification procedures at Indian Point Units 2 and 3 is so deficient that the Licensees cannot be depended on to notify the proper authorities of an emergency promptly and accurately enough to assure effective response.

The Board finds that the administrative control of notification procedures for a radiological emergency at Indian Point Units 2 and 3 is adequate and meets the regulatory standards and criteria of the NRC.

### **Contention 3.6**

Contention 3.6 states:

The emergency plans and proposed protective actions do not adequately take into account meteorological conditions for Indian Point Units 2 and 3.

Testimony directed toward the meteorological monitoring capability of the Licensees indicated that sufficient monitoring equipment is available to enable Licensees to adequately predict plume pathway and movement in event of a serious accident at Indian Point; therefore Licensees should be able to adequately advise local officials so that appropriate protective actions can be initiated.

Emergency planning has taken into account adverse weather conditions that would include rain, fog, and slippery roadways. It has not, however, taken into account severe winter storms which may render roadways impassable for many hours. The Board recommends that the Commission direct the NRC Staff, in consultation with FEMA and local New York officials, to determine whether special emergency planning measures and protective actions should be in place to protect the public in the event of a serious accident during a severe winter storm.

### **Contention 3.7**

**Contention 3.7 states:**

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

The Board finds that the problems of evacuating children from areas threatened by radiological releases have not been adequately considered since evacuation procedures have not been finalized.

### **Contentions 3.9 and 4.2(d)**

**Contention 3.9 states:**

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

**Contention 4.2(d) states:**

The roadway network should be upgraded to permit successful evacuation of all residents in the EPZ before the plume arrival time.

The Board finds that the road system in Indian Point's EPZ is adequate and does not require upgrading since (1) the roadway network planning meets the criteria of NUREG-0654, (2) evacuation is feasible for the most likely release scenario, and (3) an adequate alternative protective response (sheltering) is feasible for the much rarer rapidly developing accident scenario.

### **Contention 3.10**

**Contention 3.10 states:**

The emergency plan fails to conform to NUREG-0654 in that, contrary to Evaluation Criterion IIJ.10.d, proper means for protecting persons whose mobility may be impaired have not been developed.

The Board finds that in Westchester and Rockland, planning for the non-institutionalized, mobility-impaired has not been seriously undertaken. A greater effort is needed to identify such persons and assess their needs.

## **Commission Question 4**

**Commission Question 4 asks:**

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

Improvements in the level of emergency planning have been communicated directly by FEMA to the Commission. Generally, improvements have been noted with exercises of the plans conducted by officials from New York State and local governments. It appears to the Board, however, that a Rockland County plan may not be forthcoming; therefore, the State will have to be looked to for compensating measures.

### **Contention 4.1**

**Contention 4.1 states:**

The plume exposure pathway EPZ should be expanded from its present 10-mile radius in order to meet local emergency needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries.

No convincing showing has been made that the Emergency Planning Zone (EPZ) of the Indian Point facilities need be expanded beyond its present 10-mile radius. However, in this area of high-density traffic, coordination of emergency evacuation planning with New York City officials could be of assistance in averting evacuation problems beyond the EPZ borders.

### **Contention 4.2(a), (b), and (c)**

**Contention 4.2 states in part:**

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

- a) Potassium iodide should be provided in an appropriate form for all residents in the EPZ.
- b) Adequate sheltering capability should be provided for all residents in the EPZ.
- c) License conditions should prohibit power operation of Units 2 and 3 when the roadway network becomes degraded because of adverse weather conditions.

No clear case has been documented to reverse the decision of New York State officials not to pre-distribute potassium iodide to the public

(4.2(a)); no convincing evidence has been submitted that sheltering capabilities in the EPZ should be provided beyond the capabilities already in existence (4.2(b)); and although a case has not been made for a shutdown of power operations where adverse weather conditions degrade the road network, there should be some consideration given to whether the emergency plans should be modified to provide for alerting the public at the site emergency level when adverse weather conditions are likely to degrade the evacuation routes within Indian Point's EPZ (4.2(c)).

### **Contention 4.7**

**Contention 4.7 states:**

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

The Board finds that this contention is in part valid. The Board recommends that a renewed effort be undertaken to communicate emergency planning information to those individuals with hearing or seeing disabilities, and that a back-up communication system for such people be investigated. Further, the Board recommends that an additional review of the non-English speaking population be undertaken by FEMA.

### **Commission Question 5**

**Commission Question 5 asks:**

Based on the foregoing, how do the risks posed by Indian Point Units 2 and 3 compare with the range of risks posed by other nuclear power plants licensed to operate by the Commission?

**The Board finds that:**

1. A severe release at Indian Point could have more serious consequences than that same release at virtually any other site licensed by the Commission.
2. The chance of a severe release here is probably no greater, and may be less, than elsewhere.
3. No truly reliable overall risk comparison, be it of expected value (mean value), CCDF, or other probabilistic standard, can be made between Indian Point and other plants in any comprehensive way. On the basis of risks involving only internally

initiated events it does not appear that the Indian Point plants present risks worse than those of other plants assessed. There are not enough studies involving externally initiated events to make a meaningful comparison from that standpoint. Unfortunately, it is the externally initiated risks which are the principal contributors at Indian Point. Thus, in a sense, the IPPSS appears to offer a pessimistic appraisal of Indian Point's risks when compared to the other PRAs which have been produced.

These considerations, we believe, weigh in favor of implementation of the measures recommended herein for improving safety at Indian Point.

### **Commission Question 6**

Commission Question 6 asks:

What would be the energy, environmental, economic or other consequences of a shutdown of Indian Point Unit 2 and/or Unit 3?

The Board finds that a shutdown of Indian Point's nuclear-powered facilities would not jeopardize New York State's energy requirements or its reserve margins provided the State has a low economic growth rate and also has implemented its planned 25-year generation and transmission program. However, a shutdown would necessitate the payment by electric ratepayers of a significant economic penalty which totals \$4-6 billion in present-day costs. This level of penalty would cost, for the next six years, an estimated increase to the customers of Consolidated Edison of approximately 2% annually and for the New York Power Authority's customers, approximately 13% annually. Although the Board is unable to accurately quantify indirect economic consequences of a shutdown, *i.e.*, business and employment losses, government service reductions or tax rate increases, it can conclude that the tax loss impact on governmental entities surrounding the Indian Point site would be substantial and highly significant to residents in the area. The Board also concludes that a closing of the facilities would produce no major environmental impact.

### **Contention 6.1**

Contention 6.1 states:

An economic consequence of the shutdown of Indian Point Units 2 and 3 would be an economic benefit accruing to Rockland County through the sale of replacement power.

The Board finds that the economic penalty which would result from a closing of Indian Point could not be mitigated by purchasing power from the Orange and Rockland Utility, Inc.

### **Contention 6.2**

Contention 6.2 states:

A benefit would accrue from the shutdown of Indian Point Units 2 and 3 because the environment of children in the vicinity would be improved by a decrease in the release of radioactive material.

The Board finds that environment of children residing in the vicinity of Indian Point would not be improved by a closing of its facilities.

### **Contention 6.3**

Contention 6.3 states:

Considering the savings in operating expense which would result from shutting down Indian Point Units 2 and 3, and allowing for the ways in which cogeneration and conservation can mitigate the costs of replacement power, the net costs of shut-down are small; in fact, they are smaller than previous studies by UCS, GAO, or Rand suggest, and are entirely acceptable.

The Board finds that there would not be a significant reduction in the economic penalty resulting from closing Indian Point's facilities through substituting a mass program of more energy efficient household appliances and small internal combustion power cogenerators.

### **Commission Question 7**

Commission Question 7 asks:

Does the Governor of the State of New York wish to express an official position with regard to the long-term operation of the units?

The Board invited the views of the Governor of New York, but he declined to reply.

### **Conclusion**

The Board believes the safety improvements it has recommended for Indian Point are necessary in order that the plants may operate with reasonable assurance that the public health and safety will be protected.

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## RECOMMENDATIONS TO THE COMMISSION

### Opinion

#### I. INTRODUCTION

##### A. Nature of the Proceeding

This Opinion addresses the results of the Indian Point Special Proceeding and comprises the recommendations of this Atomic Safety and Licensing Board. The proceeding was a discretionary adjudication, investigatory in nature, concerning the long-term safety of the Indian Point Station, Units 2 and 3.

Indian Point Units 2 and 3 are pressurized water reactors located on the east bank of the Hudson River in the Village of Buchanan, Westchester County, New York. The site is approximately 24 miles north of the New York City boundary line. Indian Point Unit 2 is owned

by Consolidated Edison Company of New York; it is designed to operate at a power level of approximately 2,758 megawatts thermal and to produce a net output of 873 megawatts of electricity. The construction permit for Unit 2 was issued on October 17, 1966, and an operating license for Unit 2 was authorized on September 25, 1973. *Consolidated Edison Co. of New York* (Indian Point Station, Unit No. 2), LBP-73-33, 6 AEC 751 (1973). Indian Point Unit 3 is owned by the Power Authority of the State of New York; it is designed to operate at a power level of 3025 megawatts thermal and to produce a net output of 965 megawatts of electricity. The construction permit for Unit 3 was issued on August 13, 1969, and an operating license for Unit 3 was authorized on June 12, 1975. *Consolidated Edison Co. of New York* (Indian Point Nuclear Generating Unit No. 3), LBP-75-31, 1 NRC 593 (1975). Both units are of similar design.

On September 17, 1979, the Union of Concerned Scientists (UCS) filed with the U.S. Nuclear Regulatory Commission (NRC) a petition requesting, *inter alia*, that the Commission suspend operation of Units 2 and 3 until certain safety issues were resolved.<sup>1</sup> UCS requested a hearing on those issues. On October 26, 1979, the Commission referred UCS's petition to the NRC Staff for resolution pursuant to 10 C.F.R. § 2.206. Notice was published in the *Federal Register* on November 23, 1979 (44 Fed. Reg. 67,251), and responses were received. Thereafter, on February 11, 1980, the Director of the Office of Nuclear Reactor Regulation denied that part of the UCS petition requesting that operation of Units 2 and 3 be suspended. *Consolidated Edison Co. of New York* (Indian Point, Units 2 and 3), DD-80-5, 11 NRC 351 (1980). The Director's Decision relied on the existence and interim recommendations of an NRC Task Force that had been formed to review Indian Point Units 2 and 3 and Zion Station Units 2 and 3;<sup>2</sup> the purpose of the Task Force was to determine what additional measures should be implemented to reduce the probability of a severe reactor accident or the consequences thereof. *Id.* at 356-57. See NUREG/CR-1409, 1410, 1411 Vol. 1, and 1411 Vol. 2, "Report of the Zion/Indian Point Task Force" (1980).

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<sup>1</sup> The bases for the UCS petition were that:

The Indian Point Station is located in a densely populated area, which raises questions concerning the suitability of the site, the feasibility of evacuation of the area around the site, and the need for additional protective measures to assure safe operation of the Indian Point reactors;

Unit 2 does not have some of the design features or equipment found in the subsequently licensed Unit 3; and

Safety deficiencies and unresolved safety issues common to Units 2 and 3 require resolution before operation of the facilities is continued.

<sup>2</sup> The Task Force was formed after the accident at Three Mile Island, and the Indian Point and Zion units were chosen for review because of the high population densities surrounding those units. This review was independent of the UCS petition.

On February 22, 1980, the Commission solicited public comment on the Director's Decision. 45 Fed. Reg. 11,969 (1980). After considering the responses received, the Commission issued an Order on May 30, 1980 (unpublished), establishing a four-pronged approach to resolution of the issues raised in the UCS petition. Included in the Commission's approach was the commencement of a discretionary adjudication, conducted by an Atomic Safety and Licensing Board, to address specific Commission Questions. The Commission also commenced an informal proceeding to define the issues to be addressed in the adjudication and the criteria to be used; and a second Task Force was formed to analyze the existing information and report on whether interim operation of the Indian Point units was appropriate.

In June 1980, the second Task Force completed its work. The Task Force found that the overall risk of the Indian Point plants was about average for nuclear power plants. The Task Force concluded that although the high population density near Indian Point increased risk, the design features at those plants reduced the risk by a comparable factor. The Task Force noted, however, that there were greater uncertainties in the design comparisons than in the site comparisons. NUREG-0715, "Task Force Report on Interim Operation of Indian Point" (July 1980). Based on the Task Force's findings and the Director's Decision, the Commission concluded on July 15, 1980, that the risk posed by the Indian Point reactors did not warrant suspending operation of those units during the adjudication. CLI-81-1, 13 NRC 1, 3 (1981).

On January 8, 1981, the Commission issued a Memorandum and Order establishing the issues to be addressed in the adjudication and the procedures to be used. *Id.* at 4-8. Subsequently, the Commission slightly revised the issues to be addressed and clarified the procedures to be used. CLI-81-23, 14 NRC 610 (1981). The following Questions were to be addressed:

1. What risk may be posed by serious accidents at Indian Point 2 and 3, including accidents not considered in the plants' design basis, pending and after any improvements described in (2) and (4) below? Although not requiring the preparation of an Environmental Impact Statement, the Commission intends that the review with respect to this question be conducted consistent with the guidance provided the staff in the Statement of Interim Policy on "Nuclear Power

Plant Accident Considerations under the National Environmental Policy Act of 1969;” 44 FR 40101 (June 13, 1980).<sup>5</sup> [14 NRC 612.]

<sup>5</sup>In particular, that policy statement indicates that:

Attention shall be given both to the probability of occurrences of releases and to the environmental consequences of such releases;

The reviews “shall include a reasoned consideration of the environmental risks (impacts) attributable to accidents at the particular facility or facilities . . .”;

“Approximately equal attention should be given to the probability of occurrence of releases and to the probability of occurrence of the environmental consequences . . .”; and

Such studies “will take into account significant site and plant-specific features . . .”

Thus, a description of a release scenario must include a discussion of the probability of such a release for the specific Indian Point plants.

2. What improvements in the level of safety will result from measures required or referenced in the Director’s Order to the licensees, dated February 11, 1980? (A contention by a party that one or more specific safety measures, in addition to those identified or referenced by the Director, should be required as a condition of operation would be within the scope of this inquiry if, according to the Licensing Board, admission of the contention seems likely to be important to resolving whether (a) there exists a significant risk to public health and safety, notwithstanding the Director’s measures, and (b) the additional proposed measures would result in a significant reduction in that risk.) [14 NRC 612-13.]
3. What is the current status and degree of conformance with NRC/FEMA guidelines of state and local emergency planning within a 10-mile radius of the site and, of the extent that it is relevant to risks posed by the two plants, beyond a 10-mile radius? In this context, an effort should be made to establish what the minimum number of hours warning for an effective evacuation of a 10-mile quadrant at Indian Point would be. The FEMA position should be taken as a rebuttable presumption for this estimate. [13 NRC 7.]
4. What improvements in the level of emergency planning can be expected in the near future, and on what time schedule, and are there other specific offsite emergency procedures that are feasible and should be taken to protect the public? [*Id.*]
5. Based on the foregoing, how do the risks posed by Indian Point Units 2 and 3 compare with the range of risks posed by other nuclear power plants licensed to operate by the Commission? (The Board should limit its inquiry to generic examination of the range of risks and not go into any site-specific examination other than for Indian Point itself, except to the extent raised by the Task Force.) [*Id.* at 8.]
6. What would be the energy, environmental, economic or other consequences of a shutdown of Indian Point Unit 2 and/or Unit 3? [*Id.*]
7. Does the Governor of the State of New York wish to express an official position with regard to the long-term operation of the units? [*Id.*]



The Commission would like to receive the Board's recommendations no later than one year from this date.<sup>3</sup>

The Commission also directed the use of the full-procedural format of a trial-type adjudication, including discovery and cross-examination. CLI-81-1, 13 NRC 1, 5 (1981).<sup>4</sup> The Board, however, was not to reach an initial decision on the Commission Questions; instead, the Board would formulate recommendations to the Commission on the questions. In the same vein, no party would have the burden of persuasion.

On September 21, 1981, the Commission appointed an Atomic Safety and Licensing Board to preside over the proceeding. The Board members were Administrative Judges Louis J. Carter (Chairman), Dr. Oscar H. Paris, and Frederick J. Shon. CLI-81-23, 14 NRC 610, 613 (1981); 46 Fed. Reg. 47,330 (1981). The Board published a Notice of Opportunity

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<sup>3</sup> Earlier versions of these questions were formulated by the Commission in its March 30, 1980 Order (unpublished).

<sup>4</sup> The Commission provided the following guidance:

Because of the investigative nature of this proceeding, further guidance is necessary with respect to certain procedural matters. Because the proceeding, although adjudicatory in form, is not mandated by the Atomic Energy Act, it is not an "on the record" proceeding. Although normal *ex parte* constraints will apply to communications to the Licensing Board, the Commission will not be limited in its ability to obtain information with respect to Indian Point from any source. Because the Commission itself is designating by this Order the issues it wishes to be addressed in the adjudication (see the series of [Commission] questions . . . and the reference to the Union of Concerned Scientists' petition below in this note) it is important that contentions raised by parties and sub-issues raised by the Board in this proceeding contribute materially to answering those designated issues. Contentions based on the allegations in the Union of Concerned Scientists' petition to the effect that certain Commission regulations are not met in one or both units will be accepted if they meet the requirements of 10 C.F.R. Part 2 without regard to whether they fall within or outside the [Commission] questions. . . . However the Board will not be bound by the provisions of 10 C.F.R. Part 2 with regard to the admission and formulation of other contentions. In granting this discretion to the Board, the Commission emphasizes that its purpose is to ensure that the Board is empowered only to accept and formulate, after consultation with the parties, those contentions which seem likely to be important to resolving the Commission's questions . . . , and thereby to assure that the proceeding remains clearly focused on the issues set forth in this Order. The Licensing Board may also, without regard to the provisions of 10 C.F.R. Part 2, establish whatever order of presentation it deems best suited to the proceeding's investigative purposes. In other respects, except as provided elsewhere in this Order, 10 C.F.R. Part 2 will control. If the Board concludes that further departure from Part 2 is necessary for the efficient conduct of the hearing, it should request such authorization from the Commission. In any event, however, the Commission expects that, consistent with the approach outlined above with respect to contentions, the Licensing Board will use its existing authority under Part 2 to assure the relevance and efficiency of discovery and cross-examination, in the interest of a focused proceeding. The Licensing Board shall not reach an initial decision, but as noted in the Order, shall instead formulate recommendations on the questions posed by the Commission. No party will have the "burden of persuasion" as the term is normally used in adjudicatory proceedings; if evidence on a particular matter is in equipoise, the Board's recommendation may be expected to reflect that fact. The staff will be a party to the proceeding, and the licensees will be admitted as parties upon request filed within 30 days of *Federal Register* notice of the appointment of a Licensing Board. All others wishing to intervene shall file petitions for intervention within 30 days of *Federal Register* notice of the appointment of a Licensing Board. The appointment of the Licensing Board will be announced by subsequent order of the Commission.

CLI-81-1, 13 NRC 1, 5 n.4 (1981), as revised, CLI-81-23, 14 NRC 610-12 (1981).

for Hearings on October 7, 1981, and ordered that petitions to intervene be filed by November 6, 1981. 46 Fed. Reg. 49,688 (1981).

## **B. Identification of the Parties**

In CLI-81-1, the Commission directed that the NRC Staff be a party to this proceeding, and that the Licensees of the Indian Point units be admitted as parties upon request. CLI-81-1, 13 NRC 1, 4 (1981). Both Licensees, Consolidated Edison Co. of New York (Con Ed) and the Power Authority of the State of New York (PA), filed petitions and were duly admitted as parties, as was the NRC Staff.

In addition, the Board received 18 other requests to participate in the proceeding. By Memorandum and Order of April 2, 1982, the Board ruled on those petitions. LBP-82-25, 15 NRC 715 (1982). The Board admitted nine petitioners as parties pursuant to 10 C.F.R. § 2.714: the Honorable Richard L. Brodsky, Friends of the Earth (FOE), the Greater New York Council on Energy (GNYCE), the New York City Audubon Society (Audubon), Parents Concerned About Indian Point (Parents), Rockland Citizens for Safe Energy (RCSE), the Union of Concerned Scientists and New York Public Interest Research Group (UCS/NYPIRG), the West Branch Conservation Association (WBCA), and the Westchester People's Action Coalition (WESPAC). The Board admitted the remaining nine petitioners as interested states or municipalities pursuant to 10 C.F.R. § 2.715(c): the Attorney General of the State of New York, the New York State Energy Office, Westchester County, the Metropolitan Transportation Authority (MTA), the New York City Council (NYC Council), the Port Authority of New York and New Jersey (Port Authority), Rockland County, the New York State Assembly and Its Special Committee on Nuclear Power Safety (State Assembly), and the Village of Buchanan.

## **C. Procedural Posture of the Case**

By Memorandum and Order of April 9, 1982, the Board admitted 20 reformulated contentions and one Board question; the disposition of one further contention was left undecided but was subsequently admitted. The Board also assigned lead intervenors for each admitted contention. After a prehearing conference in White Plains, New York on April 13 and 14, 1982, the Board modified the admitted contentions; 23 contentions and one Board question were now admitted. LBP-82-34, 15 NRC 895 (1982). The Licensees appealed to the Commission the admission

of certain parties and contentions. Licensees' Petition for Directed Certification Pursuant to 10 C.F.R. § 2.718(i) and for Waiver of 10 C.F.R. § 9.103 (May 10, 1982).

On June 22, 1982, the Board commenced evidentiary hearings on contentions under Commission Questions 3 and 4. Then, on July 27, 1982, the Commission ruled on Licensees' Petition for Directed Certification; the Commission, exercising inherent supervisory power over the conduct of adjudicatory proceedings, amplified its previous instructions to the Board and remanded the Board's rulings on admissibility of contentions. CLI-82-15, 16 NRC 27 (1982). On the same day, the Board suspended the hearings.

In CLI-82-15, the Commission addressed three topics that applied to the Board's rulings on contentions. These topics were: (1) the admissibility of issues, (2) the applicability of 10 C.F.R. § 2.758, and (3) the treatment of accident probability and consequences. With regard to the admissibility of issues, the Commission directed the Board to

- (1) assure itself that proffered contentions included a statement of bases and that both the contentions and bases were stated with reasonable specificity;
- (2) further screen out those contentions which, while complying with § 2.714, did not seem likely to be important in answering our questions;
- (3) make a threshold finding for each . . . contention [under Commission Question 2] whether
  - (a) there exists a significant risk to public health and safety, notwithstanding the Director's measures, and
  - (b) the additional proposed measures would result in a significant reduction in that risk.

16 NRC 34, 35. With regard to the applicability of 10 C.F.R. § 2.758, which prohibits challenges to NRC rules in licensing proceedings, the Commission ruled as follows:

- Question 1.* Risk analyses may include elements not required by or addressed in NRC regulations.
- Question 2.* Contentions may argue for safety measures in addition to those presently required under the regulations, provided the contentions meet the "two-pronged test" described under (3)(a) and (b) above.
- Question 3.* The Commission did not contemplate that contentions under this question could challenge the regulations. With regard to the size of the plume exposure pathway EPZ, however, the Commission noted that "the exact size and configuration can be affected by local conditions."
- Question 4.* Contentions may argue that additional emergency planning measures, not required by NRC or FEMA, should be required for Indian Point as

prudent risk-reduction measures in light of the risk posed by Indian Point as opposed to the spectrum of risks posed by other nuclear plants. However, parties must provide a sound basis for such contentions.

*Question 5.* Contentions may not challenge the regulations.

*Question 6.* Contentions may not challenge the regulations.

*Question 7.* This question does not relate to contentions.

Finally, with regard to the treatment of accident probability and consequences, the Commission ruled that:

Any testimony on accident consequences for Indian Point must include a discussion of the probability of the accidents leading to the proposed consequences. This discussion must be sufficient to convince the Board that the testimony addresses accidents that substantially contribute to overall risk. Testimony not meeting this test will not materially contribute to answers to the Commission's questions and should not be admitted.

#### 16 NRC 36-37.

In addressing the Commission's directives, the Board found it necessary to seek further guidance. Therefore, on August 9, 1982, the Board certified several questions to the Commission. The questions were:

- 1a. Must each witness' testimony address both consequences and probabilities, or must each party address both factors in its direct case?
- 1b. Alternatively, may we hear a combination of consequence and probability testimony taken from different sources, *e.g.*, from the testimony of witnesses presented by different parties, or from cross-examination? [*Citing Public Service Electric and Gas Co. (Hope Creek Generating Station, Units 1 and 2), LBP-78-15, 7 NRC 642, 674 ff. (1978), aff'd, ALAB-518, 9 NRC 14 (1979).*]
- 2a. Shall we continue to hear evidence on the "status and degree of conformance with NRC/FEMA guidelines" aspect of Question 3 and the "improvements in the level of emergency planning" and "time schedule" aspects of Commission Question 4?
- 2b. If we limit our proceeding to the "minimum hours warning" aspect of Question 3 and the "other specific offsite emergency procedures" aspect of Question 4, should we investigate those matters as they are now or as they are expected to be in four months?

Memorandum and Certification Seeking Further Commission Guidance, LBP-82-61, 16 NRC 560, 563-64 (1982).

Questions 1a and 1b were prompted by the Board's concern that "most witnesses, particularly those available to intervenors and local governments do not have the interdisciplinary expertise required for analyzing *both* the probability of accidents and the consequences of

accidents.” *Id.* at 562 (emphasis in original). Questions 2a and 2b were prompted by the issuance by the Federal Emergency Management Agency (FEMA) of “Interim Findings on the Adequacy of Radiological Emergency Response Preparation of State and Local Governments at the Indian Point Nuclear Power Station” (July 30, 1982). FEMA had found significant deficiencies with respect to five of the planning standards of 10 C.F.R. § 50.47(b), and pursuant to 10 C.F.R. § 50.54(s) (2) (ii),<sup>5</sup> the Regional Administrator started the “120-day clock.”<sup>6</sup>

Initial answers to the certified questions were communicated informally to the Board by the Secretary to the Commission. Letter from Samuel J. Chilk to Louis J. Carter, Frederick J. Shon, and Oscar H. Paris (August 23, 1982). In the initial response, the Secretary stated:

[The Commission] intended that *each party* (or each *group of parties* consolidated by the Board) be required to include in any direct testimony and related contentions (and underlying bases) that it may choose to file on accident consequences a discussion of the probability of the accidents leading to the alleged consequences. It is clearly not sufficient for a party offering testimony and contentions on consequences to rely on the probability testimony (including cross-examination) or contentions and bases of another non-consolidated party.

The Secretary also stated with respect to certified Questions 2a and 2b:

The Commission believes that the Board should (after reconsidering its rulings on the contentions and completing any necessary prehearing matters) proceed first to take evidence on Commission questions 1, 2, 5, 6 and 7. Then, if the concerns that prompted the Board to certify Questions 2a and 2b are resolved at the conclusion of the testimony on these other Commission questions, the Board is to proceed to take evidence on Questions 3 and 4 under the Commission guidance previously provided. If the concerns remain at this later date, then the Board should return to the Commission for further guidance.

On September 1, 1982, Louis J. Carter resigned as the Chairman of this Board and from the Licensing Board Panel. *See* Letter from Louis

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<sup>5</sup> Section 50.54(s) (2) (ii) states in part:

If after April 1, 1981, the NRC finds that the state of emergency preparedness does not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency (including findings based on requirements of Appendix E, Section IV.D.3) and if the deficiencies (including deficiencies based on requirements of Appendix E, Section IV.D.3) are not corrected within four months of that finding, the Commission will determine whether the reactor shall be shut down until such deficiencies are remedied or whether other enforcement action is appropriate. [Emphasis in original.]

<sup>6</sup> The 120-day clock procedure had been invoked previously with respect to the Indian Point Station; the Commission issued a deficiency notice in April 1981, but later decided that no enforcement action was necessary.

J. Carter to the Commissioners (Sept. 1, 1982). On September 15, 1982, Administrative Judge James P. Gleason was appointed to replace Judge Carter. CLI-82-24, 16 NRC 865 (1982).

On September 17, 1982, the Commission issued formal responses to the Board's certified questions. CLI-82-25, 16 NRC 867 (1982). The Order iterated the informal responses, but with respect to certified Questions 1a and 1b, it added (at 868):

Each party offering testimony on consequences must offer at least a discussion of probability for the Indian Point plants. That discussion may be based on information which was developed by another party, including the Staff or licensee (footnote omitted). Because it was necessary for the Commission to reiterate its guidance after the hearing had commenced, the Board can allow any testimony already heard to remain in the record. However, for any already accepted testimony on consequences the Board itself is directed to develop the necessary linkage to accident probabilities for the *Indian Point plants* to ensure the testimony is useful to the Commission in assessing risk. For any testimony not yet heard, the Board is directed to require a *discussion* of the probability of the accident sequence for the Indian Point reactors that will lead to the consequences to be discussed. [Emphasis in original.]

Thereafter, the Board issued a Memorandum and Order reformulating or eliminating previously admitted contentions under Commission Questions 1, 2, 5, and 6, and inviting response from the parties. Memorandum and Order (Restating Contentions and Establishing Procedures Based on Commission Guidance) dated October 1, 1982 (unpublished). After receiving responses from the parties and after a prehearing conference on November 3 and 4, 1982, the Board formulated final contentions under Commission Questions 1, 2, 5, and 6. LBP-82-105, 16 NRC 1629 (1982). The Board deferred consideration of Commission Questions 3 and 4 until after FEMA's reevaluation of offsite emergency planning at Indian Point.

On December 16, 1982, FEMA issued its report assessing the corrective actions taken during the 120-day period and the adequacy of the current plan as a whole. FEMA found that significant progress had been made, but that two areas of deficiency remained: the possibility that Westchester County bus drivers would not respond to an emergency at Indian Point and the lack of a Rockland County emergency plan. After reviewing FEMA's report and being briefed by FEMA on December 21, 1982, the Commission determined that immediate shutdown of the Indian Point plants was not warranted; instead, the Commission asked FEMA to present it with monthly reports on the progress being made in offsite emergency planning at Indian Point and to provide a reevaluation of emergency planning and

preparedness 30 days after an emergency planning exercise scheduled for March 9, 1983.

After these developments, the Board, on January 7, 1983, reformulated contentions under Commission Questions 3 and 4. LBP-83-1, 17 NRC 33 (1983). The Board again invited responses from the parties; and after receiving those responses, the Board formulated final contentions under Commission Questions 3 and 4 on February 7, 1983. LBP-83-5, 17 NRC 134 (1983). Meanwhile, hearings on Commission Questions 1, 2, and 5 were resumed on January 10, 1983.

While formulating contentions under Commission Questions 3 and 4, the Board was confronted with the problem of scheduling witnesses on those contentions. The parties were proffering the testimony of approximately 200 witnesses, while by Order of December 15, 1982 (unpublished), the Commission requested the Board to provide its recommendations no later than July 29, 1983. To resolve this problem, the Board invited proposals from the parties (Mailgram dated January 28, 1983), and appointed Judge James A. Laurenson as an alternate Licensing Board Member. Judge Laurenson's charge was "to make recommendations in an on-the-record report as to a fair and efficient method for receiving evidence on Commission Questions 3 and 4. . . ." Unpublished Order (February 17, 1983). Judge Laurenson then held a conference with all parties on February 28, 1983, and on March 4, 1983, issued a Recommended Decision. Judge Laurenson recommended that the Board allocate specific amounts of time to the parties and leave to those parties the responsibility of selecting which testimony to proffer. Judge Laurenson also recommended imposing time limitations on cross-examination, lest an adversary "effectively preclude a party from presenting its case by conducting extensive yet plausibly relevant cross-examination."<sup>7</sup>

By Memorandum and Order of March 7, 1983 (unpublished), the Board accepted the recommendations of Judge Laurenson; the Board, however, also added further days to the hearing schedule (including an additional week — from April 26 to April 29 — in which to hear FEMA testimony on the results of the March 9, 1983 emergency preparedness exercise) and restricted non-adversarial cross-examination. The Board

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<sup>7</sup> In support of this recommendation, Judge Laurenson noted several instances where the Licensees' cross-examination had been excessive. Recommended Decision at 12-13 (March 4, 1983). Additionally, Judge Laurenson considered whether time limitations would violate due process; however, he found precedent for imposing reasonable limitations. *Id.* at 7-9, citing *SCM Corp. v. Xerox Corp.*, 77 F.R.D. 10 (D. Conn. 1977); *MCI Communications Corp. v. AT&T*, 85 F.R.D. 28 (N.D. Ill. 1979); *Northern States Power Co. (Prairie Island Nuclear Generating Plant, Units 1 and 2)*, ALAB-252, 8 AEC 1175 (1975).

later granted other parties an opportunity during the week of April 26-29 to present testimony on the results of the March 9 exercise.

Evidentiary hearings were concluded on April 29, 1983, the record was closed, and the Board directed the parties to file proposed findings of fact by May 27, 1983. Fifteen weeks of hearings had been held, during which approximately 190 witnesses or panels of witnesses testified. The transcript for the proceeding exceeded 15,000 pages. In addition, there were approximately 3,000 pages of prefiled testimony and approximately 170 exhibits (not all of which were admitted into evidence).

After the close of the hearings, we reviewed the record for completeness. In this regard, we employed Mr. Paul J. Amico as an independent consultant on probabilistic risk assessment. Mr. Amico's task was to review the completeness of the record on Questions 1 and 5. (Tr. 8693; Letter from James P. Gleason, Chairman, to Paul J. Amico (March 7, 1983).)

Mr. Amico submitted a summary of his conclusions with respect to Commission Question 1 on May 2, 1983, and a detailed report with respect to Question 1 on May 31, 1983. The Board invited responses from the parties; and upon consideration of Mr. Amico's report and responses thereto, the Board determined that reopening the record for further testimony on Commission Question 1 was not warranted. Unpublished Memorandum (June 24, 1983).

Mr. Amico's report with respect to Commission Question 5 was submitted on July 1, 1983, and after reviewing the report, the Board concluded that there was no need for further testimony on Question 5 or for comments from the parties. Unpublished Memorandum (July 27, 1983).

As this special proceeding was drawing to a close, concomitant events, pertinent to our adjudication, developed before the Commission. On April 15, FEMA reported to the Commission FEMA's evaluation of the March 9 exercise; FEMA concluded that significant deficiencies remained, particularly the lack of an Emergency Plan for Rockland County and the lack of a commitment from Westchester County bus drivers. Thereafter, the Commission issued an Order on May 5, wherein it indicated its intent to suspend operation of the Indian Point units by June 9 unless certain specified conditions were met.<sup>8</sup> CLI-83-11, 17

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<sup>8</sup> The conditions were that:

(1) FEMA has determined that the significant deficiencies as determined in FEMA's Post-Exercise Assessment dated April 14, 1983 no longer exist; or

(Continued)



NRC 731 (1983). The May 5 Order also invited written and oral replies from the Licensees and interested federal, state, and local governments. *Id.* at 733. The invitation was subsequently extended to the other parties in the special proceedings. Unpublished Order (May 13, 1983).

Because of the demands associated with presenting their views to the Commission, the Licensees sought an extension of the deadline for the filing of proposed findings. Licensees' Motion for a Stay of the Schedule for Filing of Proposed Opinion, Findings of Fact, and Recommendations in the Indian Point Special Proceedings (May 6, 1983). This Motion was filed before the Board and the Commission. On May 10, the Commission authorized the Board to grant such relief as the Board deemed appropriate and a corresponding extension in the deadline for the Board's Recommendation. Therefore, on May 11, 1983, the Board extended the deadline for Proposed Findings from May 27, 1983 to June 27, 1983; and the Board also extended the date for its Recommendations from July 29 to August 29.

On June 10, 1983, the Commission, by a three-to-two vote, decided not to suspend operation of the Indian Point Units. CLI-83-16, 17 NRC 1006 (1983). The Commission found that adequate interim compensating measures had been or would be taken promptly. *Id.* at 1007. The Commission's decision was based, to a considerable extent, on a FEMA evaluation of the improvements on emergency planning around the Indian Point site subsequent to the Commission's May 5 Order. Although FEMA was unable to conclude that significant deficiencies no longer existed, it did determine that "substantial progress has been made in meeting FEMA's earlier concerns . . ." Letter from Jeffrey Bragg, Executive Deputy Director, Federal Emergency Management Agency, to Nunzio Palladino, NRC (June 8, 1983).<sup>9</sup>

On June 21, 1983, the Intervenors filed a motion seeking a further two-week extension of the deadline for the filing of Proposed Findings. The Intervenors proposed filing one consolidated set of findings. The Board granted this motion on June 22; the deadline for filing proposed

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(2) The licensees demonstrate to the satisfaction of the Commission in accordance with 10 C.F.R. 50.54(s)(2)(ii) that:

- (a) adequate interim compensating actions have been or will be taken promptly, or
- (b) the deficiencies identified by FEMA as significant are not significant, or
- (c) other compelling reasons exist to permit operation of the facility, or
- (d) there are other factors justifying continued operation.

CLI-83-11, 17 NRC 734.

<sup>9</sup> In attached letter from Frank P. Petrone, Regional Director, FEMA, Region II, to Dave McLoughlin, Deputy Associate Director, FEMA (June 8, 1983), Mr. Petrone indicated that another exercise would be conducted within 60 days to test New York State's compensatory plan for Rockland County.

findings, applicable to all parties, was extended to July 11, 1983, and the Board's own deadline was extended to September 12, 1983.

Proposed Findings were received from each Licensee, from the Intervenors, from Westchester County, and from the NRC Staff. Owing to the voluminous nature of the Proposed Findings, the Board again extended its deadline. The Board has carefully considered the Proposed Findings, and based on all the testimony and exhibits in the record, makes the conclusions and recommendations set forth in Section II below. Any Proposed Finding or Proposed Recommendation submitted by the parties and not incorporated directly or inferentially in our conclusions and recommendations is rejected as unsupported in law or fact or as irrelevant or immaterial.

#### **D. Limitations on the Board Conclusions and Recommendations**

Before addressing the particular contentions, we believe it advisable to address limitations that are inherent in the adjudicatory process and that, in this special proceeding, detract from the validity of our conclusions. In particular, the proceeding was investigatory in nature, and we were charged with evaluating the level of emergency planning and preparedness at Indian Point; the level of planning and preparedness, however, was evolving so rapidly that the adjudication, subject to the formal procedures of 10 C.F.R. Part 2, was unable to keep pace.

As a result, much of the testimony that was timely when pre-filed was obsolete when received into evidence; and even updated supplemental testimony was often soon outdated. Yet the adjudication was subject to a deadline (unlike most adjudications), and we were unable to revisit the emergency planning issues repeatedly.<sup>10</sup> The developments in this area after the close of the hearings are significant, but are not part of the adjudicatory record. We are aware of the existence of a new state compensatory plan for the County of Rockland, but we do not know its details. We are aware that progress has been made with respect to commitments from bus drivers from Westchester County, but we are unable to evaluate the degree of that progress. We know that a further exercise has been conducted, but its results are unknown to us. And we are aware that a verification analysis has been completed by the Argonne National Laboratory; that analysis may provide relevant or even critical information, but it was not yet complete at the close of the

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<sup>10</sup> As previously noted, we scheduled an additional week of testimony at the close of the proceedings to permit FEMA and the parties the opportunity to address the results of the March 9, 1983 exercise.

proceedings and was not admitted into evidence.<sup>11</sup> Whereas an investigation or even an informal adjudication could have accommodated the evolution of the facts we sought to determine, a formal adjudication subject to deadlines could not.<sup>12</sup>

## II. DISCUSSION AND CONCLUSIONS

### A. Commission Question 1, Contention 1.1, and Board Question 1.1: Risk Assessment

Commission Question 1 asks:

What risk may be posed by serious accidents at Indian Point 2 and 3, including accidents not considered in the plants' design basis, pending and after any improvements described in [Commission Questions] (2) and (4) below? Although not requiring the preparation of an Environmental Impact Statement, the Commission intends that the review with respect to this question be conducted consistent with the guidance provided the Staff in the Statement of Interim Policy on "Nuclear Power Plant Accident Considerations under the National Environmental Policy Act of 1969"; 44 Fed. Reg. 40,101 (1980).<sup>5</sup>

<sup>5</sup>In particular, that policy statement indicates that:

Attention shall be given both to the probability of occurrences of releases and to the environmental consequences of such releases;

The reviews "shall include a reasoned consideration of the environmental risks (impacts) attributable to accidents at the particular facility or facilities . . .";

"Approximately equal attention should be given to the probability of occurrence of releases and to the probability of occurrence of the environmental consequences . . ."; and

Such studies "will take into account significant site and plant-specific features . . ."

Thus, a description of a release scenario must include a discussion of the probability of such a release for the specific Indian Point plants.

Contention 1.1 states:

The probabilities and consequences of accidents at Indian Point Units 2 and 3 combine to produce high risks of health and property damage not only within the plume exposure EPZ but also beyond the plume exposure EPZ as far as the New York City metropolitan area.

<sup>11</sup> Argonne National Laboratory, "Indian Point Nuclear Power Station: Verification Analysis of County Radiological Emergency Response Plans." ANL/EES-TM-228 (May 1983).

<sup>12</sup> An adjudication is a powerful fact-finding tool, but it is best suited for determining the facts of past events. Where the facts are evolving, a formal adjudication is cumbersome; if a Board determines that it is desirable to hear testimony on a new issue (or on a new factual development), it must anticipate a delay on the order of months. The parties must be permitted to find and prepare witnesses; discovery may be necessary; the testimony must be prefiled (10 C.F.R. § 2.743(b)); arrangements for the hearing facilities must be made; the actual testimony and cross-examination must be heard; and finally, supplemental proposed findings may be desirable. It is surely for this very reason that a licensing board's usual findings with respect to implementation of emergency plans are predictive (10 C.F.R. § 50.47(a)(1)), and the results of preparedness exercises are outside the scope of a licensing proceeding. The inquiry with which we were charged, however, exceeded that which is normally a part of an operating license proceeding.

## Board Question 1.1 asks:

What are the consequences of serious accidents at Indian Point and what is the probability of occurrence of such accidents? In answering this question the parties shall address at least the following documents: (a) the *Indian Point Probabilistic Safety Study* (IPPSS) prepared by the Licensees; (b) the Sandia Laboratory "Letter Report on Review and Evaluation of the Indian Point Probabilistic Safety Study" (Letter Report), dated August 25, 1982; and (c) any other reviews or studies of the IPPSS prepared by or for the Licensees, the NRC Staff, or the Intervenor, or any other document which addresses the accuracy of the IPPSS.

The interrelatedness of issues and facts pertaining to Contention 1.1, Board Question 1.1, and Commission Question 1 makes it reasonable and efficient to consider them together. Evidence on these issues was presented by the Staff, the Licensees, UCS/NYPIRG, FOE/Audubon, and some of the governmental parties.<sup>13</sup>

### *Introduction*

In addressing the issue of the risk of serious accidents at Indian Point, the Staff, Licensees, and UCS/NYPIRG agree that a "serious accident" is one involving severe core damage or core melt. (Israel, *et al.*, ff. Tr. 7391, at 6; Rowsome/Blond, ff. Tr. 7169, at 4; Licensees, ff. Tr. 6961, at 9; Sholly/Thompson Testimony on Question 2, ff. Tr. 6147, at 3.) In their risk assessments, Staff and the Licensees treated core damage and core melt as if the terms were synonymous. (Rowsome, Tr. 8279, 8308.) Although there are several places in a nuclear plant where radioactive materials are stored in addition to the reactor core, previous studies such as the "Reactor Safety Study" (WASH-1400) have shown that the risks from accidents involving these materials are far lower than for core melt accidents. (Rowsome/Blond, ff. Tr. 7169, at 5.) We find, therefore, that it is sufficient for the purposes of this investigation to confine our attention to the spectrum of accidents involving severe core damage or core melt.

The risk of an accident can be defined as a measure of the danger that is proportional both to the probability of the accident and to severity of its consequences. (*Id.* at 6.) Risk is also often defined simply as the product of the probability and consequences of an accident. (*Id.*; Sholly/Thompson Testimony on Question 2, ff. Tr. 6147, at 20.) The

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<sup>13</sup> Because of the voluminous amount of testimony and large number of witnesses presented in this proceeding, a listing of the witnesses, their professional titles and affiliations, and their prefiled testimony is set forth in Appendix A (not published).

measures of risk employed by the Licensees and Staff in their assessments include early fatalities, early injuries (*i.e.*, radiation sickness), delayed (latent) cancers, delayed cancer fatalities, genetic effects, property damage, and population dose expressed as whole-body person-rem. (Rowsome/Blond, ff. Tr. 7169, at 6; Licensees, ff. Tr. 6961, at 18-19.)

Risk may be portrayed mathematically in a graph that displays the severity of the consequences of an accident, such as number of early fatalities, versus the likelihood or frequency of an outcome at least that severe or more severe. Such a graph can be called a Complementary Cumulative Distribution Function (CCDF). (Rowsome/Blond, ff. Tr. 7169, at 6; Licensees, ff. Tr. 6961, at 19.) Or risk may be portrayed more simply as a single number, the expected value of risk; the expected value is an annual average of the risk of an accident. The expected value of risk, though simpler than a risk graph like a CCDF, carries less information; a CCDF attempts to display the uncertainty associated with frequency of the outcome, whereas the expected value provides no information about uncertainty (Rowsome/Blond, ff. Tr. 7169, at 6; Licensees, ff. Tr. 6961, at 15.)

Both the Licensees and Staff presented probabilistic risk assessments (PRAs) for the Indian Point plants. The Licensees' assessment was presented in the Indian Point Probabilistic Safety Study (IPPSS), which was admitted into evidence. (Tr. 6961.) Staff's review of IPPSS and analysis of risk was contained in NUREG/CR-2934, "Review and Evaluation of the Indian Point Probabilistic Safety Study" (Staff Ex. 6), and in Staff testimony (cited below). The Intervenors challenged PRAs in general and the IPPSS in particular. (*See generally* Levi, ff. Tr. 7716; Perrow, ff. Tr. 7843; Weatherwax, ff. Tr. 7918; Sholly, ff. Tr. 8398.) We turn now to a review of the testimony and arguments presented by the parties, to be followed by our conclusions.

### ***Probabilistic Risk Assessment***

Probabilistic Risk Assessment (PRA) is a multi-step analysis. The first step in the analysis as applied to a nuclear reactor is the identification of those initiating events that can result in a serious accident (*i.e.*, an accident that results in severe core damage or core melt). Initiating events may be classified as internal or external to the plant. Examples of internal initiating events include spontaneous loss of coolant, spontaneous transients, loss of coolant induced by a spontaneous transient, and loss of offsite power. Examples of external initiating events include earthquakes, storms, floods, fires, and aircraft

impacts. The analysis of external events differs from that of internal events, in that the analysis of an external event requires a further determination of the effects of the external event on internal equipment and of common cause failures. (See generally Rowsome/Blond, ff. Tr. 7169; Israel, *et al.*, ff. Tr. 7391.)

The second step in the process is the construction of event trees. An event tree is a logic model that indicates the combination of safety system failures that could follow an initiating event and lead to a severe accident. The combinations are called accident sequences. There is generally one event tree for each class of initiating event. (See generally Rowsome/Blond, ff. Tr. 7169; Israel, *et al.*, ff. Tr. 7391.)

The third step of the process is the construction of fault trees. A fault tree is a logic model that examines the failure modes of a system or component and that permits a quantification of the likelihood of such failure. (See generally Rowsome/Blond, ff. Tr. 7169; Israel, *et al.*, ff. Tr. 7391.)

And the fourth step in a probabilistic risk assessment is the combination of the previous steps. The product of the probability of an initiating event and the probability of failure of each system involved in an accident sequence determines the sequence likelihood. This step is called sequence analysis. (See generally Rowsome/Blond, ff. Tr. 7169; Israel, *et al.*, ff. Tr. 7391.)

After the sequence analysis has been performed, the accident sequences are grouped into "plant damage states." Each plant damage state comprises a group of accident sequences that result in core melt and that have similar resultant containment conditions. The plant damage states are identified by a sequence of letters: S or A denotes small or large LOCA, T denotes transient, E or L denotes early or late core melt, and F and C denote containment fans and sprays working, respectively.<sup>14</sup> The probabilities of each sequence leading to a particular

<sup>14</sup> Staff Ex. 6 at 3.1-1. The NRC Staff's damage states are broader than those used in IPPSS.

NRC Plant Damage State	NRC Designation
Containment Failure Prior to Core Melt	Z
Containment Bypass via Interfacing Systems LOCA	V
Early Core Melt with No Containment Cooling	E
Early Core Melt with Sprays and Coolers (Fans) Operational	EFC
Early Core Melt with Only Coolers Operational	EF
Early Core Melt with Only Sprays Operational	EC
Late Core Melt with Coolers Operational	LF
Containment Bypass via Steam Generator Tube Rupture	SGTR

} Early Core  
Melt with  
Containment  
Cooling

(Meyer/Pratt, ff. Tr. 12,492, at III.B-9.)

damage state are summed to determine the probability of that damage state.

Next a containment analysis is performed. The plant damage states are analyzed by computer code (e.g., MARCH or MARCH 1.1) to determine the core melt accident progression and the containment building loading and failure characteristics with and without mitigation.<sup>15</sup> Event trees are then constructed to catalogue the key events in the core melt accident progression. The output of the event trees is a set of conditional probabilities associated with various containment failure modes for a given core melt accident progression.<sup>16</sup>

Next, for each failure mode, radiological release values are determined by computer code (CORRAL). The release values used by the NRC Staff are grouped into nine categories, A through I, ranging from severe to minor. These release category values are then used in a consequence analysis, which is also performed by computer code (CRAC). (Meyer/Pratt, ff. Tr. 12,492, at III.B-7.)

## **IPPSS**

### *Methodology and Approach*

IPPSS, which formed the basis for Licensees' testimony, was characterized by the Staff as the most comprehensive reactor risk assessment that has been published in the U.S. (Rowsome/Blond, ff. Tr. 7169, at 25.) It gives a more thorough accounting of both internal and external accident initiating events and of the challenges to containment by severe accidents than do prior PRAs. (*Id.* at 26.) IPPSS also has pioneered a technique for combining uncertainties about the occurrence of accident-related events and propagating them through the analysis, so that uncertainty can be quantified in the presentation of risk results. (Licensees, ff. Tr. 6961, at 15; Rowsome/Blond, ff. Tr. 7169, at 26.) Another pioneering approach to risk assessment by IPPSS was the use of Bayes' Theorem to calculate probability distributions. (Licensees, ff. Tr. 6961, at 59-60; IPPSS, § 0.14; Staff Ex. 6 at 2.6-1.)

The data base used in IPPSS included Indian Point plant- and site-specific data, data from WASH-1400, and recent industry-wide

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<sup>15</sup> The accident progression inside containment is relatively insensitive to the manner in which the accident was initiated. (Meyer/Pratt, ff. Tr. 12,492, at III.B-2.)

<sup>16</sup> The failure modes are designated as follows: ( $\alpha$ ) steam explosion induced failure; ( $\gamma$ ) hydrogen burn induced failure; ( $\delta$ ) overpressurization due to generation of steam and noncondensable gases; ( $\epsilon$ ) basemat penetration; ( $\beta$ ) failure to isolate (containment penetrations left open); ( $\nu$ ) containment bypassed (e.g., interfacing systems LOCA); ( $\beta'$ ) core melt plus concurrent containment failure due to external event; and (TR) containment bypassed by multiple steam generator tube rupture and failed (open) secondary system pressure relief valve. (Meyer/Pratt, ff. Tr. 12,492, at III.B-3, -5.)

nuclear plant operating experience data. (Licensees, ff. Tr. 6961, at 13.) The industry-wide data were integrated with the plant-specific data using Bayes' Theorem. (*Id.*) Licensees' witnesses testified that "[t]his process permits use of all relevant information in a rigorous way to reflect the current state of knowledge." (*Id.*) The data base in IPPSS includes component failure rates, component unavailability resulting from testing and maintenance, human error rates, site seismicity, frequencies for external initiating events such as wind, tornado, and fire, and site-specific data on meteorology, topography, demography, and emergency response. (*Id.* at 13, 15.)

Although IPPSS attempted to identify and quantify all conceivable accident scenarios which pose a significant threat to public health and safety, except for war and sabotage, Licensees acknowledge that it is prudent to assume that unidentified scenarios exist. (*Id.* at 49-50.) Licensees and the Staff believe that errors of omission, if corrected, would have relatively little effect on overall radiological risk unless an error of omission happened to involve an accident sequence in which severe containment failure occurred together with core melt. (*Id.* at 50-51; Rowsome, ff. Tr. 8778, at 8-9.) UCS/NYPIRG witness Weatherwax believes that IPPSS appears to have striven to accommodate completeness, but testified that nevertheless questions about the procedures used in the report remain and the generic problems associated with PRAs apply to IPPSS. (Weatherwax, ff. Tr. 7918, at 3-4.) The generic problems considered by Weatherwax included common mode failures, sabotage, willful violation of NRC rules, equipment aging, pressurized thermal shock, accelerated equipment failure in a severe operating environment, design inadequacy, and design implementation failures. (*Id.* at 4-9.) FOE/Audubon witness Perrow testified that multiple failures in independent subsystems can interact in unforeseen ways, a class of systems accidents which he distinguished from common mode failures. (Perrow, ff. Tr. 7843, at 3-5.) Witness Rowsome appeared to be referring to the same kind of omission when he testified that faulted conditions can propagate among systems in subtle and hard-to-anticipate ways. (Rowsome, ff. Tr. 8778, at 12.)

### *Sandia Review of IPPSS*

The Staff's review and evaluation of IPPSS was conducted by Sandia National Laboratories (Sandia). (*See generally* Staff Ex. 6; Israel, *et al.*, ff. Tr. 7391; Reed, ff. Tr. 7492.) Sandia discussed the Bayesian methodology used in IPPSS and compared it to conventional statistical methodology which yields point estimates and confidence intervals.



(Staff Ex. 6 at 2.6-1, 2.6-2.) In the conventional statistical approach, typically the binomial distribution is employed to estimate the probability of failure of a component, using available data on number of failures given a known number of trials or demands on the component. (*Id.* at 2.6-2.) Bayes' Theorem seeks to incorporate other information about the probability of failure. (*Id.*) This additional information is derived from the state of belief, or "state of knowledge," of persons cognizant of the component and quantified for expression as a prior probability distribution. (*Id.*; Kaplan, Tr. 7089, 7107.) This prior distribution is then modified by data, using the Bayes formulation, to yield a result called the posterior distribution of the probability. (Staff Ex. 6 at 2.6-2.) Licensees believe that this method "permits use of all relevant information in a rigorous way to reflect the current state of knowledge." (Licensees, ff. Tr. 6961, at 13.) Sandia, noting that the application of Bayesian methodology to risk assessment is new,<sup>17</sup> suggested that readers of the "IPPSS might therefore be overwhelmed, enthralled, or mystified by it. . . ." (Staff Ex. 6 at 2.6-1.) Indeed, some witnesses did appear enthusiastic about the Bayesian approach used in IPPSS, but others were inclined to reject it. (*See* Blond, Tr. 8614; Easterling, Tr. 7400-01.)

Sandia stated that, for the IPPSS estimates to be convincing, one needed to know the assumptions made and the extent to which the results depend on them. (Staff Ex. 6 at 2.6-1.) Use of Bayes' Theorem requires that the prior probability distributions be known. Further, it must be assumed that the component whose failure is being modeled was selected at random from an infinite population of components, and that the Indian Point units are random samples from the population of plants. (*Id.* at 2.6-2 and 2.6-4.) Sandia found these assumptions difficult to accept. (*Id.*; Easterling, Tr. 7400-01.) Sandia also found fault with IPPSS's use of the term "frequency" to apply to both failure rate, which has the dimension time, and to failure probability, which is dimensionless. (Staff Ex. 6 at 2.6-3.) Nor does IPPSS distinguish *estimates* of probability, obtained from repeated trials, from the *parameter* being estimated, an unknown quantity which may vary over a certain set of values. (*Id.*)

The prior distributions used by IPPSS in applying Bayes' Theorem were developed from three sources: industry-wide LER (Licensee Event Report) summaries on valves, pumps, and diesel generators;

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<sup>17</sup> Although the application of Bayesian methodology to risk assessment may be new, Bayes' Theorem is far from new. As the IPPSS itself notes, Bayes lived 200 years ago. (IPPSS at 0-12.) The Board notes from its own knowledge that Bayes' Theorem dates from 1763.

WASH-1400; and IEEE-500 estimates of electrical component failure rates and probabilities. The prior distributions developed from these sources were then modified by the Indian Point data to obtain the posterior probability distributions. (*Id.*) Most of Indian Point's prior distributions were based in part on WASH-1400, which assumed lognormal distributions. (*Id.* at 2.6-4; Budnitz, ff. Tr. 7489, at 28-29; Levi, ff. Tr. 7716, at 29.) In applying these distributions in its priors, for purposes of calculation IPPSS used a discrete distribution to approximate the lognormal, rather than the lognormal itself. (Kaplan, Tr. 7108.) Sandia thought it "unwarranted" for IPPSS to regard the distributions from WASH-1400 as generic or as based on an infinite population, because WASH-1400 statistics were calculated from LERS from a single year, 1972. (Staff Ex. 6 at 2.6-4.) Additionally, Sandia criticized IPPSS for failing to provide the priors it used, so that they could be verified. (*Id.* at 2.6-5.) Staff witness Budnitz observed that in the analysis of external events, the lognormal introduces errors and uncertainties of unknown impact, presumably because the lognormal cannot represent actual structural responses very well. (Budnitz, ff. Tr. 7489, at 25, 28-29.) Nevertheless, Budnitz believes that it is reasonable to use the lognormal to estimate very low failure frequencies, because in these cases it probably tends to overestimate the frequency of failure. (*Id.* at 29.) Sandia's analysis of the effect of the priors on the results in IPPSS showed that in some cases the prior had no marked effect on the result, in other cases the prior made the estimate smaller and more precise, and in three cases use of the prior led to a less precise estimate. (*Id.* at 2.6-6, 2.6-7.)

### *Intervenors' Position on IPPSS*

FOE/Audubon witness Levi suggested that the minimax principle should be applied to decisionmaking with respect to nuclear power if assessments of probability are not definite. (Levi, ff. Tr. 7716, at 2-3, 11-14.)<sup>18</sup> Applying minimax criteria led Levi to the conclusion that the IPPSS results are inadequate to warrant a decision on whether the Indian Point plants should be allowed to continue to operate; rather, more data should be collected and the risks reassessed. (*Id.* at 14.) Although sympathetic with the use by IPPSS of fault tree analyses, Levi does not believe the fault trees in IPPSS are based on adequate

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<sup>18</sup> The minimax principle supposes that decisions are taken subject to the condition that the maximum risk in taking a wrong decision is minimized. As Levi pointed out, the minimax principle has been criticized on the grounds that it counsels us to adopt an unreasonable paranoia. (*Id.* at 9.) Applying it to real life might lead one never to cross a street for fear of being hit by a vehicle.

probability estimates for failure rates. (*Id.* at 3-4.) He believes that a broad spectrum of priors, rather than the arbitrary choice of a single prior distribution, should be made in reassessing the risk at Indian Point. (*Id.* at 4-5.) Levi does not object to the use of subjective decisions in probabilistic assessments and agrees with IPPSS that subjectivity is not the same as arbitrariness. Nevertheless, he believes that the choice by IPPSS of priors in situations where the available information was not sufficient to rule out all other possible priors was an arbitrary decision; he suggested that IPPSS should have considered all distributions that were not ruled out by the available evidence. (*Id.* at 27.) To illustrate how his philosophy with regard to dealing with uncertainty could be formulated to calculate risk, Levi developed his own "worst permissible prior" which he used to calculate a range of probability for a given failure; he suggested that his procedure should be applied to "all sorts of priors and data that [are] found at Indian Point. . . ." (*Id.* at 36-40; Tr. 7827.)

UCS/NYPIRG witness Weatherwax testified that while probabilities of initiating events in IPPSS are conservatively high and the probabilities of core damage or melt "are consistent with observed reality," the overall risk levels are "remarkably low." (Weatherwax, ff. Tr. 7918, at 9.) He believes that much additional analysis and verification is required before the expected values are used and the uncertainty factors established. (*Id.* at 12. ) He criticized IPPSS for relegating fault tree analysis to a reduced role, compared to the role it played in WASH-1400. (*Id.*) He believes that any estimates of containment failure pressure above 60 psia are speculative, since that is the pressure at which the containment is tested. (*Id.* at 14.) He considers the use of a Discrete Probability Distribution (DPD) for source terms to be unreasonably simplistic and needing justification. (*Id.*) While complimenting the authors of IPPSS for their fire modeling effort, Weatherwax criticized them for ignoring control room fire and hot gas as a mode of damage to electrical cables. (*Id.* at 15.) He agreed with the Sandia review that it is nearly impossible to reproduce the algebraic operations on the discrete approximations to the lognormal functions and suggested that the condensation procedure described in IPPSS § 0.13.9 could have the effect of understating the range of uncertainty carried forward in the integration of the minimal cut-sets. (*Id.* at 17.) Weatherwax testified that the Bayesian method may be oversold by IPPSS and said that he was not comfortable with it; as indicated earlier, he suggested that the models be rerun without the Bayesian method. (*Id.* at 18.) Although he believes that the plant analysis portions of IPPSS represent an impressive effort and IPPSS

makes substantial methodological progress in some areas, notably modeling external events and accommodating uncertainty, he suggested it merits a more extensive review than Sandia was able to give it. After meticulous review it should be used to investigate cost-effective design and operational modifications to improve safety. (*Id.* at 19-20.)<sup>19</sup>

### *Staff/Sandia Methodology and Approach to PRA*

Sandia and the NRC Staff adopted the conventional statistical approach. Point estimates and statistical confidence limits were obtained from Indian Point and industry-wide data using the so-called Maximus method, given in a "Handbook for the Calculation of Lower Statistical Confidence Bounds on System Reliability." (Staff Ex. 6 at 3.1-1 and 3.1-8.) The Maximus method consists of a collection of rules for reducing "components" data to "systems" data in ways that account for the series parallel structure of the system and for the possible repeated use of the same component data. (*Id.* at 3.1-1.) The approach involves using the Maximum Likelihood Principle for estimating accident sequence rate and statistical confidence limits. (*Id.*)<sup>20</sup>

Staff witnesses presented a comparison of summary results from the Sandia evaluation with corresponding summary results from IPPSS. (Israel, *et al.*, ff. Tr. 7391, at 11.) We reproduce here and designate as our Table I the summary results on frequency of internal event plant damage states. (*Id.* at 12, Table 1; Tr. 7390.)

The first column lists plant damage states. The second and third columns give IPPSS estimates of damage state frequency for Indian Point Units 2 and 3, respectively, obtained by the Bayesian methodology and here expressed as mean number of events per year. The fourth and fifth columns give Sandia's point estimates obtained by the Maximus method. Sandia concluded that the point estimates obtained from the Bayesian analysis were consistent with the Sandia point estimates calculated from plant-specific data. (Israel, *et al.*, ff. Tr. 7391, at 10;

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<sup>19</sup> Expert witnesses of diverse parties seemed to be in agreement with the general point being made here by witness Weatherwax, *vz.*, that PRAs are especially useful for identifying design and operational changes to improve reactor safety. Intervenor's witness Beyea said that he thinks PRAs are very useful in trying to make improvements in reactor safety, although he does not think they are advanced enough to be used to set absolute probability levels. (Beyea, Tr. 3115.) Staff witnesses Rowsome and Blond testified that PRAs are very successful in identifying ways in which a reactor may be vulnerable to severe accidents and ways to improve reactor safety, and they also acknowledged that PRAs are rather unreliable at predicting precise magnitude of risk. (Rowsome/Blond, ff. Tr. 7169, at 12-13.)

The Board agrees that PRAs are very powerful tools for identifying strengths and weaknesses in reactor safety. (See Rowsome, ff. Tr. 12,834, § C at 2-3.) In fact, at Indian Point significant safety improvements have been made as a result of IPPSS and the Sandia review. See discussion of "fixes" at p. 858, *Infra.*

<sup>20</sup> As Sandia points out, "Maximus" is the name of the company that published the handbook and is unrelated to the Maximum Likelihood Principle, a statistical procedure. (Staff Ex. 6 at 3.1-1, 3.1-7.)

**TABLE I**  
**IPPSS and Sandia's Revised Internal Event**  
**Plant Damage State Comparison**  
**(Frequency Events per Year)**

Plant Damage State	IPPSS Estimates		Sandia Estimates	
	IP2	IP3	IP2	IP3
Containment Bypass Prior to Core Melt	4.6(-7)*	4.6(-7)	2.1(-7)	2.1(-7)
Core Melt Without Containment Cooling	1.1(-6)	7.1(-7)	6.1(-7)	5.7(-7)
Early Core Melt with Containment Cooling	5.4(-5)	1.8(-5)	1.2(-4)	1.8(-4)
Late Core Melt with Containment Cooling	3.4(-5)	1.1(-4)	1.0(-4)	1.0(-4)
Steam Generator Tube Rupture with Stuck Open Secondary Safety Valve	—	—	5.2(-7)	2.0(-7)

\*4.6(-7) =  $4.6 \times 10^{-7}$

Easterling, Tr. 7429.) Uncertainties associated with these results arise from: (1) a lack of infinite data pertaining to initiating event frequencies and subsystem and component failure probabilities; (2) inadequacy of the PRA logic models to perfectly represent reality; and (3) the inability of the analyst to evaluate perfectly and exhaustively all contributions to core melt because of oversights due to lack of knowledge or the limited scope of the analysis. (Israel, *et al.*, ff. Tr. 7391, at 11, 13.) The Staff witnesses cautioned us that although they believe their revised estimates reflect a state-of-the-art level of completeness for PRAs, there is no guarantee that their review, which was based largely on their own PRA experience, was complete in an absolute sense.

***Finding on Acceptable Methodology***

The application of Bayes' Theorem to risk assessment is new, although Bayes' Theorem has been known for more than 200 years. The

use of Bayes' Theorem in IPPSS was strongly criticized in NUREG/CR-2934 and by Staff witness Easterling, who is a statistician. Those criticisms are well founded and valid. Like Sandia and witness Easterling, we find it difficult to accept that the states of belief of individuals can, with confidence, be converted into a realistic probability distribution. Nor do we believe it valid to assume that the Indian Point units or their components were chosen at random from an infinite population of plants or components.<sup>21</sup> The Licensees made no attempt to defend their use of Bayes' Theorem on statistical grounds. Rather, they placed emphasis on the fact that their use of the Bayesian methodology "had little effect on the results." (PA PF at 28-29.)

On statistical grounds, we believe that the Maximus method, which involves use of the widely accepted Maximum Likelihood Principle, provides a less intuitive and more realistic approach to risk assessment than does Bayes' Theorem. We recognize that in this case the Bayesian methodology produced frequency distributions whose central values, although consistently smaller, nevertheless did not differ markedly from the point estimates obtained by the Staff. Thus, it may be valid to conclude that use of the Bayesian methodology here "made little difference." But we cannot conclude, as did Staff witness Rowsome, "that the statistical issue was a non-issue." (Tr. 8797.) In making a judgment with respect to statistical procedures, we believe that preponderant weight should be given to the testimony of statisticians.

While it would be justifiable to reject the Bayesian methodology on statistical grounds alone, perhaps the chief danger in using the Bayesian approach is that the seeming rigor of the algorithm and the "engineering judgment" injected by the use of the priors may lend a spurious air of reliability to the result. One may deceive oneself into believing that the calculated probability distributions are more realistic than they actually are.

For the foregoing reasons, we have decided not to rely on the Bayesian methodology. Rather, we shall accept estimates obtained using the Maximus method. Having accepted Sandia's and Staff's statistical approach, we turn now to a review of their reassessment of the dominant accident sequences.

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<sup>21</sup> Professor Levi testified that eminent statisticians such as R.A. Fisher, Jerzy Neyman (incorrectly spelled "Namum" at Tr. 7786 and "Namond" at Tr. 7828), and Abraham Wald, and a majority of the statistical profession today, object to use of Bayes' Theorem when the prior probabilities are based on subjective judgment. (Tr. 7786-88.)

## ***NRC Staff/Sandia PRA Accident Sequence Estimates***

Sandia reanalyzed 28 accident sequences which, in IPPSS, dominated core melt frequency or serious radioactive material release frequency. (Staff Ex. 6 at 3.1-1.) The point estimates Sandia calculated were derived from Indian Point data and from industry-wide data obtained from LER summaries. (*Id.*; Easterling, Tr. 7427.) For the most part, Sandia obtained its alternative estimates by modifying a few terms in the IPPSS models, so that the resulting point estimates are a mixture of IPPSS results and Sandia results. (Staff Ex. 6 at 3.1-1.)

Sandia also evaluated the basic building blocks of the IPPSS internal event analysis to determine if possible errors, unrealistic assumptions, or omissions by the IPPSS analysts could allow additional sequences other than the 28 dominant sequences to become important. (Israel, *et al.*, ff. Tr. 7391, at 7.) While the initiating events covered in IPPSS were found to be relatively complete, IPPSS failed to consider an initiating event caused by a pipe break in the component cooling system; Sandia found this event to be an important contributor to core melt frequency. (*Id.* at 8.) The fault trees presented in IPPSS were found to be a reasonable representation of the Indian Point safety systems, but Sandia believed that some changes in the logic structure of fault trees for the service water system, the auxiliary feedwater system, and the fan coolers were appropriate; therefore, Sandia factored these changes into its damage state frequencies. (*Id.*) Sandia also made changes in the event trees for steam generator tube rupture, loss of service water, loss of component cooling water, and anticipated transients without scram (ATWS) for purposes of calculating its revised estimates.<sup>22</sup> The other event trees in IPPSS were found to be appropriate. (*Id.* at 9.)

Sandia observed that the human is the most difficult nuclear plant "system" to analyze; he or she can have both a positive and negative influence on the course of an accident. (*Id.*) Because of the large number of activities possible, Sandia's review focused on those activities identified by IPPSS as having a major impact on the dominant accident sequences. (*Id.*) For situations in which Sandia found that no procedures existed or only limited procedures were analyzed in IPPSS, Sandia assigned bounding human error probabilities. Four activities which were important to safety were reviewed in detail; these involved switchover from injection to recirculation following a LOCA. (*Id.*) Of the four, Sandia's revised estimates found two to be reasonable, one resulted in a

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<sup>22</sup> The IPPSS analysts agreed with the Sandia conclusions. (Israel, *et al.*, ff. Tr. 7391, at 8.) IPPSS Amendment 1 incorporates revisions to the service water system and the ATWS model.

higher human error probability, and one resulted in a lower probability estimate. (Israel, Tr. 7390.)

Sandia and the NRC Staff also evaluated the effect that several Licensee proposals would have on risk. Licensees' proposals (referred to as "fixes") included:

- (a) the reduction of seismic vulnerability at Unit 2 by widening the clearance at the roofline between the Unit 1 Superheater Building and the Unit 2 Control Building, improving the welds, and installing rubber padding in that space. (Budnitz, ff. Tr. 7489, at 18-19; Bley, Tr. 7084; Perla, Daum, Wesley, Tr. 13,050-52.)
- (b) the reduction of seismic vulnerability at Units 2 and 3 by strengthening the Unit 2 and Unit 3 control room ceiling panels. (Bley, Tr. 8393.)<sup>23</sup>
- (c) the reduction of fire vulnerability in Unit 2 by the provision of hardwire connections from local junction boxes to: (1) the service water pump for secondary cooling of the component cooling water pump; (2) the component cooling water pump for cooling the RCP seals; and (3) the charging pump for the reactor coolant pump seal injection and primary system makeup and boration. (Buchbinder/Kubicki, ff. Tr. 7577, at 20.)
- (d) the reduction of fire vulnerability in Unit 3 by the provision of an alternate means of power to essential equipment such as the cooling pumps, charging pumps, and instrumentation power cabinet in the penetration area. (*Id.* at 24; Bley, Tr. 8393.)
- (e) the reduction of hurricane vulnerability at Unit 2 by a license amendment which requires anticipatory shutdown. (Rowsome, ff. Tr. 7597, at 5.)

(See also Staff Ex. 6, §§ 2.7.1 and 2.7.4.)<sup>24</sup>

These fixes were chosen to reduce dominant contributors to risk. All fixes applicable to Unit 2 have been accomplished, and the Power Authority has committed to execute the fixes applicable to Unit 3 prior to the restart of Unit 3. (Bley, Tr. 8393; Rowsome/Blond, ff. Tr. 12,834, at B-3-B-4.)

We conclude that the NRC/Sandia analyses not only used the more acceptable statistical approach, they also are modeled more realistically than are the original IPPSS analyses. Therefore, we accept the

<sup>23</sup> The ceiling modifications were not considered in the Staff's analysis of risk after fix. (Budnitz, Tr. 7525.) Nor did the Staff consider a Licensee reanalysis of the fragility of the Unit 2 containment. (Budnitz, Tr. 7528-32.) Because the Licensee's reanalysis of the fragility of the Unit 2 containment had not been subjected to review by the Staff, we have not accepted it. Should a subsequent review by Staff find the reanalysis valid, the risk of early health effects from Unit 2 may be reduced by a large fraction. (Budnitz, Tr. 7531-32.)

<sup>24</sup> Licensees also presented their own analyses for the addition of seismic bumpers to the Unit 2 control room building and for other modifications to Units 2 and 3 designed to reduce the core melt and release frequencies from seismic events and fires. (IPPSS Amendment 1.)



NRC/Sandia values set forth on the following pages in Tables II through IV. In so doing, we do not denigrate the IPPSS. We recognize that IPPSS is a watershed PRA. Further, we recognize that IPPSS provided the basis for the Staff/Sandia analysis. But we believe that Staff/Sandia has improved the analysis and provides us with more reliable estimates.

### *Frequency of Severe Core Damage*

According to Staff's estimates, the overall core melt frequency for Indian Point Unit 2 and for Unit 3 after fix is  $3.5 \times 10^{-4}$  per year. (Rowsome/Blond, ff. Tr. 12,834, at B-18.) Staff points out that these estimates are above the fourth design objective suggested in NUREG-0880 For Comment, "Safety Goals for Nuclear Power Plants: A Discussion Paper" (February 1982); that objective states that the probability of a large-scale core melt accident should be less than  $1 \times 10^{-4}$  per year of reactor operation. (*Id.*) Although there are some recognized conservatisms in Staff's estimates, Staff testified that it is not confident that either unit has a core melt frequency below the design objective. (*Id.* at B-19.)<sup>25</sup>

Staff testified further that it had analyzed thoroughly the frequency of nine release categories and the consequences of each at Indian Point. (*Id.*) This analysis led Staff to conclude that a "large part" of the after-fix frequency of core melt accidents falls in the release categories H (release occurring after melted core penetrates the basemat) and I (containment does not fail). (*Id.*; Meyer/Pratt, ff. Tr. 12,492, at III.B-37.) Staff believes these categories result in minor offsite consequences and present more of a risk to the utilities' investment in the plants than to public health and safety. (Rowsome/Blond, ff. Tr. 12,834, at B-19.) Staff even testified that contamination level would be so low with release categories H and I that emergency response would not be mandated under current EPA guidelines. (Rowsome/Blond, ff. Tr. 8771, at 6.)

Staff believes that the only significant accident scenario with a large release/consequence potential at Indian Point is release category C, long-term containment overpressurization leading to eventual failure; in this situation there would be at least eight hours warning time for an emergency response to be carried out. (*Id.*) Staff estimates that the frequencies of the large release categories A and B (both of which result from a rapidly developing accident with early containment failure), together with the frequency of C, give a combined frequency of  $3.6 \times 10^{-5}$  per year for Unit 2 after fix and  $1.8 \times 10^{-5}$  per year for Unit 3 after

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<sup>25</sup> See note 28, *infra*.

**TABLE II**  
**Indian Point 2 Revised Dominant Accident Sequences**  
**(Staff Ex. 6, Table 5.2-5 as modified**  
**by the Board to reflect the effect of the fixes)**

Rank with Respect to Core Melt	Sequence	Plant Damage State	Frequency/ Ryr
1	Large LOCA: Failure of Recirculation	ALF	3.9(-5)
2	Medium LOCA: Failure of Recirculation Cooling	ALF	3.9(-5)
3	Loss of Component Cooling Due to a Pipe Break Causing RCP Seal LOCA and Failure of Safety Injection Pumps	SEFC	3.8(-5)
4	Seismic: Loss of Control or Power	SE	2.5(-5) <sup>1</sup>
5	Fire: Specific Fires in Electrical Tunnel and Switchgear Room Causing RCP Seal LOCA and Failure of Power Cables to the Safety Injection Pumps, Containment Spray Pumps, and Fan Coolers	SE	2.2(-5) <sup>2</sup>
6	Loss of Main Feedwater: ATWS, Failure of Turbine Trip and Safety Injection System	SEFC	2.2(-5)
7	Small LOCA: Failure of Recirculation Cooling	SLF	2.2(-5)
8	Hurricane, etc., Wind: Loss of AC Power Due to High Winds	SE	1.8(-5) <sup>3</sup>
9	Turbine Trip Due to Loss of Offsite Power: Failure of Diesels Due to Fire, RCP Seal LOCA and Failure to Recover External AC Power Until After 1 Hour	SEFC	1.8(-5)
10	Small LOCA: Failure of High Pressure Injection	SEFC	1.7(-5)

TABLE II Continued

Rank with Respect to Core Melt	Sequence	Plant Damage State	Frequency/Ryr
11	Tornado and Missiles: Causing Loss of Offsite Power and Service Water Pumps or Control Building	SE	1.6(-5)
12	Turbine Trip Due to Loss of Offsite Power: Failure of Two Diesel Generators, RCP LOCA, and Failure to Recover External AC Power Until After 1 Hour	SEFC	1.5(-5)
13	Fire in Cable Spreading Room Causing Failure of Safety Injection Followed by Failure of the Operator to Take Local Control of AFWS	TEFC	1.2(-5) <sup>2</sup>

<sup>1</sup> After fix. (Compare Rowsome, ff. Tr. 7597, Memo from Rowsome to Meyer (Dec. 2, 1982) at 2 with Staff Ex. 6, Tables 2.7.1, 2.7.1-2, and 5.2-5.)

<sup>2</sup> After fix. (Compare Staff Ex. 6 at 2.7.4-13 with Buchbinder/Kubicki, ff. Tr. 7577, 23.)

<sup>3</sup> After fix. (Budnitz, ff. Tr. 7489, at 11, 39.) We accept this estimate, but are uneasy in doing so. The original IPPSS estimate was  $2.7 \times 10^{-5}$  and was increased by a factor of 20, to  $5.4 \times 10^{-4}$ , by Sandia. (Staff Ex. 6 at 2.7.2.5; see also *id.* at 3.1-2.) The NRC Staff, unable to determine which was the more accurate estimate, adopted a compromise figure and reduced the Sandia estimate by a factor of 3 (to  $1.8 \times 10^{-4}$ ). (Budnitz, ff. Tr. 7489, at 39.) Then, to reflect the anticipatory shutdown fix, the Staff further reduced the estimate by a factor of 10, to  $1.8 \times 10^{-5}$ . (Rowsome, ff. Tr. 7597, at 4-5.) We do not have the data needed to determine the correct estimate, but we are concerned by the uncharacteristic lack of rigor and intuitiveness used in calculating the estimate.

fix. (Rowsome/Blond, ff. Tr. 12,834, at B-19-B-20.) The frequency of a large release at the site, therefore, is  $5.4 \times 10^{-5}$  per year. Staff argues that the frequency of these three release categories is a better measure of risk than the overall core melt frequency and points out that these probabilities are well below the design objective. (*Id.*)

The Licensees also believe that the health risks posed by the Indian Point units are very small. (Licensees, ff. Tr. 6961, at 22.) They estimate the core melt median frequency for Unit 2 to be  $1.4 \times 10^{-4}$ . (*Id.* at 71; Paddleford, *et al.*, ff. Tr. 12,663, at 7; IPPSS Amendment 1 at 8.1-1.) Core melt frequency for Unit 3 was given in IPPSS Amendment 1 as  $5.6 \times 10^{-5}$  per year, and in Licensees' prepared testimony on Commission Question 1 as  $5.9 \times 10^{-5}$ . (IPPSS Amendment 1 at 8.1-2; Licensees, ff.

**TABLE III**  
**Indian Point 3 Revised Dominant Accident Sequences**  
**(Staff Ex. 6, Table 5.2-6)**

Rank with Respect to Core Melt	Sequence	Plant Damage State	Frequency/ Ryr
1	Loss of Component Cooling Due to a Pipe Break Causing RCP Seal LOCA and Failure of Safety Pumps	SEFC	1.4(-4)
2	Large LOCA: Failure of Recirculation Cooling	ALF	3.9(-5)
3	Medium LOCA: Failure of Recirculation Cooling	ALF	3.9(-5)
4	Loss of Main Feedwater: ATWS, Failure of Turbine Trip and Safety Injection System	SEFC	2.5(-5)
5	Seismic: Loss of Control	SE	2.4(-5)
6	Small LOCA: Failure of Recirculation Cooling	SLF	2.2(-5)
7	Fire: Specific Fires in Switchgear Room or Cable Spreading Causing RCP Seal LOCA and Failure of Power Cables to the Safety Injection Pumps, the Containment Spray Pumps, and Fan Coolers	SE	1.9(-5) <sup>1</sup>
8	Fire in Cable Spreading Room Causing Failure of Safety Injection Followed by Failure of the Operator to Take Local Control of AFWs	TEFC	1.8(-5) <sup>1</sup>

<sup>1</sup> After fix. (Compare Staff Ex. 6 at 2.7.4-14 with Buchbinder/Kubicki, ff. Tr. 7577, at 26.)

**TABLE IV**  
**Indian Point Damage State Frequencies**  
**(Meyer/Pratt, ff. Tr. 12,492, Table III.B.1)**

Damage State	Unit 2 After Fix*			Unit 3 After Fix**		
	INT***	LOSP†	RD††	INT	LOSP	RD
Z	0	0	7(-7)	0	0	3.5(-8)
V	4(-7)	0	0	4(-7)	0	0
E	2.4(-5)	1.6(-5)	4.3(-5)	2.5(-5)	1.5(-6)	1.2(-5)
EC	1.1(-5)	0	0	neg.	0	0
EF	6.4(-7)	0	0	neg.	0	0
EFC	1.3(-4)	2(-5)	6(-9)	2.0(-4)	3(-6)	1.2(-6)
LF	1(-4)	0	0	1(-4)	0	0
SGTR	2(-6)	0	0	2(-6)	0	0
<b>TOTAL</b>	<b>2.7(-4)</b>	<b>3.6(-5)</b>	<b>4.3(-5)</b>	<b>3.3(-4)</b>	<b>4.5(-6)</b>	<b>1.3(-5)</b>
<b>GRAND TOTAL</b>		<b>3.5(-4)</b>			<b>3.5(-4)</b>	

\*Fixes for Unit 2 include: (a) reduced seismic fragility, (b) reduced fire vulnerability, and (c) anticipatory shutdown for hurricanes.

\*\*Fixes for Unit 3 are limited to reduced fire vulnerability.

\*\*\*INT = Internal events excluding those characterized by loss of offsite power.

† LOSP = Events limited to those characterized by loss of offsite power (LOSP).

†† RD = External events characterized regional disasters (RD) (seismic and hurricane).

Tr. 6961, at *revised 71*.)<sup>26</sup> We need not struggle to resolve this minor discrepancy, however, because we are not accepting for purposes of our recommendations the estimates obtained using Bayesian statistics.

Intervenors did not present their own estimates of the probability of core melt in testimony. They did, however, refer to the matter in their proposed findings where they pointed out that the Precursor Study per-

<sup>26</sup> Both the Power Authority and the NRC Staff cite Licensees' Question 1 Testimony as giving the value,  $5.0 \times 10^{-5}$ , for core melt frequency for Unit 3. (PA PF at 425-26; Staff PF at 209). That value was given in Licensees' Question 1 Testimony as originally filed on January 24, 1983. (Licensees, ff. Tr. 6961, at 71, Table V-3). A revised Table V-3, submitted on February 6, 1983, however, showed the core melt frequency for Unit 3 to be  $5.9 \times 10^{-5}$  (revised page 71).

formed by Oak Ridge National Laboratories<sup>27</sup> estimated that core melt accidents could be expected to occur with a frequency between one in every 222 and one in 588 reactor-years. (Int. PF, § 2, at 4.) The reciprocals of these frequencies produce probabilities of  $4.5 \times 10^{-3}$  and  $1.7 \times 10^{-3}$  core melt accidents at Indian Point per year (not per reactor-year). The greater frequency estimate was obtained from modeling which included the accident at TMI-2, the Browns Ferry fire, and the instrument power supply failure at Rancho Seco; corrective actions for these accidents have been taken at Indian Point and elsewhere. (Rowsome, ff. Tr. 8277, at 6.) If these three events are left out of the calculation, the precursor study estimate of the industry average drops to  $7.7 \times 10^{-4}$  per reactor-year. (*Id.*) Applying this average to the two-reactor situation at Indian Point, we get  $1.5 \times 10^{-3}$ . This value is, of course, very close to the lower bounding estimate,  $1.7 \times 10^{-3}$ , that we calculated from the Intervenor's figures. In his testimony addressed to Board Question 1.2, Staff witness Rowsome testified that Indian Point Units 2 and 3 are less likely to suffer a severe core damage accident of the kinds that were significant in the precursor study, which was based on plants in the 1969-1979 period. (*Id.* at 16.)

We conclude that the Intervenor's estimates, having been obtained from estimates that were applicable to the average reactor of the 1970's, are not appropriate for the Indian Point plants. We have already discussed our reasons for accepting Staff's estimates over those of the Licensees. We therefore accept, for purposes of making our recommendations to the Commission, Staff's estimated core melt frequency of  $3.5 \times 10^{-4}$  for each unit.

In assessing the risk posed by serious accidents at Indian Point Units 2 and 3, however, we believe that the Intervenor, rather than the Staff or Licensees, have taken the appropriate approach in that they expressed their estimated time to core melt accident in terms of *both* reactors, not per reactor. In our view, the risk that must be assessed in answer to Commission Question 1 is the risk to the population and property near Indian Point from the simultaneous operation of both units.<sup>28</sup> Based on Staff's estimate of  $3.5 \times 10^{-4}$  per year as the probability of core melt at each of the two units, we calculate that the estimated probability of a

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<sup>27</sup> The "precursor study" refers to NUREG/CR-2497, "Precursors to Potential Severe Core Damage Accidents: 1969-1979, A Status Report" (June 1982). It was the subject of Board Question 1.2. It was not, however, introduced into evidence.

<sup>28</sup> In NUREG-0880 Revision 1 For Comment (May 1983), the Commission changed the quantitative design objectives from risks per site to risks per plant, to avoid imposing a regulatory bias against multi-unit sites. (NUREG-0880 Rev. 1 For Comment, at 33.) We have been asked to evaluate the existing risk. That risk is clearly the sum of the risks for both plants. We consider that sum to be the operative number; therefore we are expressing our risk figures as that sum.

core melt accident occurring at Indian Point is  $7 \times 10^{-4}$  per year. To the extent that the Commission may consider it relevant, we note that this value is more than twice the design objective,  $2 \times 10^{-4}$ , which would be applicable if we apply the proposed objective set forth in NUREG-0880 Rev. 1 For Comment.

In the subsequent review of risk estimates, we shall apply the principle that we adopted here with respect to core melt frequency. Risk must be assessed with respect to both reactors, not to Units 2 and 3 separately.

### ***Risk from Serious Accidents at Indian Point Units 2 and 3***

Risk from accidents at Indian Point Units 2 and 3 can be expressed on both an individual and a societal basis. Individual risk is the likelihood that an individual in the vicinity of the station will be affected by a serious accident at either unit. Societal risk expresses the effect on the population in the vicinity of the plant when a severe accident occurs. (Licensees, ff. Tr. 6961, at 10, 19.) Since individual risks can be dealt with more quickly than societal risks, we shall turn to that subject first.

#### ***Individual Risks***

In order to determine accident consequences, and hence risk, release values (the amount of radionuclides released into the atmosphere) must be derived. The release values used by the Staff were the result of its containment analysis. The Staff used the CORRAL code with standard input assumptions (essentially those used in WASH-1400 and IPPSS) to derive the radionuclide release values from the plant damage states. (Meyer/Pratt, ff. Tr. 12,492, at III.B-23-B-24.) The Staff's analysis, however, differed from that of the Licensees in several aspects.

First, the Licensees utilized reduced source terms. Both the Licensees and the Staff agreed that the WASH-1400 methodology results in conservative (*i.e.*, overestimated) predictions of fission product releases. (Bernero, ff. Tr. 12,581, at 3; Stratton, *et al.*, ff. Tr. 8190, at 5.) However, Staff took the position, and we agree, that at present it is premature to attempt to calculate reduced source terms. Research is in progress to develop new models and to compile better data, and a decision on reduced source terms should await the outcome of that effort. (See Bernero, ff. Tr. 12,581, at 4, 11.)

Licensees also made different assumptions with regard to hydrogen generation and burning. The Licensees postulated that the behavior of silver contained in the control rods will reduce the metal/water interaction. (Meyer/Pratt, ff. Tr. 12,492, at 53.) The Staff examined

Licensees' postulation and concluded that there were other accident progression scenarios involving significantly more metal oxidation. The Staff based this opinion on tests performed at the Oak Ridge National Laboratory and on Sandia tests. (*Id.*) We find the Staff's position persuasive.

Finally, the Licensees assumed that a coolable debris bed would be established if the reactor cavity were flooded, thereby preventing basemat penetration, and Licensees disregarded basemat penetration for dry-cavity cases because they assumed the containment would fail first from overpressurization. (*Id.* at 57-58.) The Staff, however, did not believe that a coolable debris bed could be guaranteed, and assigned probabilities to basemat penetration. (*Id.* at 58.) We find the Staff's approach more conservative. Accordingly, we accept the Staff's containment analysis and the resulting release values. These results are set out in Tables V and VI, on the succeeding pages.

Staff witness Acharya presented graphs depicting estimates of risk to an individual from an accident at either Indian Point reactor, *i.e.*, the per-site-year risk. (Acharya, ff. Tr. 8566, at III.C.A-30.) For the worst-case evacuation scenarios, "early reloc" and "late reloc,"<sup>29</sup> Staff estimated that the likelihood of early fatality ranges from  $10^{-6}$  to  $10^{-7}$  per site-year at less than one mile from the plant to  $10^{-10}$  to  $10^{-11}$  per site-year at a distance of 35 to 40 miles from the plant. (Acharya, ff. Tr. 8566, Fig. III.C.51.) The Licensees estimated the likelihood of early fatality within one mile of the plant, expressed as an average individual risk,<sup>30</sup> to be  $7.1 \times 10^{-9}$  per reactor-year for Unit 2 and  $6.4 \times 10^{-9}$  per reactor-year for Unit 3 (Licensees, ff. Tr. 6961, at 31-32.) These values give a per-site-year risk of  $1.4 \times 10^{-8}$ . The individual risk of early injury was estimated by Staff to range between  $10^{-6}$  and  $10^{-7}$  at a distance of less than one mile to between  $10^{-9}$  and  $10^{-10}$  at a distance of 50 miles. (Acharya, ff. Tr. 8566, Fig. III.C.52.) Licensees estimated the risk of early injury to be  $7.4 \times 10^{-8}$  for Unit 2 and  $2.1 \times 10^{-8}$  for Unit 3, for an individual within one mile of the plant. (Licensees, ff. Tr. 6961, at 31-32.) The per-site-year risk from these figures is  $9.5 \times 10^{-8}$ . Staff's estimate of latent cancer fatality risk, excluding thyroid cancer, for an individual exposed to radiation following a serious accident at Indian Point ranges from between  $10^{-6}$  and  $10^{-7}$  per site-year at a distance of less

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<sup>29</sup> "Early reloc" assumed that a prompt evacuation was impossible and that individuals in the plume "footprint" remained there eight hours before leaving. "Late reloc" assumed that because of severe external events, such as an earthquake or hurricane, individuals remained in the plume "footprint" with reduced shielding for 24 hours before leaving. In the case of early fatalities, supportive medical treatment was assumed to be unavailable. (Acharya, ff. Tr. 8566, at III.C.A-9-A-10; Fig. III.C.51.)

<sup>30</sup> Licensees' average individual risk was obtained from curves depicting estimated total risk from all modeled release scenarios. (Licensees, ff. Tr. 6961, at 92-94.)



**TABLE V**  
**Summary of the Atmospheric Release Specifications Used in the Risk**  
**Analysis for Indian Point Units 2 (2758 MWt) and 3 (3025 MWt)**  
**(Acharya, ff. Tr. 8566, Table III.C.3)**

Release Category (RC)	Time of Release (hr)	Duration of Release (hr)	Warning Time for Evacuation (hr)	Elevation of Release <sup>a</sup> (meter)	Energy Release (10 <sup>6</sup> Btu/hr)	Fractions of Core Inventory Released (%)						
						Xe-Kr	Inor- ganic I <sup>b</sup>	Cs-Rb	Te-Sb	Ba-Sr	Ru <sup>(c)</sup>	La <sup>(d)</sup>
RC-A	3	2.0	1	0	5	100	80	77	75	8.6	6.1	0.98
RC-B	2	1.0	1	0	0.5	100	70*	50	10	6	2	0.2
RC-C	13	0.5	8	0	98	96	9.8	34	38	3.7	2.9	0.49
RC-D	9.4	0.5	1	0	137	13	10	9.3	4.4	1.1	0.5	0.066
RC-E	12	0.5	1	0	180	85	10	8.1	6.4	0.92	0.56	0.086
RC-F	3	0.5	1	0	180	14	7.8	6.2	4.9	0.71	0.43	0.066
RC-G	2	8.0	1	0	0.3	100	0.2*	0.9	0.7	0.1	0.06	0.009
RC-H	72	8.0	67	0	0	70	0.04*	0.1	0.1	0.01	0.007	0.001
RC-I	2	8.0	1	0	0	0.05	0.0005*	0.001	0.001	0.0001	0.0001	0.00002

<sup>a</sup> A 10-meter elevation, except for RC-H, is input to CRAC code to represent the mid-point of a potential containment break.

<sup>b</sup> Organic iodine is not included unless explicitly stated.

<sup>c</sup> Includes Ru, Rh, Co, Mo, and Tc.

<sup>d</sup> Includes Y, La, Zr, Nb, Co, Pr, Nd, Pu, Am, and Cm.

\*Includes small fractions of organic iodine.

**TABLE VI**  
**Indian Point Release Category Frequencies**  
**(Events per Year)**  
**(Meyer/Pratt, ff. Tr. 12,492, Table III.B.3)**

Release Category	Unit 2 After Fix			Unit 3 After Fix		
	INT <sup>a</sup>	LOSP <sup>a</sup>	RD <sup>a</sup>	INT	LOSP	RD
A	0.0	0.0	7(-7)	0.0	0.0	3.5(-8)
B	4.3(-7)	3.6(-9)	4.3(-9)	4.3(-7)	0.0	1.3(-9)
C	1.2(-5)	6.4(-6)	1.7(-5)	1.2(-5)	6(-7)	4.8(-6)
D	1.0(-6)	2.0(-9)	0.0	1.0(-6)	0.0	0.0
E	1.6(-7)	0.0	0.0	1.0(-7)	0.0	0.0
F	4.4(-6)	6.8(-7)	2.2(-7)	6.1(-6)	9.8(-8)	9.6(-8)
G	2.7(-7)	3.6(-8)	4.3(-8)	3.3(-7)	4.5(-9)	1.3(-8)
H	5.1(-5)	1.2(-5)	2.2(-5)	6.3(-5)	1.4(-6)	6.2(-6)
I	2.0(-4)	1.7(-5)	2.6(-6)	2.5(-4)	2.5(-6)	1.7(-6)
	3.5(-4)			3.5(-4)		

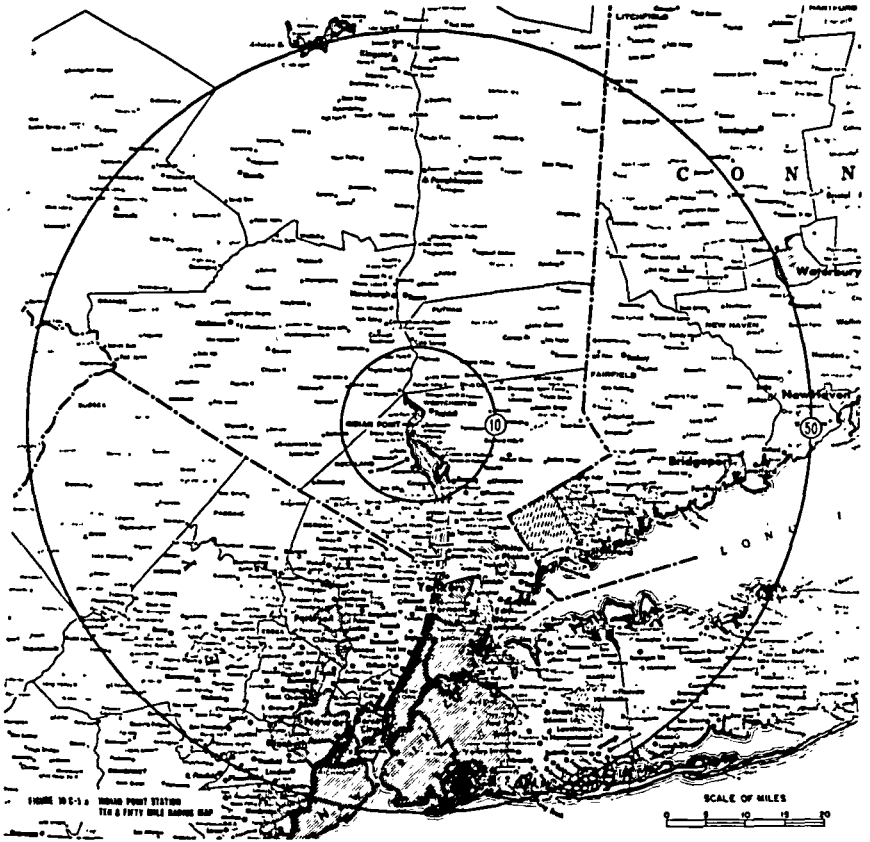
<sup>a</sup> For definitions of INT, LOSP, and RD, see Table IV.

than one mile to between  $10^{-8}$  and  $10^{-9}$  per year at a distance of 50 miles. (Acharya, ff. Tr. 8566, Fig. III.C.53.) The Staff estimated individual risk of developing fatal thyroid cancer to range from between  $10^{-7}$  and  $10^{-8}$  per site-year at less than one mile to between  $10^{-8}$  and  $10^{-9}$  at a distance of 50 miles. (Acharya, ff. Tr. 8566, Fig. III.C.54.) Licensees lumped all latent cancer fatalities, including thyroid, to get individual risk estimates for Unit 2 of  $6.2 \times 10^{-8}$  per year and for Unit 3 of  $1.6 \times 10^{-8}$  per year. (Licensees, ff. Tr. 6961, at 31-32.) This gives a per-site risk of  $7.8 \times 10^{-8}$ .

Staff believes that lethal exposures resulting from a severe accident would *probably* be limited to within a couple of miles of the reactors. (Rowsome/Blond, ff. Tr. 8771, at 9.) There is some inconsistency in Staff testimony with regard to how far from the site fatalities could be expected. Witnesses Blond and Rowsome testified that localized areas with high concentrations of radioactive fallout produced by adverse meteorological conditions during an accident could cause lethal exposures out to about 30 miles. (*Id.*) Witness Acharya's analysis, on the

other hand, projected latent fatalities as far away as 45 to 50 miles, albeit with a probability at that distance of only  $10^{-8}$  to  $10^{-9}$  per year. (Acharya, ff. Tr. 8566, Table III.C.12 and Figures III.C.53, -54.) To provide a perspective for these distances, in Figure 1 we have reproduced a 10- and 50-mile radius map for Indian Point, taken from the Con Ed Emergency Plan (attached as an exhibit to Con Ed Onsite Testimony, ff. Tr. 14,480, Figure 10.C-1.a). The 10-mile radius circle approximates the EPZ. The 30-mile distance referred to, *supra*, would fall midway between the 10- and 50-mile radii shown on the map. The 50-mile radius, as the map shows, includes all of New York City except the lower half of Staten Island. Staff estimates that 15,480,000 people live within 50 miles of Indian Point. (Rowsome/Blond, ff. Tr. 12,834, at B-15.)

The NRC Staff presented testimony to compare the risk from the Indian Point reactors with the background of competing non-nuclear risks to the population within 50 miles of the plants. (Rowsome, ff. Tr. 8780, at 2-3.) In its comparison, Staff used an annual average early fatality risk due to plant accidents of  $1.9 \times 10^{-2}$  early fatalities per year. (*Id.*) (See Table VII, *infra*.) Based on a population of roughly 15 million within 50 miles of Indian Point and an average U.S. individual risk of accidental death from all causes of  $5 \times 10^{-4}$  per person per year, Staff estimated that the background risk in the region is roughly 7500 accidental deaths per year. (*Id.*) Staff concluded that the contribution to risk of early accidental death posed by serious reactor accidents at Indian Point is roughly 2.5 parts per million of the background risk averaged over a 50-mile radius of the plant. (*Id.*) Using a similar approach, Staff also compared cancer risk from Indian Point with background cancer risk for the population within 50 miles of the plant. Staff used an estimate for the latent cancer fatalities that result from serious accidents at Indian Point of 0.32 fatalities per site per year. (See Table VII, *infra*; the value results from summing  $2.6 \times 10^{-1}$  and  $6.0 \times 10^{-2}$  delayed cancer fatalities per year.) (*Id.*) This value compares with a background cancer fatality rate of roughly 28,500 persons per year within 50 miles of the site. Thus, the severe reactor accident contribution to the cancer fatality risk amounts to roughly 11 parts per million of the background risk. (*Id.*) These fatalities occur not in one year but over the approximately 40 years after the hypothetical accident. (*Id.* at 5.) As a result of these comparisons, Staff does not see serious reactor accidents at Indian Point as potentially looming large against the background of competing risks. (*Id.* at 6.)



**FIGURE 1. Con Edison Emergency Plan (attached as an exhibit to Con Edison Onsite Testimony, ff. Tr. 14,480, Figure 10.C-1.a)**

## *Meteorology and the Risk to New York City*

Testimony addressing the question of whether airborne radioactive material released by an accident at Indian Point could reach New York City was presented in response to Board questions by the Licensees' meteorologists, Ms. Linda Lomonaco for the Power Authority and Mr. Lester Cohen for Con Ed. (Lomonaco, Tr. 11,682, ff.; L. Cohen, Tr. 11,714, ff.) Rebuttal testimony was presented by Mr. Daniel Gutman for UCS/NYPIRG and NYC Council, and an answer to the rebuttal was presented by Mr. Cohen for Licensees. (Gutman, ff. Tr. 15,164; L. Cohen, ff. Tr. 15,197.) The NRC Staff reviewed this testimony in its proposed findings on Contention 3.6, because that contention concerned whether the Indian Point emergency plans had adequately taken into account meteorological conditions. (Staff's PF at 85-86.) In our view this testimony is more relevant to the possible risk to persons in New York City from an accident at Indian Point than it is to the adequacy of emergency planning. Therefore, we shall consider testimony on valley and synoptic winds here.

Air movement in the Hudson Valley near Indian Point is dominated by synoptic winds driven by storm systems during the months from November to April and by a low-level valley flow system during the months from May to October. (Lomonaco, Tr. 11,682; L. Cohen, Tr. 11,714-15, 15,203-04; L. Cohen, ff. Tr. 15,197, at 2.) There are no daily observations of synoptic winds, as there are of valley flow winds, at Indian Point, but daily observations of wind at an altitude of 300 meters at J.F. Kennedy airport from 1960 through 1964 showed wind from the north 6 or 7% of the time on an annual basis. (L. Cohen, ff. Tr. 15,197, at 3-4; L. Cohen, Tr. 15,207.) Sixty-eight percent of the time annually the wind had a westerly component (SSW clockwise through NNW), 25% of the time the wind was NNE clockwise to S, and 1% of the time it was calm. (L. Cohen, ff. Tr. 15,197, at 4.) Valley flow is generated under conditions of weak synoptic pressure gradients by cool drainage downvalley, channeled by the mountainous terrain on the east and west banks of the Hudson River. (*Id.* at 2-3; L. Cohen, Tr. 11,714-15.) This northeasterly valley flow (toward New York City) generally exists at night for eight to ten hours; about sunrise it dissipates and reverses, to become an upvalley, southwesterly flow. (L. Cohen, ff. Tr. 15,197, at 2.)

Valley flow is strongly influenced by surrounding topography. (*Id.* at 2-3; L. Cohen, Tr. 15,204.) In the vicinity of Haverstraw Bay, about four miles south of Indian Point, northeasterly valley flow is diverted by High Tor Mountain and South Mountain on the west bank of the river. (Lomonaco, Tr. 11,682; L. Cohen, Tr. 11,720-24, 15,204.) These obstacles turn the air flow toward the east, so that the wind has a westerly

component, or the valley flow may even reverse or go calm. (L. Cohen, Tr. 11,723-24.) However, a plume being transported by stable valley flow could proceed downriver after the diversion at Haverstraw Bay (L. Cohen, Tr. 15,204; Gutman, Tr. 15,180-81.) The record is not clear with respect to the relative frequency with which valley flow is diverted around High Tor and South Mountain to continue its downriver movement. The Intervenor's witness, interpreting results in the Indian Point 1982 meteorological update for the Final Safety Analysis Report, believes that 20 to 30% of low-level releases could be transported by valley flow to lower Westchester County or New York City. (Gutman, ff. Tr. 15,164, at 3; Gutman, Tr. 15,181.) Licensees' witness believes that the chance of a release reaching New York City is not substantial, because (1) New York has a high percentage of westerly component winds, (2) the probability of wind persistent enough to carry a plume to New York City is not substantial, and (3) highly persistent winds would enhance atmospheric diffusion and reduce ground-level concentrations. (L. Cohen, ff. Tr. 15,197, at 5.)

Synoptic winds, which dominate in all but the warm months of the year, are little affected by topography (*Id.* at 3; L. Cohen, Tr. 15,204.) With a strong synoptic wind, a plume would travel in almost a straight line, with Gaussian diffusion. (L. Cohen, Tr. 11,736.) Moreover, synoptic winds are much more persistent than valley flow, making it more likely that a plume carried by synoptic winds would reach New York City. (Gutman, ff. Tr. 15,164, at 3.) The higher wind speed generally characteristic of synoptic winds, however, would tend to enhance the atmospheric diffusion process. (L. Cohen, ff. Tr. 15,197, at 3.)

Unfortunately, the record before us does not enable us to assign any quantitative estimate of the chance that meteorological conditions during an accident at Indian Point could result in radioactive material being carried to New York City. Although the probability of such transport is low, the record does show that it is possible that winds could transport such material from Indian Point to the City in the event of an accident.

### *Indian Point Risks and the Design Objectives*

Staff compared its risk estimates with the quantitative design objectives contained in the Commission's "Policy Statement of Safety Goals for the Operation of Nuclear Power Plants," published on March 14,

1983. (48 Fed. Reg. 10,722.)<sup>31</sup> (Rowsome/Blond, ff. Tr. 12,834, at B-8-B-9.) The design limit addressing individual risk states that the risk of early fatality from a reactor accident to an average individual in the vicinity of a nuclear power plant should not exceed one-tenth of one percent (0.1%) of the sum of prompt fatality risks resulting from other accidents to which members of the U.S. population are generally exposed. (*Id.* at B-11.) Staff estimated that the expected values for early fatalities per site-year for individuals within 1¼ miles of the plant (within roughly one mile of the site boundary) ranged from  $7.46 \times 10^{-4}$  after fix under Staff's most optimistic emergency response assumptions and  $1.13 \times 10^{-3}$  after fix under Staff's most pessimistic emergency response assumptions.<sup>32</sup> For comparison, the non-nuclear risk to an average individual in the United States is a probability of  $5 \times 10^{-4}$  of accidental death per year, which translates into an expected 2.32 accidental deaths per year for the 4,642 persons residing within 1.25 miles of the site. (*Id.* at B-11.) For the emergency response scenarios, "evac reloc/late reloc"<sup>33</sup> without supportive medical treatment and "early reloc/late reloc" without supportive medical treatment, the risks are 47% and 49%, respectively, of the design objective. (*Id.* at B-12.) With supportive treatment these two scenarios gave risks that were 34% and 32% of the design limit, respectively. (*Id.*) Thus, Staff's estimates of early fatalities resulting from accidents at Indian Point are consistently below the safety goal design limit. (*Id.* at B-13.) However, Staff is not certain that the plant risks are really below the design objective, because the uncertainties surrounding the estimates are larger than the margin by which the estimated risk falls below the design limit. (*Id.* at B-13-B-14.) But Staff believes that even if the risk does exceed the design limit of 0.1% of the non-nuclear background risk, it will still be only a few tenths of one percent of the background risk. (*Id.* at B-14.)

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<sup>31</sup> The Commission's March 1983 policy statement states that the goals and objectives are preliminary and subject to revision after an evaluation period of two years. Staff recognized that the design objectives in the policy statement are not to be used for regulatory decisionmaking, but it considered a comparison of the quantitative design objectives with the risk assessment results in the instant case to be "illuminating, both for the case at hand and for evaluation of the proposed safety goals." (Rowsome/Blond, ff. Tr. 12,834, at B-9.) We agree.

<sup>32</sup> These expected values can be translated into individual risk by dividing by the population residing within 1.25 miles of the plant (4,642 persons). (Rowsome/Blond, ff. Tr. 12,834, at B-11.) The calculation yields  $1.3 \times 10^{-7}$  and  $2.4 \times 10^{-7}$ , respectively.

<sup>33</sup> In our consideration of societal risks, *infra*, we determine that the "evac reloc/late reloc" scenario is reasonable for dry roads and good weather.

## *Societal Risk*

Societal risk can be quantified as the product of the accident probability and the conditional mean value of the societal consequences of the accident. (Acharya, ff. Tr. 8566, at III.C.A-16.) The conditional mean value of societal consequences is obtained from estimates of the magnitude of societal consequence under different sets of meteorological and environmental conditions, each having different estimated probabilities conditional upon occurrence of the accident. (*Id.* at III.C.A-14-A-16.) Societal consequences include: health effects on the population in the region around the reactors, expressed as the number of persons that would be injured and/or killed by an accident; the economic cost of off-site mitigation measures taken to minimize radiological impact on people and property; and land interdiction because of radioactive contamination. (*Id.*)

Both Licensees and the Staff have, for the most part, presented their societal risk estimates independently for Indian Point Units 2 and 3. (Licensees, ff. Tr. 6961, at 25; Acharya, ff. Tr. 8566 *passim*. See also Staff PF at 200-01.) As we indicated, *supra*, with respect to core melt frequency, it is inappropriate merely to express the risk from the Indian Point Station in terms of each unit. The risk from Indian Point is the combined risk from both units.<sup>34</sup> Therefore, we find neither the Licensees' nor Staff's societal risk estimates acceptable as presented. We have also studied the testimony of Intervenor's witnesses Palenik and Beyea and the complementary testimony submitted by Staff and by Licensees in response to Board Question 1.3, to determine whether the risk estimates that resulted from those efforts could be applied here. We have determined that those results are not adequate for use here; they will be evaluated later when we address Board Question 1.3. (See Palenik/Beyea, ff. Tr. 2900; Blond, ff. Tr. 8369; Potter, ff. Tr. 8346.) We have, however, found the Staff's statistical approach to estimating probability and its other analyses to be acceptable. Therefore, we shall add Staff's risk estimates for each unit to obtain our own estimates of the risks per site-year for Indian Point. (See Acharya, ff. Tr. 8566, at III.C.A-18-A-19.)

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<sup>34</sup> Frequently in the past, the NRC Staff has taken the position that the risk at multiple reactor sites should be calculated as the sum of risks from all units, to obtain a number representing the risk per site year. (See Letter from Staff Counsel George E. Johnson to Licensing Board, Catawba OL Proceeding (October 25, 1982).) We assume this practice will change as a result of the Commission's recently issued policy statement, which said the Commission had decided that the quantitative design objectives should be applied on a per-reactor-year basis. (See our discussion, *supra*.) But as we have indicated, our charge is not to decide whether two reactors should be built. We have been asked to assess the risk of the continued operation of two existing reactors. That risk is the sum of the risks from both units.



For calculating our own estimates we have chosen the per-reactor-year estimates given in Tables III.C-6, -7, and -20 of Acharya's Testimony. (Acharya, ff. Tr. 8566.)<sup>35</sup> Tables III.C-6 and III.C-7 present risk estimates assuming two emergency response modes: "evac reloc" for all accidents initiated by events other than severe earthquake or hurricane, and "late reloc" for accidents initiated by an earthquake or hurricane. (*Id.* at III.C.A-27-A-28.) Table III.C-20 gives risk estimates for each reactor based on the pessimistic assumption that the "late reloc" emergency response mode was applicable irrespective of the initiating event, *i.e.*, regardless of whether the accident was initiated by an internal event or by an earthquake or hurricane, timely evacuation was impossible. (*Id.*, Table III.C-20.)<sup>36</sup> Our rationale for including the conservative estimates of Table III.C-20 will be discussed, *infra*, when we evaluate the estimates and the assumptions behind them.

The per-site-year societal estimates used by us were obtained by Dr. Acharya from conditional mean values of consequence categories for each of the nine release categories analyzed by Staff. (*Id.* at III.C.A-16, -27.) The consequence mean values were multiplied by the corresponding release category probabilities, *i.e.*, the accident probabilities based on the plants' current, or "after fix," status. (*Id.*) We have taken the total risk for each consequence category, which includes the contribution to risk from accidents caused by both internal and external events, and summed for both units to arrive at the risk per site-year for each consequence category. The results are presented in Table VII. The "reasonable" offsite emergency response referred to in the heading of the table is the one designated "evac reloc and late reloc," and the "pessimistic" one is designated "late reloc only." Our reasons for assigning the terms "reasonable" and "pessimistic" will be given later, when we evaluate the risk estimates.

Before discussing the results presented in Table VII, some words of explanation may be helpful to the reader. Early exposure results from external gamma radiation from the radioactive plume, from internal

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<sup>35</sup> Tables III.C-6, III.C-7, and III.C-20 apparently give consequences out to 500 miles from the reactors, *i.e.*, over the entire area spanned by the CRAC code. (See Soffer, ff. Tr. 8571, at 2-3; Acharya, ff. Tr. 8566, at II.C.A-6.) We believe that these tables are more appropriate than those which give risks within only 50 miles. The Staff also selected Tables III.C-6 and III.C-7 for the per-reactor risks it presented in its Proposed Findings. (Staff PF at 200-01.)

<sup>36</sup> "Evac reloc" assumed that evacuation began two hours after warning and proceeded with an effective radial speed of 1½ miles per hour. Shielding factors of everyday life were assumed before evacuation and beyond 10 miles. Persons outside the EPZ in areas of severe fallout contamination were assumed to be relocated 12 hours after plume passage; persons in areas of less severe but still significant fallout contamination were assumed to be relocated seven days after plume passage. "Late reloc" assumed that persons within the EPZ remained there with no shielding for 24 hours after passage of the plume and were then relocated. (Rowsome/Blond, ff. Tr. 8775, at 4-5.)

**TABLE VII**  
**Societal Risk Estimates for Indian Point Units 2 and 3 for**  
**Reasonable and Pessimistic Offsite Emergency Responses**

Consequence Category	Risk per Site Year	
	Evac Reloc and Late Reloc*	Late Reloc Only**
1. Early Fatalities (Persons)		
a) w/ Supportive Medical Treatment	$1.9 \times 10^{-2}$	$3.8 \times 10^{-2}$
b) w/o Supportive Medical Treatment	$4.7 \times 10^{-2}$	$9.9 \times 10^{-2}$
2. Early Injuries (Persons)		
a) w/ Supportive Medical Treatment	$1.6 \times 10^{-1}$	$2.4 \times 10^{-1}$
b) w/o Supportive Medical Treatment	$1.3 \times 10^{-1}$	$1.8 \times 10^{-1}$
3. Population Receiving in Excess of 200 Rem Total Marrow Dose from Early Exposure (Persons)	$1.7 \times 10^{-1}$	$3.0 \times 10^{-1}$
4. Delayed Cancer Fatalities (Excluding Thyroid) from Early Exposure (Persons)	$1.1 \times 10^{-1}$	$1.4 \times 10^{-1}$
5. Delayed Cancer Fatalities (Excluding Thyroid) from Early and Chronic Exposures (Persons)	$2.6 \times 10^{-1}$	$2.9 \times 10^{-1}$
6. Delayed Thyroid Cancer Fatalities from Early Exposure (Persons)	$6.0 \times 10^{-2}$	$6.6 \times 10^{-2}$
7. Delayed Thyroid Cancer Fatalities from Early and Chronic Exposures (Persons)	$6.7 \times 10^{-2}$	$7.2 \times 10^{-2}$
8. Total Person-Rem	4000	4400
9. Genetic Effects (Cases)	1.0	1.1
10. Cost of Offsite Mitigation Measures (1981 Dollars)	\$450,000	\$410,000
11. Land Area for Long-Term Interdiction (Sq. Meters)	5700	5700

\*Assumes "Late Reloc" for earthquake- and hurricane-initiated accidents and "Evac Reloc" for all other causes of accidents.

\*\*Assumes "Late Reloc" irrespective of causes of accidents.

doses caused by inhalation of radionuclides in the plume, and from external gamma radiation from ground contamination; the latter is assumed to be accumulated for seven days. (*Id.* at III.C.A-4.) Chronic exposure results from use of directly contaminated milk and crops and from long-term use of the contaminated environment; the latter assumes different pathways, such as ground irradiation, inhalation of resuspended radionuclides, and uptake in crops and milk via soil-to-root transfer of radioactivity. (*Id.*) Chronic exposure would occur even where environmental decontamination measures are undertaken because of residual levels of contamination. (*Id.*)

Supportive medical treatment is special medical treatment to persons who receive potentially lethal doses to the bone marrow from early exposure (above about 175 rem). To be effective it should be started within 20 days of exposure. (*Id.*)<sup>37</sup> With such treatment the lethality threshold is elevated from about 175 to about 300 rem to the total bone marrow. (*Id.*)

The number of early injuries without supportive medical treatment is less than the number with supportive treatment because without supportive treatment more victims become fatalities (compare 2.a and b with 1.a and b of Table VII). The cost of offsite mitigation measures is less under the "Late Reloc Only" scenario than under the "Evac Reloc/Late Reloc" scenario presumably because the emergency response assumed under "Late Reloc" is minimal and hence less costly than under "Evac Reloc." (*Id.* at III.C.A-25, -33.) In any case, we see little, if any, significance in the difference; the 10% difference is almost certainly swamped by the uncertainties surrounding the estimates.

Finally, the reader will note that we have expressed all risk estimates in Table VII with two significant figures. In going from Staff's estimates to our own, we rounded to two significant digits because of the uncertainties surrounding all the estimates. To do otherwise would, in our view, suggest a precision that we do not believe exists. (*See* Rowsome, ff. Tr. 8778; Acharya, ff. Tr. 8566, at III.C.A-20 ff.)<sup>38</sup>

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<sup>37</sup> Con Ed, citing testimony by Licensees' witness Potter and Intervenors' witness Sholly, would have us find that supportive medical treatment need not be started for 20 days after exposure. (Con Ed at 1-114.) But Mr. Potter testified that supportive medical treatment should be started in *one to three* weeks, and Mr. Sholly testified that it should be started *within* 20 days. (Potter, ff. Tr. 12,782, at 10; Sholly, Tr. 8412.) Further, Dr. Acharya testified that it should be started within 20 days, and Intervenors' witness Dr. Geiger testified that accepted medical practice would not allow a 10- to 20-day delay in hospitalization and treatment of a person exposed to a potentially lethal radiation dose. (Acharya, ff. Tr. 8566, at III.C.A-4; Geiger, Tr. 8527.) In light of the testimony in this proceeding, Con Ed's proposed finding clearly lacks basis in the record. We find that supportive medical treatment should be started within 20 days of exposure.

<sup>38</sup> Indeed, we have some doubt that we are justified even in expressing the figures with two, rather than one, significant figure.

Before trying to assess the significance of any of the risk estimates in Table VII, it is essential to have some understanding of the source and possible magnitude of the uncertainties that surround them. Therefore, we shall now endeavor to explore the uncertainties.

### *Uncertainties in the Risk Estimates*

Uncertainties in the risk estimates in Table VII derive from uncertainties in the risk assessments carried out by the Staff and Licensees. Those uncertainties or possible errors fall into four categories: (1) statistical uncertainties, originating in the fact that it is impossible to measure input parameters, such as component failure probabilities or human error probabilities, with precision; (2) modeling approximations that have to be introduced to make the predictive models tractable; (3) errors of completeness, or errors of omission, resulting from the fact that some failure mechanisms or accident scenarios are left out entirely; (4) computational errors in assembling the models. (Rowsome, ff. Tr. 8778, at 5; Israel, *et al.*, ff. Tr. 7391, at 11, 13-14.)

*Statistical uncertainties* are generally as likely to produce overestimation as underestimation of risk. (Rowsome, ff. Tr. 8778, at 6.) Statistical confidence limits for many of the accident frequency estimates were calculated by Sandia, using the Maximus method for calculating confidence bounds on system reliability. (*Id.*) For example, consider the probability of the Core Melt Without Containment Cooling estimate given in Table I. For Unit 2, the probability was estimated to be  $6.1 \times 10^{-7}$  per year; the Sandia estimates for the 95% confidence limits for that estimate are: lower,  $1.0 \times 10^{-9}$ , and upper,  $2.1 \times 10^{-6}$ . (Staff Ex. 6 at 5.2-2, Table 5.2-1.) Unfortunately, confidence limits do not reflect the uncertainties underlying the assumptions implicit in the estimates. Confidence limits can be interpreted only in the context of the random variation of possible data. (*See id.* at 3.1-7.) Thus, while confidence limits, levels, intervals, and belts tell us something about the uncertainty in estimates attributable to variability in the data used to calculate the estimates, they tell us nothing about the uncertainty attributable to erroneous assumptions in modeling, modeling approximations, or omissions in modeling. Staff believes that the uncertainties from the latter sources are likely to be far greater than the statistical uncertainty. (Rowsome, Tr. 7239-40.) We agree.

*Modeling approximations* stem from the inadequacy of the probabilistic risk assessment models to perfectly represent reality. (Israel, *et al.*, ff. Tr. 7391, at 13.) Staff witness Rowsome testified that modeling approximations are almost always made in the pessimistic direction and hence

tend to exaggerate the risk. (Rowsome, ff. Tr. 8778, at 7.) Two examples are the treatment of severe core damage as core melt and the treatment of partial failures of safety functions as outright failures. (*Id.*) Many PRA practitioners believe that the exaggeration of risk predictions caused by modeling approximations is compensated by errors of omission, but there is no reason to believe that this is always or precisely true. (*Id.*) In any case, the influence of modeling approximations on the bottom line risk predictions cannot be formally calculated. (*Id.*)

Staff witnesses Meyer and Pratt conducted sensitivity studies to gauge the effect of some specific uncertainties on risk estimates. (Meyer/Pratt, ff. Tr. 12,492, at III.B-46-B-51.) They varied key parameters which have large unknowns and uncertainties and noted the effect of these variations on the release categories and on the risk values for early and late fatalities. (*Id.*) The uncertainties they investigated involved the: (1) ability of hydrogen burns to fail the containment building; (2) containment failure by overpressurization; (3) ability of a flooded cavity to establish a coolable debris bed and thereby prevent basemat penetration by melted core; (4) ability of containment building fan coolers to perform under the adverse environmental conditions of a severe accident. (*Id.*)

The two uncertainties most significantly affected were that connected with hydrogen burn and that connected with overpressurization containment failure modes. By increasing the probability of containment building failure by a hydrogen burn from 0.03 to 0.30, the risk of late fatalities was increased by 40% for Unit 2 and 100% for Unit 3. The risk of early fatalities changed negligibly. By changing the probability of overpressurization failure from 0.4 to 0.7, the risk of early fatalities was increased by 45% for Unit 2 and 55% for Unit 3. Late fatalities increased 55% and 60% for Units 2 and 3, respectively. (*Id.*) Risk results for the other uncertainties were little affected by changes in parameter values. Witnesses Meyer and Pratt further noted that, even in the case of late fatalities under the hydrogen burn failure mode for Unit 3, the risk of late fatalities was increased only by a factor of two. They believe that these results suggest that parameters associated with major uncertainties could vary by large amounts without having great effects on the final results. (*Id.* at III.B-51.)

*Errors of omission* result from the intentional or unintentional omission from the risk models of mechanisms that could contribute to accidents. (Rowsome, ff. Tr. 8778, at 7; Israel, *et al.*, ff. Tr. 7391, at 13.) Most errors of omission lead to the underestimation of accident likelihood and hence to the underestimation of risk. (Rowsome, ff. Tr. 8778,

at 7.) A few errors of omission may lead to an overestimation of risk. (*Id.*)

Perhaps the most serious intentional omission from the PRAs for Indian Point, as for all PRAs, is sabotage; we shall discuss this issue with respect to Indian Point below. Other mechanisms that could contribute to accidents and which are known to have been omitted from Indian Point risk assessments include: design errors that have not been revealed by documents or by in-service experience, effects of aging, steam generator overfill, cold shutdown events, willful violation of rules by plant personnel, and pressurized thermal shock.<sup>39</sup> (*Id.*; Staff Ex. 6 at 4.7-1; Weatherwax, ff. Tr. 7918, at 5-8.) Additionally, some contributors to accidents which have been analyzed in the PRAs may still contain errors of omission because of modeling inadequacies. Inadequacies exist in the modeling of operator diagnosis of accidents in progress, DC power supply failures, common mode failures due to plant maintenance, seismic hazard, hurricane and tornado hazard, and fire hazard. (Rowsome, ff. Tr. 8778, at 7; Tr. 12,870; Budnitz, ff. Tr. 7489, at 24-31, 37-44; Buchbinder/Kubicki, ff. Tr. 7577, at 4-7, 27.)

Staff witness Rowsome testified that more care has been taken in modeling the more likely and more severe accidents, so that most errors of omission relate to the less important contributors to risk. (Rowsome, ff. Tr. 8778, at 8; Tr. 12,869-70.) Also, there are only a few accident scenarios that bypass or fail containment quickly after an early core melt; most of the offsite risk originates in these accidents. There are many more core melt accidents in which the containment remains intact and cooled, and these accidents have comparatively minor offsite consequences. (Rowsome, ff. Tr. 8778, at 8.) Staff believes that errors of omission would most likely affect these well-contained accidents, presumably because they are more probable than the rapidly developing accidents that lead to containment breach. (*Id.* at 9.) Although Staff believes that the great majority of the significant accident sequences have been identified and their likelihood correctly estimated, it recognizes that some ways in which faulted conditions can propagate among systems are quite subtle and hard to anticipate. (*Id.* at 12.)

With respect to the consequence analysis, the Staff identified other areas in which uncertainties exist because of lack of knowledge about the numerical values of many input parameters and because of modeling approximations. Included among these uncertainties are the magnitude of releases, dispersion of releases, duration and energy of releases, warning time before evacuation, time of release and accident progression,

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<sup>39</sup> Pressurized thermal shock is considered in detail under Board Question 1.4 and Contention 2.2(b).

emergency response effectiveness, dose-conversion factors and dose-response relationships, and decontamination of exposure pathways and deposition effects. (Acharya, ff. Tr. 8566, at III.C.A-19-A-25.)

*Computational errors*, or arithmetic errors, could grossly distort the results of risk analyses. (Rowsome, ff. Tr. 8778, at 12.) However, the Staff believes that a significant distortion due to arithmetic errors in either the IPPSS or Staff calculations would have been conspicuous in the comparison of the two studies and against the background of other PRAs. Consequently, Staff concludes that it need not rely on formal checking procedures to exclude the possibility that arithmetic errors are responsible for large distortion of the risk profile for Indian Point Units 2 and 3. (*Id.*)

### *Staff Position on Uncertainties*

The Staff did not attempt to formally calculate uncertainties in its risk calculations for Indian Point because for many sources of uncertainty, such as modeling approximations and errors of omission, it is impossible to derive a mathematical expression. (*Id.* at 2.) Staff's principal approach to the treatment of uncertainties was to give a qualitative account of the sources of uncertainty throughout the testimony. (*Id.* at 3.) Witness Rowsome, however, did endeavor to convert his subjective judgment into a quantitative expression of how great he believed the overall uncertainty to be. (*Id.* at 18-19.) Starting with his subjective estimates of the range of uncertainties surrounding the estimates of the likelihood of severe releases of radiation, of the quantity of fission products that might be released, and of the consequences of these releases, he arrived at a combined uncertainty for the Staff's risk estimates. (*Id.*) He testified that he "would be mildly surprised, but not very surprised" if the Staff estimates of offsite radiological risks were too low by a factor of 40 or too high by a factor of 400. (*Id.* at 19.)

Staff did not present risk estimates modified by these factors. To gain some perspective of the significance of this uncertainty, we have examined how underestimating by a factor of 40 would affect certain results that we obtained in Table VII.<sup>40</sup> For this purpose, we looked only at early and delayed fatalities given the "Evac Reloc/Late Reloc" emergency response mode. Our calculations show that early fatalities without supportive medical treatment would be 1.9 persons per site-year, rather than  $4.7 \times 10^{-2}$  (latter value from Table VII). Delayed cancer fatalities

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<sup>40</sup> If Table VII values overestimate the true risks by a factor of 400, we would be quite relieved; we need not make those calculations to reach that conclusion.

(including thyroid) from early and chronic exposures would be 13.1 persons per site-year rather than  $3.3 \times 10^{-1}$  ( $2.6 \times 10^{-1} + 6.7 \times 10^{-2}$ , from Table VII). Total fatalities would be 15.0 (without supportive medical treatment of persons exposed to potentially lethal doses early in the accident), as opposed to  $3.7 \times 10^{-1}$  (summation of values from Table VII). Technically, the design limit for Indian Point, based on Staff's calculation of the background cancer fatality rate per year within 50 miles of the plants, is 29 cancer fatalities per year. (Rowsome/Blond, ff. Tr. 12,834, at B-15.) Staff testified that it would not be comfortable with a projected casualty risk as high as 29 deaths per site-year. (*Id.*) Nor would we be. But we note that even if Staff's projections are too low by a factor of 40, the fatality estimate of 15 is still well under the design limit. This is not to suggest, however, that we would be content with a risk estimate of even 15 fatalities per site-year.

### *Financial Risks to Society*

We believe that Commission Question 1 asks for an assessment of overall risk, which in our opinion should include financial risk. Unfortunately, financial risk was not adequately litigated under Commission Question 1. Licensees' testimony on Question 1 merely included two CCDF curves which related to financial risk. (Licensees, ff. Tr. 6961, at 26, 26a.) Staff's Question 1 testimony did include figures that gave the financial cost of offsite mitigation measures and the land area subject to long-term interdiction. See Table VII, *supra*. These figures do not, however, constitute a complete treatment of financial risk. And the Intervenors did little more than criticize IPPSS for omitting financial consequences.

Staff did, however, provide testimony on financial consequences under Commission Question 5. Because we believe the Commission desires some answer to this issue, we have drawn conclusions from that testimony; but we caution the Commission that the Staff's financial consequence testimony was little more than an aside to its Question 5 testimony and was not extensively cross-examined.

The financial costs of a severe accident would include the following: cost of evacuation and other accident-mitigation measures; the value of agricultural products interdicted because of contamination; the costs of loss of services from regions that must be interdicted; the loss of value of real property that becomes contaminated; the costs of decontamination of property and land; the loss of income resulting from temporary unemployment of relocated workers; loss of income because of disruption of economic activity; costs of replacement power; and the cost of onsite cleanup. (Sholly, ff. Tr. 8398, at 29-30; Rowsome/Blond, ff. Tr.



12,834, App. 1 at 6.) In addition, Staff considered the costs of interdicting liquid pathways, *i.e.*, routes by which people can be exposed to radiation released from a reactor via contaminated surface and ground waters. (Rowsome/Blond, ff. Tr. 12,834, App. 1 at 6; Codell, ff. Tr. 8578, at 2.) Staff also attempted to assign monetary values to the health risks of an accident at Indian Point. (Rowsome/Blond, ff. Tr. 12,834, App. 1 at 3-5.) As a matter of philosophical principle we do not consider it fruitful, or reasonable, to attempt to monetize the loss of human life or injury. Therefore, we have not used Staff's monetized estimates for injuries and deaths.<sup>41</sup> Our review and recommendations will be limited to economic considerations.

The Staff's estimates of financial risks were obtained using the CRAC code. (*Id.* at 6.) The analysis was made for the after-fix plant design and the "evac reloc/late reloc" emergency response mode. Staff's results included, under the heading of "property damage" costs associated with evacuation, relocation, decontamination of offsite buildings and land, and costs associated with loss of services from regions or agricultural products that must be interdicted. (*Id.*) The costs of interdiction of liquid pathways were presented separately. Results are expressed in terms of expected loss in dollars per reactor-year. (*Id.* at 8.) The expected cost of property damage for an accident at Unit 2 is \$281,000 per year; the total cost of liquid pathway interdiction (via fallout plus via basemat melt-through) is \$247,000 per year; total offsite cost of an accident at Unit 2 is \$528,000 per year. (*Id.*) For Unit 3, the expected property damage cost is \$165,000 per year; liquid pathway interdiction expectation is \$169,000 per year; the total is \$334,000 per year. (*Id.* at 10.) In addition to offsite costs, there is the cost of onsite cleanup, which presumably would be borne by the plant owners, the ratepayers, the utilities' insurers, and perhaps partly by the government (*id.* at 6), and the cost of replacement power. Staff assumed that if one plant experiences a core melt accident, both plants would be shut down indefinitely, and that the cost of replacement power would be the same as that calculated for a shutdown order, roughly a net of \$4.3 billion. Cleanup costs were estimated to be somewhere between \$1 billion and \$10 billion, so Staff based its financial risk estimates on a \$3 billion onsite cleanup figure. (*Id.*) Calculated from these bases, the expected losses in dollars per year were: for Unit 2, \$1,510,000 for replacement power and \$1,054,000 for onsite cleanup; for Unit 3, \$1,510,000 for replacement power and \$1,060,000 for onsite cleanup. The total onsite expected losses per

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<sup>41</sup> Monetizing fatalities may be an interesting intellectual exercise, but we have enough intellectual challenges in arriving at these recommendations without undertaking any of highly questionable value.

reactor-year and per site-year are as follows: \$2,564,000 for Unit 2 + \$2,570,000 for Unit 3 = \$5,134,000 for the site. These figures give a total expected loss (offsite + onsite) from a serious accident of \$3,092,000 for Unit 2 + \$2,904,000 for Unit 3 = \$5,996,000 for the site. If these estimates are accurate, the financial risk of the continued operation of the Indian Point plants is approximately \$6 million per year, not including the cost of injuries and fatalities.

Licensees' testimony consisted of two CCDF curves showing property damage risk in dollars as a function of frequency of exceedance per reactor-year. (Licensees, ff. Tr. 6961, at 26, 26a.) The economic impacts estimated by the curves included cost of evacuation, relocation, interdiction, decontamination, and crop impoundment, but did not include onsite costs. (*Id.* at 28.) The computations were done using the model from WASH-1400 updated to 1982 dollars. (*Id.*) Other than the curves just mentioned, the only results given were estimates that the frequency of any property damage is no greater than once in 6700 reactor-years for Unit 2 and once in 17,000 reactor-years for Unit 3. (*Id.*)

UCS/NYPIRG witness Sholly criticized IPPSS for omitting financial consequence estimates. (Sholly, ff. Tr. 8398, at 28.) He also criticized estimates computed with CRAC on the grounds that the financial consequence model in CRAC omits: (1) loss of property other than real estate, (2) costs associated with monitoring and decontamination of the evacuated population, (3) indirect costs such as compensation for health damages, (4) incremental costs of replacement power, and (5) indirect economic effects associated with reduction in productivity of industries located outside the area directly affected by the accident. In addition, he stated that CRAC gives incomplete treatment of (1) compensation for loss of income due to disruption of economic activity and (2) how centers of production and economic activity vary in different directions from the site. (*Id.* at 29-30.) Sholly testified that he had reviewed the draft results in NUREG/CR-2723<sup>42</sup> and found that the estimated conditional financial consequences of an accident at Indian Point are larger than for any other site evaluated in the report. (*Id.* at 31.)

The record presents us with little problem in accepting estimates of financial risks. Sholly provided no quantitative estimates of his own. The Licensees presented no integrated estimates of accident costs and did not include onsite costs in their calculations. The Staff's estimates are appropriate for our need; therefore, we accept the Staff's estimates of the financial cost of accidents, recognizing that as presented here they are

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<sup>42</sup> The final version of NUREG/CR-2723, "Estimates of the Financial Consequences of Nuclear Power Reactor Accidents" was published in November 1982.

too low because we could not include costs related to injuries and fatalities.

### *Board's Estimates of Cumulative Risks*

It is customary to express risk as an annual rate, either as the probability of casualty for an individual or the expected number of casualties for society as a whole. Thus, one can directly compare automobile casualty risk with air travel risk or with nuclear plant risk. NUREG-0880 For Comment understandably uses this approach for evaluating the acceptability of risks from nuclear plants. But for an individual living permanently close to the plant, and for the population in the vicinity of Indian Point, is the per-site-year risk a valid estimate of the risk to which they are exposed? We think it is not. An individual who lives close to the plant permanently and the population in the vicinity of the plant are subjected to the annual risk year after year; their risk of experiencing casualties from an accident at Indian Point is the cumulative risk for the lifetime of the plants. Indian Point Unit 2 has 23 years of operation left before its license expires, and Unit 3 has 26 years left. (Streiter, ff. Tr. 13,381, at 1.) Thus, an individual who lives permanently near the plants and the population in the vicinity of Indian Point will be at risk from both plants for 23 years and from Unit 3 alone for an additional three years, assuming both plants continue to operate for the remainder of their licensed terms.

We can calculate the cumulative risk to an individual, expressed as the probability of suffering a fatality during the lifetime of the plants, using generally accepted rules for calculating probabilities, as follows:

$$\text{Pr}(F) = p + pq + pq^2 + \dots + pq^{(n-1)} \quad (1)$$

$$= p(1 + q + q^2 + \dots + q^{(n-1)}) \quad (2)$$

where  $\text{Pr}(F)$  = the probability that an individual will suffer a fatality resulting from an accident at the plants during the plants' lifetime,  $p$  = probability that an individual will suffer a fatality resulting from an accident at the plants per site-year,  $q = (1 - p)$  = probability that an individual will not suffer a fatality caused by an accident at the plants per site-year, and  $n$  = number of years the plants will operate.

Now in our calculation  $p$  is small and  $q$  is very large, i.e.,  $q$  is very close to 1. To illustrate, suppose we take as an upper bound for the risk of fatality for an individual  $1 \times 10^{-6}$  (see p. 866, *supra*). Then  $q = 1 - (1 \times 10^{-6}) = 0.999999$ , and  $q^{(n-1)} = 0.999978$ , for  $n = 23$  years. Con-

sidering the uncertainties in our figures, it is meaningless to retain six decimal places in our figures. Therefore, to simplify our calculations, we shall assume that in Equation (2) above the term  $(1 + q + q^2 + \dots + q^{(n-1)}) | n$ , and let  $\text{Pr}(F) = np$ . In words, the cumulative individual risk over the lifetime of the plants is approximately equal to the per-site-year risk multiplied by the number of years the plants will operate. Analogously, we can estimate the cumulative societal risk. If the probability value in a risk calculation changes by a given factor, the risk estimate changes by the same factor. (Acharya, ff. Tr. 8566, at III.C.A-20.) Thus, we can estimate cumulative societal risks by multiplying the per-site-year risk estimates by  $n$ .

The cumulative individual fatality risk is less than an order of magnitude greater than the per-site-year individual risk. To illustrate, if we read Dr. Acharya's graphs of individual risk to show the risk of early fatality as approximately  $5 \times 10^{-6}$ , the risk of latent cancer fatality as approximately  $5 \times 10^{-6}$ , and the risk of latent thyroid cancer fatality as approximately  $5 \times 10^{-7}$ , then the total individual fatality risk is roughly  $1 \times 10^{-5}$ . When we multiply this by  $n = 26$  (assuming, for simplicity, that both plants will operate until 2009), we get  $2.6 \times 10^{-4}$ . (See Acharya, ff. Tr. 8566, Figures III.C-51, -53, and -54.)

Cumulative societal risk estimates resulting from our calculations are shown in Table VIII. Again, we have done the calculations for fatalities only, because in our view those are the consequence categories of greatest importance. Results in Table VIII are given for both the "evac reloc/late reloc" and the "late reloc only" emergency response modes. The values were obtained by multiplying the appropriate per-site-year estimates in Table VII by 23 years, to obtain the per-site-year estimates for the period when both units will be operating. To these values we added the products of the per-reactor-year estimates for Unit 3 multiplied by three years, to account for the additional risk from operation of Unit 3 for 26 years.<sup>43</sup> Even these cumulative risk values are well under the per-site-year risk design objective of 29 fatalities calculated by Staff from criteria in NUREG-0880 For Comment. Should the Staff's risk estimates be too low by a factor of 40, which witness Rowsome seemed to consider unlikely but not very unlikely, these cumulative risk estimates would jump to 332 for the "evac reloc/late reloc" scenario and to 384 for the pessimistic "late reloc only" scenario.

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<sup>43</sup> The per-reactor-year risks for Unit 3 were obtained from Tables III.C-7 and III.C-20 of the Acharya Testimony, ff. Tr. 8566.

**TABLE VIII**  
**Cumulative Societal Risks from Lifetime Operation of**  
**Indian Point Units 2 and 3\***

Consequence Category	Evac Reloc and Late Reloc	Late Reloc Only
Early Fatalities (Persons)		
w/ supportive medical treatment	$4.5 \times 10^{-1}$	$9.1 \times 10^{-1}$
w/o supportive medical treatment	1.1	2.4
Delayed Cancer Fatalities (Excluding Thyroid) from Early and Chronic Exposures (Persons)	6.3	7.0
Delayed Thyroid Cancer Fatalities from Early and Chronic Exposures (Persons)	1.6	1.7
Total Fatalities from Early and Chronic Exposures (Persons)		
w/ supportive medical treatment	8.3	9.6
w/o supportive medical treatment	9.0	11.1

\*Based on an assumed operating lifetime (from 1983) of 23 years for Unit 2 and 26 Years for Unit 3.

### ***Evaluation of Risk Estimates***

#### ***Acceptability of the Estimates***

We indicated, *supra*, that we considered the risk estimates for the "Evac Reloc and Late Reloc" emergency response mode in Table VII to be reasonable and the risk estimate for the "Late Reloc Only" emergency response mode to be pessimistic. We believe that the "Evac Reloc" model is reasonably realistic for good weather and dry roads, provided that the assumptions in the evacuation model with respect to human response factors, the adequacy of the road system, and emergency response are valid. The model provides for a two-hour delay in start of evacuation after warning. It takes the effective radial evacuation speed to be an average of 1½ miles per hour. It assumes shielding factors typical of "everyday life"; this includes no shielding by automobiles from

gamma rays emanating from the plume and 50% shielding from gamma radiation emanating from the ground. Evacuees are assumed to move a total distance of 15 miles. When outside the EPZ, persons remaining in areas of high fallout contamination are assumed to remain there for 12 hours before being relocated, and persons in areas of less severe contamination are assumed to remain there for seven days before being relocated. (Acharya, ff. Tr. 8566, Table III.C-2; Rowsome/Blond, ff. Tr. 8775, at 3-5.)

We believe that the two-hour delay in the start of evacuation is probably reasonable; it should provide sufficient time to allow for the initial preparation, location of family members and/or friends, running of errands, etc., by evacuees. We also believe that the 1½ mile per hour effective speed of evacuation is probably a reasonable assumption. It is the speed of a slow walk. (Potter, ff. Tr. 12,782, at 5.) Further, from the Board's own experience in commuter traffic in the Washington, D.C., area, we know that extremely slow traffic, moving in the Service Level F mode, usually moves at an average speed greater than 1½ miles per hour. Also, we think it reasonable to assume that evacuees might travel a total of 15 miles from the site; indeed, this assumption is probably conservative because many evacuees would probably travel much farther than 15 miles. The assumptions with regard to how long persons remain in areas contaminated by fallout after leaving the EPZ also seem reasonable; it would take some time for officials to locate and determine the extent of such areas, and then to effect the relocation of people from the areas. The assumption that a car provides no shielding from airborne radioactive material may be slightly conservative; the assumption that the shielding factor from ground contamination would be 0.5 is probably reasonable.

We also believe that the reduced capacity assumptions made by Parsons-Brinckerhoff for adverse weather conditions are probably reasonable for rain, fog, and slippery roads. (See our discussion of Contention 3.3, *infra*.) We do not, however, consider them reasonable for severe winter storms which could make a timely evacuation impossible. (See our discussion of Contention 3.6, *infra*.) As we point out in the discussion of Contention 3.6, an accident during or immediately following a severe winter storm could result in increased exposures because of delayed evacuation and the precipitation out of radioactive material by falling snow. Staff used the "Late Reloc Only" emergency response mode to account for accidents initiated by destructive external events that might also preclude timely evacuation, *i.e.*, earthquakes and hurricanes. Roads were assumed to be impassable for 24 hours, and the shielding factor was assumed to be reduced because of the destruction of

buildings. We believe that somewhat similar exposure conditions might result if an accident occurred simultaneously with a severe winter storm: evacuation would be delayed, and exposures could be increased if the snowfall carried radioactive material to the ground to create hot spots. (See discussion of Contention 3.6, *infra*.) Thus, we have deemed it appropriate to include risk estimates under the "Late Reloc Only" emergency response mode in Tables VII and VIII to account for consequences of accidents during severe winter storms.

From the foregoing, we might conclude that the societal risks from the Indian Point reactors lie somewhere between the risk estimates under the "Evac Reloc/Late Reloc" modeling and those under the "Late Reloc Only" modeling, probably falling nearer the former. But before reaching such a conclusion, we must consider the uncertainties surrounding the estimates.

### *Effect of Major Uncertainties*

*Sabotage* is a major omission from the risk assessments for Indian Point. It was not included in IPPSS; the Licensees directed the contractor not to consider it because of the difficulties involved and because the members of the PRA project team deemed it unwise to publish an analysis of sabotage risk in a document which was subject to full and open disclosure. (Kaplan, Garrick, and Bley, Tr. 7039-45.) The advisability of not placing in the public record information relating to sabotage was acknowledged by most of the parties. UCS/NYPIRG witness Sholly was reluctant to testify about his knowledge with respect to the sabotage vulnerabilities of nuclear plants. (Sholly, Tr. 12,779-80.) UCS/NYPIRG witness Weatherwax testified that the inclusion of sabotage in PRAs would increase societal risk. (Weatherwax, ff. Tr. 7918, at 5.) Licensees' witness Garrick, on the other hand, believes that a risk assessment of sabotage would probably eliminate the risk from it, although he does not think such results should be published. (Garrick, Tr. 7049-50.)

The record is unclear as to whether sabotage could, in fact, be modeled in a PRA. Licensees' witness Garrick believes that the risk from sabotage could be modeled in PRAs, and he indicated that European PRAs are beginning to consider sabotage. (Garrick, Tr. 7045-46.) Staff, on the other hand, does not believe that the state of the PRA methodology can account for the likelihood of sabotage attempts. (Rowsome/Blond, ff. Tr. 7169, at 12.) Nevertheless, Staff acknowledged that some members of the Advisory Committee on Reactor Safety (ACRS) have urged Staff, over the last three or four years, to undertake the probabilistic risk assessment of sabotage. (Rowsome, Tr. 7192.)

Whatever the merits may be of not including sabotage in PRAs, and irrespective of whether PRA methodology could successfully analyze it, the fact that it has not been assessed with respect to Indian Point Units 2 and 3 injects an error of omission into the risk estimates. How large an error this may be we cannot judge. Witness Sholly testified that sabotage could be a "sleeper," like the external events now known to dominate risk at Indian Point, whose unknown risk could also be a dominant contributor to overall risk. (Sholly, Tr. 12,778-79.) Witness Weatherwax pointed out that if the siting of the Indian Point plants did not make them less likely sabotage targets than other nuclear plants, then this risk is greater for the Indian Point plants than for most others in the country because of the high population near Indian Point. He also suggested that the Indian Point higher risk siting and media attraction might make them more attractive targets to saboteurs. (Weatherwax, ff. Tr. 7918, at 5-6.) Absent more facts upon which to base an opinion, we can only conclude that sabotage is an error of omission of unknown quantitative significance, about which this Board has concern, and which was not accounted for in the calculations that produced the risk estimates in IPPSS, by Staff/Sandia, or by us in Tables VII and VIII.

*Wearout or component aging* is another phenomenon which, because of the meager treatment given it in the PRAs, may contribute significant errors of omission to the risk estimates. IPPSS accounted for wearout with constant failure rate assumptions. (Bley, Tr. 7380-81.) In its analyses, Staff made no explicit accounting for wearout or break-in; rather, failure rate statistics since the plants went into service were treated as though they were estimates of uniform hazard rates. (Rowsome, Tr. 7242.) Staff took the philosophical position, in addressing Commission Question 1, that it should attempt to calculate the risk at particular periods of time, *viz.*, in 1981 before fix, and in 1983 after fix. (*Id.*) Because it has projected neither future wearout effects nor the effect of learning, Staff believes that its risk estimates will become progressively less reliable the further in the future one goes. (Rowsome, Tr. 7243.) A generalized equipment failure rate curve would begin with a comparatively high failure rate from break-in, blend into an exponential failure rate over a relatively long time frame, and then have a steep tail where wearout occurred. (Weatherwax, Tr. 7956-57.) UCS/NYPIRG witness Weatherwax believes that the Indian Point PRAs take into adequate account the break-in and constant failure rate portions of the curve, but they have not accounted for the wearout portion of the curve. (Weatherwax, Tr. 7957-58.) He would expect that to occur 15 to 20 years into the plant's life. (*Id.*) Staff witness Rowsome testified that up to this time the risk from nuclear plants has decreased as experience has



accumulated, but he said we have no way to be sure that increasing understanding of reactor safety will outweigh the effects of aging. Witness Rowsome believes that the risk will continue to decline, however. (Rowsome, ff. Tr. 8778, at 14.)

We believe the record shows that the effect of aging of plant components has not been accounted for adequately in the PRAs. We are not convinced that accumulating experience will indefinitely outweigh the effects of aging. We conclude, therefore, that equipment aging and wear-out constitute another error of omission, of unknown significance, and are not accounted for in our risk estimates given in Tables VII and VIII.

*The 40-fold higher risk estimates* that we discussed on pp. 881-82, *supra*, were calculated on the basis of witness Rowsome's intuitive estimate that the Staff's risk figures are unlikely to underestimate the true risks by a factor of 40 or more. What weight shall we give them? We have not been inclined to accept other estimates based heavily on subjective judgment, and we have no basis for believing that Rowsome's intuition is any better or any worse than that of other witnesses who have presented subjective testimony in this proceeding. Therefore, we cannot give great weight to the high estimates. But we found Rowsome to be a competent and thoughtful witness; since he would "not be very surprised" to find Staff's estimates too low by a factor of 40, we are not inclined to dismiss the high estimates altogether. We think it possible that Staff could, in fact, have underestimated the risks by as much as a factor of 40. If so, the risks in Tables VII and VIII are underestimated by a like amount. On the other hand, because of the conservatism built into Staff's estimates, the risks in Staff's testimony and in our Tables VII and VIII could be overestimated. In view of the known errors of omission, however, we doubt that the risk estimates in Tables VII and VIII are too high.<sup>44</sup> In any case, we consider it prudent to consider the high estimates on pp. 881-82 as possible values which the parameters, the true risks, could assume. We recommend that the Commission do likewise.

### *Societal Significance of Risk Estimates*

As a final matter in our evaluation of risk estimates for Indian Point, we wish to address an issue raised in the "Task Force Report on Interim Operation of Indian Point." The Task Force, having found that the

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<sup>44</sup> Should ongoing research on source terms show definitively that the Staff's release estimates are, in fact, too high, then the resulting reduction in risks might overwhelm the effect of risk-increasing uncertainties such as errors of omission. It is premature to reach such a conclusion at this time, however.

Indian Point site was about an order of magnitude more risky than a typical site but that the design of the plants was about an order of magnitude less risky than a typical design,<sup>45</sup> said:

[I]t is reasonable to conclude that the two about cancel, that is, the overall risk of the Indian Point reactor is about the same as a typical reactor on a typical site. We recognize that such a comparison makes no explicit compensation for the Indian Point risk entailing notably higher consequences even if at lower probability than is typical. It is not unusual in risk aversion to demand lower risk as the potential consequences increase — as the stakes get higher. Accordingly, one might argue that the probability should be more than a magnitude lower if the consequences can be a magnitude higher.

(NUREG-0715, August 1980, at 40.) Therein the Task Force touched upon a fundamental problem in relying on risk estimates alone as a basis for making decisions.

By considering only the integrated expected values, one may be beguiled by the mathematical elegance of the algorithm into thinking that more is known about the risk than is actually known. For example, consider an accident having a probability of 0.1 per year which results in 10 fatalities; this accident has the same expected risk, one death per year, as an accident having a probability of  $1 \times 10^{-4}$  per year which results in 10,000 fatalities. Risk estimates tell us that the accidents are mathematically equivalent. But are they societally equivalent?

By focusing on expected risk values only, we may overlook other important social and ethical considerations. To illustrate in terms of Indian Point, the 2.4 early fatalities listed in Table VIII for the "late reloc only" emergency response mode are not two real deaths; rather, that integrated number includes accidents at Unit 2 that have a probability of about  $1.5 \times 10^{-5}$  of causing two fatalities *and* accidents that have a probability of about  $2 \times 10^{-8}$  of causing 100,000 fatalities, plus accidents at Unit 2 that have a probability of about  $4 \times 10^{-6}$  of causing two fatalities *and* accidents that have a probability of about  $1 \times 10^{-8}$  of causing 100,000 fatalities. (Acharya, ff. Tr. 8566, Figures III.C-14 and III.C-30.) We may assuage our anxiety about the high consequence accidents in this comparison by their very low probabilities. Consider, however, the intermediate range of one of the CCDFs from which the foregoing risk values were taken. An accident at Unit 2 that causes 10 fatalities has a probability of about  $1.3 \times 10^{-5}$  and one that causes 100 fatalities has a probability of about  $8 \times 10^{-6}$ . In view of the uncertainties surrounding these risk estimates, we would be surprised if  $1.5 \times 10^{-5}$ ,  $1.3 \times 10^{-5}$ , and

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<sup>45</sup> The Task Force report was issued prior to the issuance of IPPSS and the Sandia Report.

$8 \times 10^{-6}$  are significantly different, yet the consequence magnitudes associated with them vary over nearly two orders of magnitude. Is an accident that kills 100 persons of greater societal significance than an accident that kills only two? The Task Force observed that it was not unusual in risk aversion to demand lower risk as the potential consequences increase.

Insurance companies, whose profits depend on the use of expected risk values obtained in their actuarial analyses, often take the precaution of including in their policies provisions that limit their liability for very large accidents. By analogy, the NRC might well consider the potential consequences of low probability accidents at sites such as Indian Point, Zion, Limerick, and Salem, where the consequences of a severe accident would be greater than at most other sites, and — as the Task Force suggested — require that the risk decrease as potential consequences increase. Therefore, we recommend that the Commission factor into its deliberations the potential consequences of a low probability accident at Indian Point as well as the expected risk values that we have accepted in this report; such considerations, we believe, weigh in favor of adopting the measures we recommend for improving safety at Indian Point.\*

### ***Conclusion***

In answer to Commission Question 1 and to Board Question 1.1, we conclude that the per-site-year risks posed by the Indian Point reactors may be somewhat greater than those presented under the “Evac Reloc and Late Reloc” column of Table VII. We believe that the risks may be greater than those values because the estimates under “Evac Reloc and Late Reloc” do not take into account the risk of accidents during severe winter storms. Such storms are virtually an annual event in the Indian Point area. In addition, the risk estimates in Table VII do not take into account a number of recognized risk-increasing errors of omission, such as the risk of sabotage and the deterioration of equipment as the plants age.

We estimate that the per-site-year risk of all fatalities from an accident at Indian Point (sum of early fatalities and delayed cancer fatalities) is at least  $3.5 \times 10^{-1}$  person with supportive medical treatment and at least  $3.7 \times 10^{-1}$  person without supportive medical treatment. The per-site-year risk of injuries is  $1.6 \times 10^{-1}$  person with supportive medical treatment and  $1.3 \times 10^{-1}$  without supportive medical treatment. In

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\*See Dissenting Opinion, pp. 1079-81.

addition, there is the risk of at least one case of genetic effects per site-year. There is a risk of population exposure of at least 4,000 person-rem per site-year. We estimate the financial cost of an accident at Indian Point, not including the cost of medical care of the injured to be at least \$6 million per site-year. The cost of medical care undoubtedly would add to that figure substantially, but we have no basis for estimating those costs.

The per-site-year risk estimates just presented are not, in our view, the only measures of risk from continued operation of Indian Point which the Commission should consider. We recommend that the Commission also consider the cumulative risk to society of operating the plants until their licenses expire. Based on license expiration dates of 2003 for Unit 2 and 2006 for Unit 3, we estimate that the societal risk of early fatalities with supportive medical treatment is at least  $4.5 \times 10^{-1}$  person and without supportive medical treatment is at least 1.1 persons. Delayed fatalities from cancers of all types resulting from early and chronic exposure as a result of an accident at the site are 7.9 persons. The cumulative risk to society of genetic effects is at least 23 cases. The cumulative financial risk of the continued operation of the plants is probably more than \$147 million ( $\$6 \text{ million} \times 23 \text{ years} + \$2,904,000 \times 3 \text{ years}$ ).

In addition, we urge the Commission to give serious consideration to the potential costs to society of dangerous, low-probability accidents. Such accidents could, as Staff testimony has shown, result in fatalities that number in the hundreds or thousands. We are not suggesting by this that the Commission should apply the minimax principle in its deliberations. But we are suggesting that the Commission should not ignore the potential consequences of severe-consequence accidents by always multiplying those consequences by low-probability values.

With regard to Contention 1.1, which alleges high risks of health and property damage beyond the EPZ as far as the New York City metropolitan area, we do not consider these risks to be high. However, under certain meteorological conditions, delayed fatalities from cancer appear to be possible almost anywhere in the city. Assuming the after-fix plant design and the "Early Reloc/Late Reloc" offsite emergency response, Staff witness Acharya gave figures from which we can calculate an estimated total of  $3.1 \times 10^{-2}$  fatality per site-year at a distance of 20-25 miles from the site and an estimated total of  $1.91 \times 10^{-2}$  fatality per site-year at a distance of 45-50 miles.<sup>46</sup> (Acharya, ff. Tr. 8566, Tables

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<sup>46</sup> The evacuation assumptions are irrelevant beyond 15 miles from the plant. (See note 36, *supra*.) Hence, they have no effect on results at 20-25 and 45-50 miles.

III.C-18 and III.C-19.) Multiplying these risk estimates by 23 years to get cumulative risks<sup>47</sup> we estimate the risk at 20-25 miles to be  $7.1 \times 10^{-1}$  fatality over the lifetime of the plants and at a distance of 45-50 miles from the site to be  $4.4 \times 10^{-1}$  fatality over the lifetime of the plants. We agree with the Staff that there are risks as far away as New York City, but the adjective "high" is not warranted. (Rowsome, ff. Tr. 8780, at 2.) We also agree that the average annual early fatality risk and delayed cancer fatality risk, as calculated by PRA, are very small fractions of the competing background non-nuclear risks. (*Id.* at 3.) Therefore, we reject Contention 1.1. Nevertheless, we think it important that the nuclear risks be considered by the Commission in its evaluation of our recommendations.

## **B. Board Question 1.2: Significance of ORNL Report on Precursors to Accidents**

Board Question 1.2 asks:

What bearing, if any, did the results reported in NUREG/CR-2497, "Precursors to Potential Severe Core Damage Accidents: 1969-79, A Status Report" (1982), have upon the reliability of the IPPSS? For example, are there specific accident scenarios at Indian Point whose probability may have been inaccurately estimated in light of the real-life data reported and analyzed in NUREG/CR-2497?

The referenced report was published during the course of this proceeding and appeared to us to bear upon reliability perhaps not only of the Indian Point Probabilistic Safety Study (IPPSS) but of probabilistic risk assessments in general. To provide ourselves and the Commission with information on this matter, we directed the Staff and Licensees to respond to this question. Other parties were invited to do so, but no one else presented actual testimony on the question.

Staff has pointed out several ways in which results of the precursor study can be used to check the accuracy of PRAs such as those for Indian Point. First, the precursor report calculates an industry average frequency of occurrence of severe core damage accidents. This frequency was compared with PRA-based predictions in an effort to assess the plausibility of the PRA results. Second, the precursor study listed those events that came closest to being actual core damage accidents. One can examine a PRA to see whether it gives adequate treatment to accident

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<sup>47</sup> Acharya's results on incremental risks from spatial intervals are given in terms of per-site-year. Hence, we have not calculated the added risk that would result from the fact that Unit 3 is scheduled to operate for 26 years, three years longer than Unit 2.

scenarios like the ones found here. Third, the precursor study calculates an industry average probability-of-failure of some frequently challenged safety systems. These too can be compared with PRA predictions. Fourth, the precursor study lists causes of system failures for those precursors in which entire safety systems have been found to be disabled. One can verify whether the PRA gave adequate treatment to root causes of these failures. Lastly, one can examine the treatment given to those precursor events, if any, that occurred at the plant of interest. (Rowsome, ff. Tr. 8277, at 5.)

With regard to the first of these criteria Table IX gives predicted severe core damage frequencies as calculated by the IPPSS and the average frequency from the precursor study averaged industry-wide over the years 1969-1979.

Staff has examined those precursor events most closely associated with core damage. They include the accident at TMI-2, a fire at the Browns Ferry plant, and the failure of the instrument and control power supply at Rancho Seco. (Rowsome, ff. Tr. 8277, at 8.)

With regard to the TMI-2 incident, the Staff believes that no PRA, including the IPPSS and the Staff's own analysis of Indian Point, has yet done a complete and thorough job of screening accident scenarios for cases in which operators might be misled into faulty diagnosis of the basic scenario. This is what happened at TMI-2. Thus, this possibility has not been really quantified in a reliable way. However, in the judgment of the Staff witnesses, such operator errors are "quite unlikely" today. (Rowsome, ff. Tr. 8277, at 11.) As for the Browns Ferry fire, the IPPSS and the Staff review did indeed include fire scenarios. The IPPSS found that in-plant fires contribute significantly to risk. (Rowsome, ff. Tr. 8277, at 12.)

**TABLE IX**  
**Predicted Severe Core Damage Frequencies\***  
 (Rowsome, ff. Tr. 8277, at 9.)

	IPPSS	Precursor Study
Indian Point 2	$4 \times 10^{-4}$ per year	$4.5 \times 10^{-3}$ per year
Indian Point 3	$1 \times 10^{-4}$ per year	(industry average, 1969-1979)

\*The values presented here correspond to those in the first version of IPPSS (prior to Rev. 1). They are appropriate here because the Precursor Study values were derived on the same basis.

The Rancho Seco incident, in which non-nuclear instrumentation suffered a loss of power, was the third important precursor in NUREG/CR-2497. Failures of power supplies were treated in detail in the IPPSS, and failures of individual control and instrumentation power supplies were treated by IPPSS as part of the analysis of the reactor trip event tree. (Rowsome, ff. Tr. 8277, at 13.)

Most of the other precursors which NUREG/CR-2497 found important entailed either a loss of main feedwater or loss of offsite power. In the opinion of the Staff, the loss of feedwater and loss of offsite power are both treated adequately in the IPPSS. Further, the assessment of these failures is unduly pessimistic in the precursor report in the opinion of the Staff. (Rowsome, ff. Tr. 8277, at 14.)

Table X gives a comparison between the IPPSS predictions and the precursor study's calculations of industry average probability of failure for some frequently challenged safety systems.

As can be seen from these figures the probability of failure as calculated in the precursor study is greater for the three systems listed than the IPPSS would predict.

The last purpose of comparison with the precursor study, the identification of incidents at one of the two reactors that would be considered precursor events, yielded very little. According to Staff witnesses, one incident at each unit is included in the list of 169 precursor events for the decade of the 1970's. Neither incident was considered to be a significant event according to the precursor study. They were the loss of offsite power at Unit 3 on July 13, 1977, and the loss of a heat tracing circuit at Indian Point Unit 2 on November 26, 1978. (Rowsome, ff. Tr. 8277, at

**TABLE X**  
**System Unavailability Comparison**  
**(Probability of Failure on Demand)**  
**(Staff Ex. 6 at 2.4-22.)**

System	IPPSS IP-2	IPPSS IP-3	Precursor Study
High Pressure Injection (Small LOCA)	$1.2 \times 10^{-4}$	$1.4 \times 10^{-4}$	$8 \times 10^{-4}$ to $2 \times 10^{-3}$
High Pressure Recirculation	$6.8 \times 10^{-4}$	$4.1 \times 10^{-3}$	$6 \times 10^{-4}$ to $2 \times 10^{-3}$
Aux. Feedwater	$1.9 \times 10^{-5}$	$1.5 \times 10^{-5}$	$1.1 \times 10^{-3}$

15.) It is Staff's position that the differences between the precursor study and the IPPSS with regard to Indian Point predictions and industry average calculations from precursors are smaller than the error in either of these figures. (Rowsome, ff. Tr. 8277, at 10.) The Staff believes that the apparent difference in Table IX, between the IPPSS prediction of severe core damage and the core damage frequency inferred from the precursor study is not a significant matter. The Staff points out that there were only three incidents that contributed a bulk of the probability of severe core damage to the precursor study's figure. These were the TMI incident, the Browns Ferry fire, and the Rancho Seco loss of control power. As for the TMI incident, Staff points to substantial differences between the design of Indian Point and the design of TMI-2 as being matters that will ameliorate the threat of such an incident at Indian Point. Further, the lessons learned at TMI-2 have been used to reduce still further the probability that such an incident could occur at other reactors now. (Rowsome, ff. Tr. 8277, at 10, 11.) Nor does the Browns Ferry fire present an instance of extreme hazard to Indian Point. In-plant fires have been considered in the IPPSS, and in the period since the Browns Ferry fire, considerable advance has been made in reducing the risk of fires in nuclear power plants. (Rowsome, ff. Tr. 8277, at 12, 16.) There are also several reasons to believe that the Indian Point units are less vulnerable to instrument power supply faults than were plants like Rancho Seco. The main significance of the Rancho Seco event lies in the fact that one power supply fault could cause loss of main feedwater, disable or potentially disable the autostart of the emergency feedwater system, and blind the operators to the need to turn on either the emergency feedwater system or the emergency core cooling system. The Indian Point units have much better separation of power supplies for safety and nonsafety-related instrumentation. There are four redundant trains of such instrumentation; therefore, no one power supply fault could be as disruptive or dangerous as at Rancho Seco. (Rowsome, ff. Tr. 8277, at 13.)

It is the Licensees' position that the data of the precursor study were well known to the IPPSS authors. (Kaplan, ff. Tr. 8244, at 4.) These authors analyzed the precursor study and found no need to redo any portion of the IPPSS. (Kaplan, ff. Tr. 8244, at 5.) Further, the Licensees' witnesses questioned the method by which the precursor study estimated severe core damage frequency. In brief, this method was as follows:

The precursor study authors noted one severe core damage accident (TMI-2) in 432 reactor-years of operation. In addition, they noted several other incidents, viz. the Rancho Seco loss of power, the Browns Ferry fire, and a number of incidents of lesser



importance, which were initiators or could have led to severe core damage. They weighted these other incidents according to their estimates of the conditional probability that each would have led to another severe core damage incident. They then added them together, and counted as a result approximately two incidents in 432 reactor-years. This procedure led to the value, one incident in 222 reactor-years, which they recorded.

(Kaplan, ff. Tr. 8244, at 2.) Licensees believe that severe core damage frequency is a matter of so little relevance to the hazards which a reactor presents that differences in severe core damage frequencies such as those noted between the IPPSS and the precursor study do not represent a difference in hazard. Staff agrees with this latter point and emphasizes that even if Indian Point were subjected to a TMI-like severe core damage accident such an accident would almost certainly be well contained. (Rowsome, ff. Tr. 8277, at 10.) Intervenors submitted neither testimony nor proposed findings on this Board question.

### ***Conclusion***

The Board is convinced that the precursor study does not necessarily suggest that either the IPPSS or the Staff analysis of Indian Point is substantially wrong, nor does it confirm them. The data base for the precursor study (from 1969 to 1979) includes TMI; but much work has been done after TMI to reduce the probability of such accidents recurring. Much has been learned since the Browns Ferry fire about fire protection for nuclear power plants. We believe therefore that the severe core damage frequency that the authors of the precursor study estimated is probably very pessimistic for today's reactors. The precursor study calculated from experience a large unavailability of certain safety systems compared with the predicted unavailability for those same systems in the IPPSS. The comparison contains only one truly startling difference, that of the auxiliary feedwater system on availability. The authors of the precursor study report that

The  $1.1 \times 10^{-3}$  estimate was derived from eight events in the nuclear industry. Of these eight, six could not occur at Indian Point due to design differences and two could possibly occur but did not significantly impact our revised auxiliary feedwater system on availability.

(Staff Ex. 6 at 2.4-21.)

We see some benefit in the fact that the IPPSS has been subjected to the type of scrutiny implied by the precursor study, but we see no reason to believe that the results suggest deficiencies in the IPPSS.

### C. Board Question 1.3: Beyea/Palenik Testimony

Board Question 1.3 asks:

What are the probabilities associated with the consequences presented in the testimony of Dr. Beyea and Mr. Palenik?

This question was formulated in our Order of October 1, 1982, because the testimony presented earlier by Mr. Palenik and Dr. Beyea addressed the consequences of a catastrophic accident at Indian Point without assessing the probabilities of occurrence of those consequences. The Palenik/Beyea testimony was submitted by a group of three Intervenors and one interested governmental entity as evidence on Commission Questions 3 and 4.<sup>48</sup> It consisted of three parts: "Preliminary, Some Consequences of Catastrophic Accidents at Indian Point and Their Implication for Emergency Planning," submitted June 7, 1982; "Supplements to Preliminary Testimony of June 7, 1982," submitted June 23, 1982; and "Errata Sheets," submitted July 6, 1982. (See Palenik/Beyea and Palenik/Beyea Supp., ff. Tr. 2900.) In our Order of October 1, 1982, we provided the opportunity for all parties to respond, at their option, to Board Question 1.3. Only the Licensees and the Staff responded. (Potter, ff. Tr. 8346; Blond, ff. Tr. 8369.)

Palenik and Beyea estimated the consequences of a PWR-2 type of radioactivity release, close to the worst possible type of release envisioned in the Reactor Safety Study (WASH-1400). (Palenik/Beyea, ff. Tr. 2900, at 25.) According to these witnesses, WASH-1400 assigned a probability of between  $1 \times 10^{-4}$  and  $1 \times 10^{-6}$  to this type of accident. (*Id.*) Palenik and Beyea consider this probability to be very uncertain at the present time. (*Id.*) In modeling the release, Intervenors assumed two time-invariant weather conditions, Pasquill stability classes D and E, two wind directions (north and south) and a four meter-per-second wind speed. (*Id.* at 28, 53, 56.) Health consequences were calculated for the population located outside the EPZ, at distances of from 10 miles out to 50 miles from the reactors. (*Id.* at 28.)

For the weather scenario with a northerly wind, blowing toward New York City, Palenik and Beyea estimated that there would result from short-term radiation exposure a total of approximately 6,000 to 50,000 delayed cancer deaths (thyroid plus other cancers) in the 10- to 50-mile

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<sup>48</sup> The parties sponsoring the testimony of Palenik and Dr. Beyea were the New York State Attorney General, the Union of Concerned Scientists and New York Public Interest Research Group (UCS/NYPIRG), and the New York City Audubon Society.

zone. (*Id.* at 35.) In addition, they estimated that a total of 5,300 square miles of land would be interdicted. (*Id.* at 8, 40.)

The Staff found it difficult to associate a probability estimate with the consequence estimates of Palenik and Beyea. (Blond, ff. Tr. 8369, at 2.) Witness Blond noted a number of differences in the modeling assumptions used by Palenik and Beyea and those used by the Staff. In addition to the fact that a PWR-2 release is not specific for Indian Point, Staff modeled a spectrum of more realistic weather conditions which do not necessarily duplicate the time-invariant conditions assumed by the Intervenor's witnesses. (*Id.*) Moreover, there were differences in the assumptions with regard to emergency response, distance truncation, and health effects conversion factors. (*Id.* at 3.) Nevertheless, Blond noted that the PWR-2 release is more or less equivalent to Staff's release category A, the worst release category analyzed by Staff for the Indian Point units. By comparing the Palenik/Beyea results with Staff's CCDFs, and simply selecting from those graphs points that would be associated with the Intervenor's figures, witness Blond assigned probability values to the Palenik/Beyea estimates. (*Id.* at 2-3; Blond, Tr. 8370.) For 6,000 to 50,000 delayed cancer deaths, Staff gave the following corresponding estimates:  $1 \times 10^{-5}$  to  $1 \times 10^{-9}$  for Unit 2 and  $5 \times 10^{-6}$  to below  $1 \times 10^{-9}$  for Unit 3. (Blond, ff. Tr. 8369, at 3; Blond, Tr. 8371-72.) Staff witness Blond testified that these estimates do not represent Staff acceptance of the methods or assumptions used by Palenik and Beyea and, in his view, have little or no meaning. (Blond, ff. Tr. 8369, at 3.)

Using an approach somewhat similar to that employed by Staff, Licensees' witness Potter used the IPPSS analyses to obtain probability estimates for the Palenik/Beyea consequence estimates. (Potter, ff. Tr. 8346, at 1.) He noted that the PWR-2 release corresponded, in consequences, to the IPPSS release categories 2 and 2RW. With the mean frequencies of these release categories and the probabilities of occurrence of meteorological conditions required to distribute the released material over the New York City area, Potter calculated a probability corresponding to one of the Palenik/Beyea estimates. (*Id.*) The estimate he selected for his probability calculation, however, was not the 6,000 to 50,000 fatalities presented by Palenik and Beyea and used by Staff in deriving its probability estimates. Instead, the Licensees' witness selected 1,345 fatalities, which was the lowest value given (the low range for a one-day exposure with no precipitation) in Table 3 of the Palenik/Beyea

testimony.<sup>49</sup> (*Id.* at 2; *see* Palenik/Beyea, ff. Tr. 2900, at 30.) Potter added the contributions from both Units 2 and 3 to obtain a total probability for this consequence of  $5.5 \times 10^{-6}$  per site-year.<sup>50</sup> (Potter, ff. Tr. 8346, at 2.) Potter dismissed the higher estimates of Palenik and Beyea on the grounds that their assumptions with regard to health effect conversion factors, evacuation times, and shielding were so conservative that they led to unreasonable overestimates. (*Id.* at 2-3.)<sup>51</sup>

Intervenors' witnesses Palenik and Beyea did not provide conditional probability estimates for the consequences presented in their testimony. By referring to the testimony of UCS/NYPIRG witness Sholly on Commission Question 5, however, we can obtain a conditional probability for latent cancer fatalities for a hypothetical SST-1 release at Indian Point. (Sholly, ff. Tr. 12,730, App. C at C-8; *see* our Order (Transcript Correction) dated September 1, 1983 (unpublished).) The SST-1 release is described in our discussion of Commission Question 5, *infra*; suffice it to say here that the SST-1 release approximates the PWR-2 release considered by Palenik and Beyea as well as Staff's release category A. From the curve for Indian Point on the graph of latent cancer fatalities in Sholly's testimony we read, for 6,000 fatalities, a conditional probability of about  $4.3 \times 10^{-1}$  per site-year. Multiplying this by the high estimate of a PWR-2 accident cited by Palenik and Beyea,  $1 \times 10^{-4}$  (Palenik/Beyea, ff. Tr. 2900, at 25), we calculate the probability of 6,000 fatalities resulting from a rapidly developing major release at Indian Point to be  $4.3 \times 10^{-5}$  per site-year. For comparison, we can sum Staff's per-reactor-year estimates of the probability of 6,000 fatalities, given above, to get a per-site-year estimate of  $1.5 \times 10^{-5}$ . We can make no comparison with the Licensees' estimate because their result is based on 1,345 fatalities rather than on 6,000.

The  $4.3 \times 10^{-5}$  per-site-year estimate that we calculated from the Intervenor's figures is remarkably close to Staff's estimate (that we converted to a per-site-year basis) of  $1.5 \times 10^{-5}$ . We recognize that both of these

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<sup>49</sup> For their worst-case condition, Palenik and Beyea assumed that four days were required to evacuate the contaminated metropolitan area. (Palenik/Beyea, ff. Tr. 2900, at 28, 30.)

<sup>50</sup> Witness Potter stated that he added contributions from both Indian Point Units 2 and 3 to get a "total frequency of  $5.5 \times 10^{-6}$  per reactor-year." (emphasis added) (Potter, ff. Tr. 8346, at 1.) We believe "per reactor-year" is a *lapsus calami*. It seems clear that the result is a per-site-year estimate.

<sup>51</sup> According to Potter, Palenik and Beyea assumed a health effects conversion factor *three to five* times higher than the mid-range estimates adopted by the majority of the Committee on the Biological Effects of Ionizing Radiation (BEIR Committee) in the 1980 BEIR report (*not* just "a factor of *five* higher" (emphasis added) as Staff would have us find; *see* Staff's PF at 224). Further, the ground shielding factor of 0.3 assumed by Palenik and Beyea is, according to Potter, appropriate for a person who spends much time on the ground floor of a one- or two-story house and substantial time outside, as well; Potter thinks such a low shielding factor is inappropriate for a resident of New York City. (Potter, ff. Tr. 8346, at 2.)

values were obtained using very questionable approximations and dissimilar assumptions. Consequently, the estimates are surrounded by very great uncertainties, and we do not ascribe much probative value to them.

#### **D. Board Question 1.4: Pressurized Thermal Shock**

Board Question 1.4 asks:

What risk to public health and safety is presented by the Indian Point plants through a chain of events including pressurized thermal shock (PTS) to the reactor pressure vessels?

Pressurized thermal shock refers to an accidental cooldown of the water in a reactor vessel while the system pressure is maintained at a high level. A rapid cooldown of the inner surface of the reactor vessel causes thermal stresses in the vessel wall. These stresses combined with the pressure stresses may cause pre-existing small cracks to grow larger. Reactor vessel integrity could be lost by crack extension through the vessel wall. We invited all parties to address this matter, but only the Staff and the Licensees did so.

The likelihood of crack growth under PTS conditions increases with radiation damage, a phenomenon that is understood and monitored. Reactor vessels lose some of their initial toughness or resistance to cracking under neutron irradiation. Appendix H of 10 C.F.R. Part 50 entitled "Reactor Vessel Material Surveillance Program Requirements" specifies that each Licensee must implement a surveillance program to monitor the changes in fracture toughness of materials in the reactor vessel belt-line region resulting from exposure to neutron irradiation (Woods/Klecker, ff. Tr. 8700, at 2-3.)

The quantity which is used to measure susceptibility to brittle fracture is  $RT_{NDT}$ , a so-called "Reference Temperature Nil Ductility Transition." This is a single reference temperature chosen in a defined way to represent the temperature at which the material toughness (*i.e.*, its resistance to fracture) begins to increase rapidly with increases in temperature. At temperatures below the  $RT_{NDT}$ , the material is significantly less tough than at temperatures above the  $RT_{NDT}$ . As radiation damage occurs,  $RT_{NDT}$  changes. This change is called  $\Delta RT_{NDT}$ . To keep track of this change, surveillance capsules containing neutron dosimeters and representative samples of the vessel materials are placed inside the reactor vessel between the core and the vessel wall. Periodically during the life of the facility capsules are withdrawn, the material samples are tested to determine the change in properties, and neutron

dosimetry is performed to check the analytical predictions of neutron fluence. From surveillance test results for all plants, trend curves are developed that predict the extent of radiation damage and elevation of  $RT_{\text{NDT}}$  as a function of the neutron fluence and the chemical composition of the steel. (Woods/Klecker, ff. Tr. 8700, at 2, 3.)  $RT_{\text{NDT}}$  can be calculated for any given vessel at a given time in its life. The initial  $RT_{\text{NDT}}$  of the material in question is obtained from tests run in accordance with ASME Code rules at the time of the vessel fabrication.  $\Delta RT_{\text{NDT}}$  is determined from the neutron fluence corresponding to the proper location in the vessel and the trend curve that gives mean values of  $\Delta RT_{\text{NDT}}$  as a function of fluence and chemical composition. Margin is added to give a conservative value of  $RT_{\text{NDT}}$ . (Woods/Klecker, ff. Tr. 8700, at 4.) The Staff has calculated values of  $RT_{\text{NDT}}$  for Indian Point Units 2 and 3 and has found these units not to be among the plants of greatest concern with regard to pressurized thermal shock. Because of this finding, the plant owners have not yet been asked to submit their current estimates of  $RT_{\text{NDT}}$ . (Woods/Klecker, ff. Tr. 8700, at 4-5.) In addition to the Staff's calculations from generalized curves, capsules from Indian Point Units 2 and 3 have been analyzed. The results of these analyses confirm the Staff's calculations. (Woods/Klecker, ff. Tr. 8700, at 5.)

The NRC Staff has developed a screening criterion for evaluating the acceptability of reactor vessels with respect to PTS-related risk. For axially oriented welds the criterion is that  $RT_{\text{NDT}}$  shall not exceed 270°F. For circumferentially oriented welds which are more resistant to crack propagation because of the greater stiffness of the vessel in that direction, the criterion is 300°F. For Indian Point Units 2 and 3 the 270°F criterion is the governing one. (Woods/Klecker, ff. Tr. 8700, at 6.)

The screening criterion was developed on the basis of both deterministic and probabilistic fracture mechanics calculations for a severe PTS event. Eight events have occurred in U.S. PWRs during a total of 350 reactor-years of domestic PWR operation where the final fluid temperature reached 350°F or lower. The Staff believes PTS could be a significant concern in this range. Using the actual pressure and temperature histories of those eight events as an input to a deterministic fracture mechanics code, the Staff performed a series of calculations using an assumed range of  $RT_{\text{NDT}}$  values. From this series of calculations, the critical  $RT_{\text{NDT}}$  for each of the eight events was calculated. The critical value is that value at which for a vessel with higher  $RT_{\text{NDT}}$ , the most sensitive size flaw would be expected to grow deeper during the event being considered; and for a vessel with lower  $RT_{\text{NDT}}$ , none of the flaw sizes in

the code would be calculated to grow deeper during the event. These calculations, being deterministic in nature, assumed (1) that the  $RT_{NDT}$  is exactly equal to the value stated, (2) that the coldest measured temperature exists at the weld in question, and (3) that a critical size flaw is also present at the worst location. The study was then expanded to include the expected frequency and calculated severity of PTS events that have not occurred. This expansion was made using event trees and PRA techniques to obtain an approximate quantified result. A series of probabilistic fracture mechanics calculations was then performed which took into account such facts as that the actual material properties vary (the worst  $RT_{NDT}$  is probably not present at the coldest point). Actual crack size and distribution also vary (the critical-size flaw is probably not present at the coldest point). In this way, a more realistic prediction of crack growth probability was made for the eight events that had occurred and for the more severe postulated events that had not occurred.

The prediction of crack growth probability so obtained confirmed that 270°F is the appropriate screening criterion. A vessel having an  $RT_{NDT}$  of 270°F would have a frequency of crack extension without arrest between  $10^{-5}$  and  $10^{-6}$  per reactor-year. (Woods/Klecker ff. Tr. 8700, at 6-8.)

Staff also noted that all sequences which result in crack growth do not necessarily result in core melt. Although the exact fraction of those which do result in core melt cannot be quantified, it is certainly less than one. The core melt frequency due to PTS events must therefore be lower than the stated frequency of PTS-related crack extension. (Woods/Klecker, ff. Tr. 8700, at 8.)

Staff also pointed out that as of December 1981, Indian Point Units 2 and 3 were at  $RT_{NDT}$  values of 189°F and 212°F, respectively. The Staff also estimated that the PTS frequency decreases an order of magnitude for each 40° reduction in  $RT_{NDT}$ . On that basis, as of December 1981, the pressurized thermal shock risk at Indian Point Units 2 and 3 is one or two orders of magnitude below the previously stated  $10^{-5}$  to  $10^{-6}$  frequency of crack extension which would exist for a plant at the screening criterion. Further, it noted that at full power the  $RT_{NDT}$  values would increase approximately 7°F per year. (Woods/Klecker, ff. Tr. 8700, at 9.) Although on this basis Indian Point Units 2 and 3 are sufficiently below the criterion for continued operation, the Staff is requiring that the plants take actions to reduce neutron flux at the pressure vessel wall and thus slow the rate of increase of  $RT_{NDT}$ . Indeed a change in core configuration has already taken place both at Unit 2 (Lee, ff. Tr. 13,086, at 1) and at Unit 3 (T. Meyer, ff. Tr. 13,091, at 3.) With the reduced neutron fluence, the NRC screening criterion will not be exceeded for

Indian Point Unit 2 during the life of the plant or for 40 years at an 80% capacity factor. (Lee, ff. Tr. 13,086, at 3.) For Indian Point Unit 3, the criterion will not be exceeded until the year 2005, four years before the plant license expires. (T. Meyer, ff. Tr. 13,091, at 4.)

Licensees' witnesses testified that the IPPSS evaluated the frequency of a reactor vessel rupture using the same methodology and assumptions as the Reactor Safety Study (WASH-1400) and obtained a mean frequency of  $3 \times 10^{-7}$  per reactor-year for all types of vessel failure "which included those failures induced by transients (PTS)." (Richardson/Bley, ff. Tr. 8382, at 2.) They further asserted that the IPPSS and Reactor Safety Study results are based on data and judgments in a report by the Advisory Committee on Reactor Safeguards, that report being based in turn on data for fossil-fueled boiler drums. (*Id.* at 2.) Cross-examination of these witnesses, however, brought out that the applicability of fossil-fuel boiler data to the specific pressurized thermal shock sequence in nuclear power plants is far from assured. (Tr. 8387-90.) We note also that the report from which they obtained their data was issued in 1974. (Richardson/Bley, ff. Tr. 8382, at 5.)

### ***Conclusion***

In our view, the Licensees' testimony on pressurized thermal shock is far from completely reassuring. However, the Staff has convinced us of several things. First, a reasonably reliable quasi-probabilistic treatment of the pressurized thermal shock sequence has been conducted in the course of setting screening criteria. Second, there is reasonable assurance that the probability of a core melt sequence due to pressurized thermal shock is very low — orders of magnitude below the total probability of a core melt sequence. Third, steps have been taken, by reducing the core neutron leakage, to reduce still further the small probability of pressurized thermal shock sequences presenting a hazard. In this Board's opinion, the answer to Board Question 1.4 is that the risk to public health and safety presented by the Indian Point plants through a chain of events including pressurized thermal shock contributes very little to the total risk.

### **E. Commission Question 2**

Commission Question 2 asks:

What improvements in the level of safety will result from measures required or referenced in the Director's Order to the licensee, dated February 11, 1980? (A contention by a party that one or more specific safety measures, in addition to those



identified or referenced by the Director, should be required as a condition of operation would be within the scope of this inquiry if, according to the Licensing Board, admission of the contentions seems likely to be important to resolving whether: (a) there exists a significant risk to public health and safety, notwithstanding the Director's measures, and (b) the additional proposed measures would result in a significant reduction in that risk.)

### ***Improvement in Safety Resulting from the Measures Required or Referenced by the Director's Order***

Only the Licensees and the NRC Staff submitted testimony on this question,<sup>52</sup> and their testimony did not differ significantly. Each Licensee and the Staff also filed proposed findings addressing Commission Question 2. Intervenors also filed proposed findings that purportedly addressed Commission Question 2, but their findings addressed only the contentions admitted under Commission Question 2 and did not address the specific Commission Question. (See Int. PF 2-1 through 2-20.) With respect to Commission Question 2, therefore, there is no real dispute.

The measures required or referenced by the Director's Decision addressed five concerns. First, changes were to be made in the conduct of operations, surveillance testing, and maintenance; these changes were intended to make transients less frequent, to make selected safety systems more reliable, and to make emergency response more comprehensive and reliable. Second, changes were to be made to staffing; two senior reactor operators rather than one were to be required on each shift in each plant, and the pool of safety consultants available to the Licensees was to be expanded. Third, operators and onsite emergency response teams were required to take additional and accelerated training for severe reactor accidents and for normal operations. Fourth, the margin by which the emergency core cooling system can limit core temperature excursions during large LOCAs was required to be increased. And fifth, specific studies were to be conducted to examine the susceptibility of the plants to severe accidents, in order to increase Licensees' understanding of the risk and to explore options for further risk reduction. (Rowsome/Hannon, ff. Tr. 6563, at 2.)

The NRC Staff was not able to quantify the extent to which compliance with the Director's Decision reduces risk. A Staff witness did testify

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<sup>52</sup> Licensees presented the testimony of Dr. Dennis C. Bley and Dennis C. Richardson. (Bley/Richardson, ff. Tr. 6442.) The NRC Staff presented the testimony of John N. Hannon and Frank H. Rowsome. (Rowsome/Hannon, ff. Tr. 6563.)

that risk reduction due to improvements in safety system design, surveillance tests, and technical specifications was estimated to be less than a factor of three. (*Id.* at 5.) The Staff was unable, however, to assess the risk reduction due to changes in staffing, staff training, and the study that was required, because: (1) the relationship of the likelihood of operator error under accident conditions to the details of staffing or staff training cannot be evaluated by existing risk assessment techniques; and (2) there have been other improvements that were not the result of the Director's Decision. (*Id.* at 4.)

The Licensees were also unable to quantify the extent to which the Director's Decision reduced risk at Indian Point. Licensees noted that the measures required or referenced by the Director's Decision focused on reducing the risk of internal events. (Bley/Richardson, ff. Tr. 6442, at 2.) While these measures have a positive effect on risk reduction, the overall risk at Indian Point is not significantly affected because the dominant accident sequences stem from the rare external events. (*Id.* at 2-3.)

Based on this uncontroverted testimony, the Board concludes: (1) that the measures required or referenced in the Director's Decision had a small, positive effect on risk reduction; and (2) that the effect is not amenable to quantification, but is probably considerably less than an order of magnitude.

### ***Additional Measures***

#### ***Mitigative Design Features***

In addressing two other Commission Questions, 1 and 5, the Staff witnesses examined several potential design and operating changes intended to enhance the safety of these plants. (Meyer/Pratt, ff. Tr. 12,492, at III.B-29 *et seq.*; Rowsome/Blond, ff. Tr. 12,834, Part C.) No formal contention had been admitted advocating these changes, and only the Staff presented evidence on them. The changes are, however, of the nature of "specific safety measures in addition to those identified by the Director . . ." and the Board feels that they are most properly dealt with here under Commission Question 2.

The mitigative design features proposed were:

1. To control combustible gases: an ignition system to control burning using glow plug igniters.
2. To control building overpressurization: a passive containment building heat removal system, such as heat pipes.
3. For prevention of basemat penetration: a system to flood the reactor cavity.

(Meyer/Pratt, ff. Tr. 12,492, at III.B-29.)

Staff treated two cases in analyzing the contribution which these features could make; the analysis included both an "ideal" case and a "realistic" case. In the "ideal" case the features always worked when called upon and worked without interfering with any other features. In the "realistic" case the three features were assumed to work only 95% of the time when called upon. (*Id.* at III.B-30, 67-68.)

There are several ways by which the ultimate risk reduction of these features can be gauged. One can, for example, examine the effect upon early fatalities or latent fatalities; and one can do so by calculating a CCDF, by calculating a curve expressing individual risk, or by calculating an integrated CCDF, *i.e.*, a societal risk value. (*Id.* at III.B-43.) Staff chose to calculate risk values for early and latent fatalities. (*Id.*) The values obtained are reproduced here as Table XI. In this table, mitigation is accomplished by adding all three proposed design features, and the "realistic" and "ideal" cases are defined as above.

**TABLE XI**  
**Risk Effect of Mitigation Features<sup>1</sup>**  
(Meyer/Pratt, ff. Tr. 12,492, at III.B-44.)

	Delayed Cancer Fatalities (per Reactor-Yr.)	Early Fatalities (per Reactor-Yr.)
<i>Indian Point Unit 2</i>		
Before Mitigation	1.7 (-1)	1.5 (-2)
After Mitigation (realistic features)	3.4 (-2)	7.7 (-3)
After Mitigation (ideal features)	1.6 (-2)	6.6 (-3)
<i>Indian Point Unit 3</i>		
Before Mitigation	9.1 (-2)	3.8 (-3)
After Mitigation (realistic features)	1.9 (-2)	1.3 (-3)
After Mitigation (ideal features)	1.0 (-2)	9.5 (-4)

<sup>1</sup> The "Before Mitigation" values assume "Evac-Reloc and Late-Reloc" scenario with supportive medical treatment. (See Table VII, *supra.*)

Staff also calculated the percentage reduction in each of these risk values. Those reductions are presented in Table XII.

Because of existing uncertainties regarding the magnitude of hydrogen burns, the failure of the containment by overpressurization, the ability of a flooded cavity to cool the debris bed, the reliability of the fan coolers, and the reliability of a heat pipe system, Staff made a parametric study of each of these variables. (*Id.* at III.B-46-B-47.) The Staff concluded that the results were quite sensitive to containment failure, and very sensitive to heat pipe failure. (*Id.* at III.B-47-B-51.)

Staff pointed out that of the three mitigation features here combined, one, the cavity flooding feature, would actually increase risk if not accompanied by a passive heat removal system. It would exchange the small risk attendant upon basemat penetration for an increase in potential overpressure failure. (*Id.* at III.B-68.) Since, as observed *supra*, the operation of the passive heat removal system is both the prime uncertainty and the greatest sensitivity for this triad of fixes, we doubt that these design changes are advisable. Further, the only passive heat removal system specifically mentioned in the testimony, a heat pipe system, would involve a retrofit requiring multiple additional penetrations in the containment barrier. We do not believe it advisable to

**TABLE XII**  
**Percentage Reduction in Risk Values by Mitigation Features**  
**(Meyer/Pratt, ff. Tr. 12,492, at III.B-45.)**

	Risk Reduction (Delayed Cancers)	Risk Reduction (Early Fatalities)
<i>Indian Point Unit 2</i>		
Mitigation Strategy (realistic features)	80%	50%
Mitigation Strategy (ideal)	91%	56%
<i>Indian Point Unit 3</i>		
Mitigation Strategy (realistic features)	80%	66%
Mitigation Strategy (ideal)	90%	75%

recommend these design changes. This recommendation agrees with that of the Staff. (Rowsome/Blond, ff. Tr. 12,834, Part C at 12.)

In the Staff's testimony on Commission Question 5, Staff witnesses also analyzed the fixes inspired by the IPPSS, making assumptions about the cash worth of human life (assumptions this Board is unwilling to make). (Rowsome/Blond, ff. Tr. 12,834, App. 1.) Staff also analyzed other possible actions (Rowsome/Blond, ff. Tr. 12,834, Part C) on the basis of the benefit/cost guidance in the Commission's proposed safety goals, *i.e.*, \$1000 per person-rem averted. (Rowsome/Blond, ff. Tr. 12,834, Part C at 6.) By both standards, the IPPSS fixes represented substantial savings. (Rowsome/Blond, ff. Tr. 12,834, Part C at 7-8.) However, Staff concluded that neither shutdown nor further plant design changes would be cost-effective. (Rowsome/Blond, ff. Tr. 12,834, Part C at 12-16; and App 2.)

### *Safety Assurance Program*

Staff did, however, recommend certain changes in the conduct of operations at Indian Point. In particular, Staff recommended that a Safety Assurance Program be established. (Rowsome/Blond, ff. Tr. 12,834, Part C at 16.) Staff felt that operator-management behavior has been involved in many important accident precursors historically, that the IPPSS has credited operator actions other than those in current procedures, and that a Safety Assurance Program of the type recommended will likely be cost-effective. (Rowsome/Blond, ff. Tr. 12,834, Part C at 16-17.) The recommended program should entail:

1. Review, and when warranted, revision of procedures for maintenance, surveillance testing, operations, technical specifications, and personnel training to harvest the insights that can be obtained from the PRAs for better conduct of operations.
2. The use of the PRAs as an evaluation tool to identify the importance to risk of patterns in failure data obtained at Indian Point and to evaluate the relevance to Indian Point of severe accident precursors at other plants.
3. Continued maintenance and use of the IPPSS as an operations management and design evaluation tool, including the implementation of cost-effective risk-reduction concepts.
4. Integration of the Safety Assurance Program into the conduct of operations.

(Rowsome/Blond, ff. Tr. 12,834, Part C at 18-19.)

Some technical elements of the program which Staff recommended include:

1. Formal calculations of quantitative measures of importance to risk for initiating events, systems, components, human interactions in maintenance, surveillance, and operations. Such figures of merit bearing upon the importance to safety can be illuminating in several ways: (a) they may reveal limitations in the PRAs; (b) they are useful in the training of operators and maintenance personnel; and (c) they are useful in the evaluation of procedures, technical specifications, and situations that may arise in plant operations.
2. Fault Hazards Analysis applied to hypothetical errors in the conduct of maintenance procedures, surveillance procedures, normal and emergency operating procedures, and technical specifications. This constitutes a formal "what if" examination of potential human error in the conduct of operations.
3. Where the importance-to-risk and the fault hazards analysis suggest that procedures may warrant improvement, the analysis should be extended to human error Failure Mode Effects Analysis and changes, where plausibly cost-effective, should be instituted in procedures, technical specifications, operator training, system design, and/or control room simulator design as appropriate.
4. Operations and maintenance personnel should be trained on the results of the studies into the importance-to-risk of their responsibilities, taught pattern recognition for the more vulnerable plant configurations, or circumstances and diagnosis of the more important accident scenarios.
5. From time to time the PRA quantification should be updated to reflect accumulated experience on the frequency of component failures, human errors, and initiating events. This effort can be made economical by employing the quantitative measures of importance-to-risk to assess the significance of altered fault event frequency, so that comprehensive and burdensome recalculations of risk are rarely necessary.
6. The Licensees, with the advice and consent of the Staff, should devise and implement criteria spelling out thresholds for corrective action and of reportage to the NRC of discoveries of less-than-expected system reliability, procedural adequacy, or greater-than-expected risk, where the IPPSS serves as the frame of reference.

7. The IPPSS models should be employed as a test bed to assess the importance to risk of events at other plants that meet the criteria to be considered precursors to severe reactor accidents in the sense of NUREG/CR-2497, which might potentially be relevant to Indian Point.
8. The results of the importance-to-risk evaluations should be made available to the Licensees' quality assurance organization, NRR, and IE, not only to enable reviews to be made of its adequacy, but potentially for use in sharpening the focus or allocation of emphasis in the work of the QA and NRC audits.
9. The IPPSS, and the assessments of importance-to-risk based upon it, should be maintained, and when appropriate, revised to make it a current, up-to-date evaluation tool.
10. The Power Authority of the State of New York has underway a study of systems interactions at Indian Point Unit 3. This effort has been kept separate from the PRA endeavor, with the concurrence of the Staff. Nonetheless it may provide valuable insights on the strengths and weaknesses of the IPPSS in this important area. The Staff would like to see the IPPSS altered to reflect the effect of identified systems interactions at Unit 3 before as well as after credit is taken for any alterations in plant design or operation triggered by the systems interaction study. This before and after fix recalculation of the risk will provide an important benchmark that will help to determine whether such a systems interaction study may be needed for Indian Point Unit 2 and in many other applications of reactor risk assessments.

(Rowsome/Blond, ff. Tr. 12,834, Part C at 18-22.)

Staff admits the program would entail some startup costs, \$1 million to \$3 million, in fact. (Rowsome/Blond, ff. Tr. 12,834, Part C at 22-23.) But it would not be expensive thereafter. (*Id.*)

We recommend that the Commission require Licensees to develop and implement a Safety Assurance Program embodying the elements above. Any Commission Order to that effect should not be highly prescriptive, but should permit the Licensees to develop a program that is tailored to each plant operations staff. The development should be accomplished subject to the advice, consent, and oversight by the NRC Staff.

### *Tornado Risk Inquiry*

Although not raised by the Intervenor as a matter to be considered by us under Commission Question 2, the fact that Indian Point Unit 2 has been recognized by the NRC Staff as being vulnerable to accidents initiated by high winds caused this Board to be concerned about the attention that has been given tornadoes as accident initiators at Unit 2. In response to Board questions asked of Staff witnesses, this matter was aired during the hearing. We address the subject here because it appropriately falls within the scope of the parenthetical statement by the Commission under Question 2.

The largest contributor to latent fatality risk at Indian Point Unit 2 is severe hurricane winds which cause loss of AC power and eventual core melt. (Licensees, ff. Tr. 6961, at 33.) According to IPPSS, the mean probability of that event is  $2.7 \times 10^{-5}$  per year. (*Id.*) The second largest contributor to latent fatality risk is a tornado which causes loss of offsite power plus loss of other safety-related equipment. The mean probability of this event was estimated in IPPSS to be  $1.6 \times 10^{-5}$  per year. (*Id.* at 34.) Sandia considered the IPPSS probability of hurricane-initiated accidents to be too low, and suggested that the probability was  $5.4 \times 10^{-4}$  per year. (Staff Ex. 6 at 3.2.5-1.) Sandia found the probability of a tornado-initiated accident of  $1.6 \times 10^{-5}$  per year to be reasonable. (*Id.* at 3.2.6-1.) Staff witness Budnitz also concurred in the IPPSS estimate of tornado-initiated accident probability. (Budnitz, ff. Tr. 7489, at 39.)

The Staff considers the hurricane risk for Indian Point 2 to be sufficiently great to require a technical specification that requires certain actions in the event that a hurricane approaches the New York coast. (Budnitz, Tr. 7519.) But the Staff has not made a judgment that the risk from tornadoes requires protective actions at Indian Point Unit 2 in the event that the National Weather Service issues a tornado watch or tornado warning for the Indian Point area. (Tr. 7520.) A much greater warning time is available for a hurricane than for a tornado; presumably after a tornado warning is announced there could be only a matter of minutes in which to effect protective actions. (*Id.*) Thus, there is some question whether a significant gain in protection would be achieved by initiating shutdown in the event of a tornado warning for the Indian Point area. (Tr. 7522-23.) Nevertheless, witness Budnitz testified that even a short period of shutdown before a tornado struck the plant would be better than having the plant running at the time. (Tr. 7521.)

In view of the infrequent occurrence of tornado watches and tornado warnings in the Indian Point area, and in view of the large contribution of a tornado-initiated accident to the latent fatality risk from Indian Point Unit 2, we believe that the risk reduction might offset the cost to



the utility of taking protective action in the event of a tornado watch or warning. Therefore, we recommend that the Commission direct the Staff to investigate thoroughly whether Indian Point Unit 2 should be required to take appropriate protective action if the National Weather Service issues a tornado watch or a tornado warning for the Indian Point area. The investigation should, in our view, distinguish tornado watches from tornado warnings.<sup>53</sup>

**F. Contentions 2.1(a) and 2.1(d): Filtered Vented Containment System (FVCS) and Separate Containment Structure (SCS)**

Contention 2.1(a) states:

A filtered vented containment system for each unit must be installed.

Contention 2.1(d) states:

A separate containment structure must be provided into which excess pressure from accidents and transients can be relieved without necessitating releases to the environment, thereby reducing the risk of containment failure by overpressurization.

Licensees, Staff, and Intervenors (UCS/NYPIRG) presented testimony on these contentions and all submitted proposed findings.

As originally proposed by the Intervenors and formulated by the Board (Memorandum and Order (Formulating Contentions, Assigning Intervenors, and Setting Schedule), LBP-82-34, 15 NRC 895 (1982), Contention 2.1 had four parts. In addition to advocating the above additional safety features, the Intervenors had urged that the plant operating conditions be rewritten to require a "fully operable complement of safety-grade and/or safety-related equipment." (*Id.* at 898.) They also would have had the plant install a "core catcher," a device intended to prevent basemat melt-through in the event of a core melt accident. The careful winnowing process mandated by the Commission in its July 1982 Order (CLI-82-15, 16 NRC 27) ultimately resulted in our dropping those two parts of this Contention. (Memorandum and Order (Formulating Final Contentions Assigning Intervenors and Setting

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<sup>53</sup> In making this recommendation, we are mindful that the Director of the Office of Nuclear Reactor Regulation, in the Director's Decision under 10 C.F.R. § 2.206 (DD-80-5, 11 NRC 351 (1980)), concluded that the diesel generator building of Indian Point Unit 2 was "less susceptible to high winds" because of surrounding buildings and hillsides. This conclusion is no longer warranted, we believe, because tornado research by T. Theodore Fujita at the University of Chicago has shown that tornado funnels can track up and down steep hillsides or even walls of steep ravines. (Budnitz, Tr. 7562.) We doubt that the protection from tornado winds perceived by the Director in fact exists.

Schedule) LBP-82-105, 16 NRC 1629 (1982).) As litigated, only the FVCS and SCS portions of the contention remain.

The Intervenor's position is straightforward: Only core melt accidents are substantial contributors to public hazard (Sholly/Thompson, ff. Tr. 6147, at (3); about all that can be done has been done to reduce the probability of a core melt, yet that probability remains high (*Id.* at 5-6); and only a mitigation feature of the sort represented by a filtered vented containment system or separate containment system can reduce the risk to public health and safety substantially. Licensees and Staff agreed that it is core melt accidents that dominate risk. (Rowsome/Blond, ff. Tr. 7169, at 4; Bley/Richardson, ff. Tr. 6280, at 3.) However, Licensees pointed out that this is so because "it is only such accidents which provide even a theoretical mechanism for releasing a large fraction of the radioactive inventory from the core." (Bley/Richardson, ff. Tr. 6280, at 3.) We note that, under any circumstances, calculations by both the utilities and the NRC suggest that the single greatest risk contribution comes from core melt and slow overpressurization of the containment building by steam and noncondensibles to the point where the containment building structurally fails. (Meyer, ff. Tr. 6692, at 3.) It is of course precisely this sort of accident that FVCS or SCS would be designed to mitigate.

Intervenor's argued that the practicality of both of these systems has been proven. For the filtered vented containment system, they pointed out that Sweden will require it at Barseback (Sholly/Thompson, ff. Tr. 6147, at 15-16); that the Clinch River Breeder Reactor design will have it (*id.* at 16); and that the cost would not be excessive, amounting to a few tens of millions of dollars (*id.* at 18-20; Thompson, Tr. 6184).

Intervenor's were also quite sanguine about the safety improvement from a filtered vented containment system. (Sholly/Thompson, ff. Tr. 6147, at 16, 17 and 18.) Intervenor's cited Staff-supported studies of filtered vented containment that calculate large reductions (about a factor of three to ten) in such measures of risk as potential latent fatalities and early fatalities. (*Id.* at 16, 17.) Similarly, they noted a reduction in the probability of severe radioactive release as calculated by NRC contractors of up to a factor of 100. (*Id.* at 17.) They pointed out that calculations by Staff contractors indicate that in some cases separate containment systems would have a similar impact. (*Id.* at 16.) The cost of these systems would be similar to that for a filtered vented containment system. (*Id.* at 18-19.)

Cross-examination of the Intervenor's witnesses led them to concede that there were failure modes that could be aggravated or exacerbated by

the presence of a filtered vented containment system or a separate containment system. (Tr. 6167, 6178.) While the Staff-supported research cited by the Intervenor's witnesses may have taken some account of the chance that one of these mitigating systems might fail (Sholly/Thompson, ff. Tr. 6147, at 18), it is not apparent to the Board that the figures presented by the Intervenor's witnesses took complete account of any exacerbating effect the systems might have.

It is the Staff's position that both mitigation and prevention are reasonable approaches. The question as to which one should be preferred depends on very complex factors. (Meyer, ff. Tr. 6692, at 4-5.) These factors include engineering feasibility (*i.e.*, whether a practical system can be engineered and built to meet the functional requirements); the expected risk reduction (*i.e.*, the total reduction resulting from the mitigation feature; the cost of any feature that may be added); the existing risk to the public before the feature is added; and certain trade-offs between prevention and mitigation measures when they both result in similar risk reduction values. (*Id.* at 5.)

Staff examined the potential effectiveness of an FVCS for three classes of overpressurization events: rapid overpressurization (resulting for example from a hydrogen burn); moderate rate overpressurization (resulting for example from a primary system blowdown and molten core reaction); and gradual overpressurizations (resulting for example from core-concrete interaction or long-term decay heat). Staff concluded that an FVCS cannot accommodate rapid overpressurizations and would therefore be ineffective in preventing containment failure by rapid pressure events. An FVCS could, however, be designed to accommodate moderate and gradual overpressurizations. (*Id.* at 7.)

Staff witnesses cautioned, however, that an FVCS can fail or, even if it works correctly, can cause failure of other safety features by adverse systems interaction. Furthermore, inadvertent operation could release radionuclides when they might not have been otherwise released. Staff noted three FVCS systems interactions in particular that had been identified as important: (1) premature venting could negate the containment spray injection system function (that function is normally activated by containment overpressurization), or if the containment spray injection system actuates after the FVCS has removed most of the non-condensable gases, the resulting vacuum could damage the containment; (2) a rapid depressurization of the containment building by FVCS could cause the sump water to flash and the containment spray recirculation system and low pressure recirculation system may thus fail; and (3) the FVCS could affect the ability of the emergency core injection systems to keep water in the core even with those systems working. (*Id.* at 8.)

Cross-examination of Intervenors' witnesses also elicited the fact that malfunctions of a containment venting system could increase the probability of core melt. (Thompson, Tr. 6174-75.)

All things considered, however, Staff believes that a risk reduction as large as a factor of five could be achieved for both units using a FVCS. (Meyer, ff. Tr. 6692, at 13.) However, such a system would have to be designed to mitigate the consequences of accidents initiated by external events such as seismic events, hurricanes, tornadoes, or floods. (*Id.* at 12.) According to risk reduction ratios derived from specific risk analyses performed by the Staff, the risk reduction would be largest at Indian Point if latent fatalities are the risk measure, but not as large if early deaths are the risk measure. (*Id.* at 13.)

Staff judged the costs of these measures only approximately. They believe that filtered vented containment systems can range in cost from \$12 million to \$32 million. Such estimates would not include the reactor downtime, which could be a very considerable cost. Nor was the cost in this estimate sufficient to qualify the FVCS to withstand the large external events that it would have to withstand in order to give the risk benefits cited. (*Id.* at 13.)

It is the Staff's position that a separate containment system, also known as a "containment venting building," in which excess pressure in the primary containment would be released to another containment volume, would also be feasible, but would probably be more costly than a filtered vented containment system. (*Id.* at 13-17.) The costs would be around \$100 million for each unit if a separate structure were built for each. (*Id.* at 16.) However, the Staff did not examine SCS as closely as FVCS. (Meyer, Tr. 6764.)

But the Staff pointed out that these plants already have had their vulnerabilities to serious accidents reduced by fixes generated through previous analyses. (Rowsome/Blond, ff. Tr. 12,834, Part C at 3.) The worth of additional fixes is limited, and a fully qualified filtered vented system or a fully qualified separate containment would cost substantially more than the Staff's calculation of risk reduction values would warrant. (Rowsome/Blond, ff. Tr. 12,834, Part C at 32-33.)

As a final matter, Staff examined the feasibility of using the existing containment structure of Unit 1 as a common SCS for Units 2 and 3. (Meyer, ff. Tr. 6692, at 16-20.) Staff concluded that such use could be considerably cheaper than either an FVCS or a newly constructed SCS for these units, but only if extensive upgrading of the Unit 1 building were not required. (*Id.* at 20.) Since the Unit 1 structure is not built to the seismic standards of Units 2 and 3 (*Id.* at 19) and risk reduction is

negligible if the structure is not qualified for key external events, this is not an attractive alternative. (*Id.* at 20.)

Licensees stressed that Intervenors' witnesses are neither structural nor nuclear engineers (Tr. 6148-65), and they urged that little weight be given to the testimony of these witnesses. Licensees further emphasized the difficulties inherent in designing FVCS and SCS features. (Bley/Richardson, ff. Tr. 6280, at 14-17.) They noted that no regulatory guidance exists for the design of such systems. (*Id.* at 19; Sholly, Tr. 6221-22.)

No FVCS or SCS actually exists at any commercial nuclear power plant in the United States. (Bley/Richardson, ff. Tr. 6280, at 9; Meyer, Tr. 6841.) There have been SCSs installed in Canada, but the type is not identical to that UCS/NYPIRG recommends for Indian Point. (Thompson, Tr. 6201-02.) The French are considering FVCS for PWRs (Meyer, ff. Tr. 6692, at 11), but they have done little work in analyzing degraded core accidents. (Richardson, Tr. 6380.)

As to the FVCS at Barseback, Licensees' witness characterized that design as arising out of a political decision rather than an engineering one. (Richardson, Tr. 6380, 6382, 6391.)

All witnesses agree that FVCS and SCS do little to protect against a rapid overpressurization. (Richardson, Tr. 6295; Meyer, ff. Tr. 6692, at 7; Thompson, Tr. 6214.) An overpressurization at a moderately rapid rate could be handled, but pressurization events of the sort that generate slow rises are unlikely to breach containment. (Meyer, ff. Tr. 6692, at 12.) Neither FVCS nor SCS gives appreciable protection against an interfacing system LOCA. (Meyer, Tr. 6849; Bley, Tr. 6318-19; Richardson, Tr. 6401; Sholly, Tr. 6234-35.) Design of FVCS and SCS systems would be difficult, especially since it is hard to predict exactly when a containment building will fail. (Tr. 6267 ff.)

## **Conclusion**

The Board notes that the neat dichotomy that Intervenors would draw between measures to reduce consequences and measures to reduce the probability of an accident is probably illusory. An FVCS or SCS would reduce consequences *only if it worked*. Considering that such systems (especially the FVCS) can introduce sequences that would exacerbate an accident, that no systems of the sort are actually in operation, that no established standards exist for such systems, and that reasonably intensive study by the Staff has indicated that these are costly ways to reduce risk (Meyer, ff. Tr. 6692, at 21), we do not believe it necessary to require either filtered vented containment or a separate containment system at

Indian Point, Units 2 and 3, as of this time. We note that the Commission, in its "Proposed Commission Policy Statement on Severe Accidents and Related Views on Nuclear Reactor Regulation," 48 Fed. Reg. 16,013 (1983), has said regarding FVCS: "Some recent information indicates these systems may not be cost-effective for large, dry containments." The Indian Point units, of course, have just such containments. If future studies suggest that FVCS (or SCS) are indeed of greater value than it presently seems they are, we assume the Staff (and the Commission) will reexamine our conclusion.

### **G. Contention 2.2(a): Elimination of Brackish Coolant**

Contention 2.2(a) states:

The cooling system at the plants should be changed so that it no longer uses brackish Hudson River water. This change is needed to combat safety-related corrosion problems.

Contention 2.2 originally included three other parts: 2.2(b) relating to pressure vessel embrittlement and its prevention, 2.2(c) relating to steam generator tube deterioration and its prevention, and 2.2(d) relating to the discovery and correction of flaws in the plants resulting from poor quality control. We reformulated 2.2(b) to make it more specific, and we eliminated 2.2(c) and 2.2(d) for failure to meet the Commission's two-pronged test. (Unpublished Memorandum and Order (Restating Contentions and Establishing Procedures Based on Commission Guidance), Oct. 1, 1982.)

Licensees moved to dismiss 2.2(b), and we granted that motion when it became apparent that the Lead Intervenor was unprepared to litigate it. (Unpublished Memorandum and Order (Ruling on Motions Related to Contentions 2.2(b) and 2.2(d)), Dec. 21, 1982).

Intervenor WBCA, Staff, and Licensees presented testimony on 2.2(a). Staff and Licensees submitted proposed findings.

Although the Intervenor submitted no proposed findings on this contention, Intervenor's position is, we feel, clear from testimony of the witness presented. Fundamentally the position is this: Brackish water is corrosive. (Fleisher, ff. Tr. 6493, at 3-5.) Leakage caused by corrosion can lead to flooding, which could shock the pressure vessel. (Fleisher, Tr. 6479.) Such leakage could also spray water on vital equipment. (*Id.*) The first potential sequence, corrosion-breakage-flooding, has already occurred at Unit 2. (Fleisher, ff. Tr. 6493, at 5.) The way to stop this sequence and reduce the potential for accidents is to use highly purified water in a closed system inside containment and to cool that water with

river water in a heat exchanger. (Fleisher, ff. Tr. 6493, at 6-7; Tr. 6482.) The corrosion that led to leakage and flooding at Unit 2 was corrosion of copper-nickel alloy coils and black steel pipe (Fleisher, ff. Tr. 6493, at 6; Tr. 6485), and these materials are still being used. (*Id.*)

Indeed, it is true that severe leakage did occur in the so-called fan coolers of Unit 2 on October 17, 1980. (LeFave, *et al.*, ff. Tr. 6890, at 8; Bley, ff. Tr. 6421, at 2; Rothstein, Tr. 6520.) The leakage did in fact result from corrosion. (Rothstein, Tr. 6521.) It is the position of Con Ed that the corrosion leading to that leakage is well understood and has been precluded in the future. Con Ed's witness Rothstein testified that the corrosion arose from three sources. First, the brazed joints used in fabricating the fan coolers were faulty, having pits and voids that led to corrosion and leakage. (Rothstein, Tr. 6526.) Second, pitting corrosion took place where silt had deposited in the tubing of the coolers. (Rothstein, Tr. 6526-27.) Third, corrosion occurred in welded joints on certain mild steel pipes; the pipes were originally cement-coated, but the coating had spalled off and had not been replaced. That left the exposed steel unprotected against corrosion. (Rothstein, Tr. 6528-29.) All of these possibilities have been dealt with: The brazed joints have been eliminated in coolers of new design. (Rothstein, Tr. 6519-20.) The silting has been eliminated by increasing the water velocity. (Rothstein, Tr. 6527-28.) The coating on the mild steel has been replaced and in a recent examination was found still intact. (Rothstein, Tr. 6529.)

It was also the position of Con Ed's witness that the types of corrosion noted were not associated with brackish water and that in fact the same corrosion would have taken place with high-purity water. (Rothstein, Tr. 6521.)

As to the situation at Unit 3, where no excessive leakage was previously encountered, the Power Authority conducted a materials compatibility study early in the plant's operating history. (Chapple, *et al.*, ff. Tr. 6537, at 4-5.) On the basis of that study, the materials used in the fan coolers were changed to rid the system of copper, the copper alloys being replaced with nickel-chrome-molybdenum. The new design and copper-free material are expected to eliminate the silting-pitting corrosion potential at Unit 3. (*Id.*)

In addition to the steps taken to reduce corrosion and potentially attendant leakage, both units have made improvements in their ability to detect and deal with leakage and flooding, whatever their sources. These steps include improved level control and indication for the sump pumps, upgrading of the reactor cavity pump control and level indication, continuous indication of sump level in the control room, and revisions to leak detection procedures and technical specifications. (LeFave, *et al.*,

ff. Tr. 6890, at 8-12; Bley, ff. Tr. 6421, at 2; Chapple, *et al.*, ff. Tr. 6537, at 5-6).

It is the Staff's position that, with the new modifications at both units, any significant leakage that occurs would be discovered in a timely manner and would result in repairs or shutdown. The Staff further believes that no safety-related equipment would be affected and safe shutdown would not be precluded, despite the concerns of Intervenor. (LeFave, *et al.*, ff. Tr. 6890, at 10.)

Staff also points out that it is currently carrying out two generic tasks that are directly related to the leakage problem that occurred at Indian Point Unit 2: The first deals with sump-level monitoring equipment. It is currently being evaluated for Indian Point Units 2 and 3, and a safety evaluation is soon to be issued. The second deals with general concerns for all reactors that have service water in their containments. This task will probably result in requirements for special surveillance, testing, and technical specifications for all such plants, including the Indian Point Units. (*Id.* at 11.)

Finally, the Staff does not think a design change to closed loop cooling is justified. Such a change would be in order only if it appears safe shutdown would be precluded by a failure due to corrosion. There is little concern of that here. (*Id.* at 14.)

### **Conclusion**

We are confronted here by differing expert opinion on certain fundamental facts. In particular, WBCA's witness says previous corrosion was caused by brackish water, while Con Ed's witness assures us that the corrosion would have occurred with purer water as well. WBCA's witness views the previous leakage as a direct result of brackish water acting on "black steel" and copper alloy tubing. Con Ed's witness ascribes the leakage to faulty brazing, silt accumulation, and spalled protective coatings. We note that the Power Authority, after an engineering study, decided to replace the copper alloys in the Unit 3 fan coolers with nickel-chrome-molybdenum alloys, thus lending implicit support to the theories of WBCA's witness. We are also aware that the closed cooling system suggested by WBCA, being of limited capacity, might serve to limit the flooding encountered should a leakage incident occur.

On balance, however, we are convinced that the Licensees' assessment of the corrosion-leakage hazard is correct and the response of the plant management has been appropriate. The barn door left open in the October 1981 incident at Unit 2 has been locked several times over; the additional assurance against leakage and flooding that could be gained by



a closed system using purified water would not justify the expense. Such a change might also add undesirable complexity to an already overly complex system. We note that Con Ed has already studied alternative cooling systems and is continuing its review as experience with the present system accumulates. (Rothstein/Tuthill, ff. Tr. 6515, at 7-8.) We see no reason to require a closed cooling system at present, nor, in view of the Staff's ongoing programs, do we see a need to impose any other special requirements.

## **H. Board Question 2.2.1: Steam Generator Requirements**

Board Question 2.2.1 asks:

Should any of the requirements proposed at the July 29, 1982 meeting of the NRC Staff and members of the SGOG be required for Indian Point Units 2 and/or 3, considering the risk of a steam generator tube rupture in this high population area?

Staff, Licensees collectively and individually, and WBCA offered testimony. Only Staff and Licensees submitted proposed findings.

At a meeting with the Steam Generator Owners Group on July 29, 1982, the NRC Staff proposed a number of requirements for steam generators. These requirements were directed toward: A. ensuring steam generator tube integrity (since these tubes are part of the reactor coolant system pressure boundary); B. improving plant response should a steam generator tube rupture; and C. reducing the radiological consequences of a steam generator tube rupture (SGTR). The proposed requirements in these areas were:

### *A. Steam Generator Integrity*

1. Prevention and detection of loose parts and foreign objects.
2. Stabilization and monitoring of degraded tubes.
3. Tube in-service inspection program (ISI).
4. Improved eddy current inspection techniques (ECT).
5. Primary to secondary leakage limit.
6. Secondary water chemistry program.
7. Condenser in-service inspection program.
8. Upper inspection ports.

### *B. Plant Systems Response*

1. Reactor Coolant System (RCS) pressure control during a SGTR.
2. Safety Injection (SI) signal reset.
3. Containment Isolation (CI) and reset.

C. *Radiological Consequences Control*

Imposition of coolant iodine activity limit given in Staff's Standard Technical Specifications.

(Brons/Josiger, ff. Tr. 6055, at 3-4; Rothstein, ff. Tr. 6104, at Attachment SR-2.)

The concerns that prompted the proposed requirements stem from the facts that steam generator tubes are part of the reactor coolant system pressure boundary and that tube failures result in a loss of primary coolant. Further, the steam generator tubes constitute a particularly important part of that boundary since their failure allows primary coolant to escape into the secondary side of the generators where isolation from the environment is not fully assured (Holahan/Rowsome, ff. Tr. 6919, at 2-3.) Loss of coolant through this pathway can both deplete the reactor coolant inventory and release radioactive material to the environment. (*Id.*) The Board also had certain concerns that a ruptured steam generator tube might exacerbate a large-break LOCA. (Tr. 6448-49.)

WBCA's position, as expressed by its witness, was that a secondary water chemistry program "such as or similar to" that of Staff's proposed requirements in A.6 above should be undertaken at both plants, and that such a program was long overdue because of the known corrosive properties of water in the presence of ionizing radiation. (Fleisher, ff. Tr. 6493, at 1.) WBCA's witness urged a program to produce high-purity water and to control pH, specific resistance and dissolved oxygen. He also urged that any generated hydrogen gas be prevented from escaping from the water, but he did not suggest a method for doing this. (*Id.* at 2.)

The Staff's witnesses pointed out that Staff analysis suggests the risk associated with steam generator tube rupture is not a large portion of the total risk. Core melt accidents entailing steam generator tube failure represent only about one percent of the offsite radiological risk, but this figure is not known precisely. Indeed the contribution could be between one-tenth of one percent and ten percent. (Holahan/Rowsome, ff. Tr. 6919, at 7.) Because the core melt risk associated with steam generator tube failure is deemed a small contribution, Staff would not impose the proposed requirements at present. (*Id.*)

The Licensees believe that the Staff is correct in not requiring compliance with the proposed requirements, but they point out that many of the requirements are already being met, at least in principle, both at Unit 2 (Rothstein, ff. Tr. 6105, at 13) and at Unit 3 (Brons/Josiger, ff. Tr. 6055, at 4). We now turn to a brief review of the extent to which the Licensees already comply.

## ***Steam Generator Integrity***

### ***Prevention and Detection of Loose Parts***

At Unit 2, a continuous on-line monitoring system was installed in 1982. It is capable of monitoring both the primary side and the secondary side of the steam generator. Maintenance and Q/A procedures are in effect and are reviewed and revised as necessary to ensure that foreign objects are not introduced into the steam generators. (Rothstein, ff. Tr. 6104, at 14.) A recent examination by TV camera showed the secondary side free of loose objects. (*Id.*)

At Unit 3, while maintenance and Q/A procedures are in effect similar to those at Unit 2 (Brons/Josiger, ff. Tr. 6055, at 4-5; *cf.* Rothstein, ff. Tr. 6104, at 14-15), no loose parts monitoring system exists. It is the Power Authority's position that such a system is unnecessary. (Brons/Josiger, ff. Tr. 6055, at 5.)

### ***Stabilization and Monitoring of Degraded Tubes***

Witnesses for both Licensees are of the opinion that degraded (*i.e.*, plugged) tubes represent so slight a hazard to adjoining tubes that they need not be monitored. (Brons/Josiger, ff. Tr. 6055, at 6; Rothstein, ff. Tr. 6104, at 15.)

### ***Tube In-Service Inspection***

Both Licensees conduct extensive in-service inspection programs, which generally comply with, and in some respects even exceed, the proposed programs. (Rothstein, ff. Tr. 6104, at 16-17; Brons/Josiger, ff. Tr. 6055, at 6-9.)

### ***Improved Eddy Current Inspection Techniques***

Both Licensees believe they have developed eddy current testing techniques that are tailored to the individual plants and their histories. Both are supporting, through participation in the SGOG and otherwise, continued improvement in these techniques. (Brons/Josiger, ff. Tr. 6055, at 10-11; Rothstein, ff. Tr. 6104, at 17-18.)

### ***Primary to Secondary Leakage Limit***

Both Units 2 and 3 have limits more restrictive than the proposed limit. (Brons/Josiger, ff. Tr. 6055, at 11; Rothstein, ff. Tr. 6104, at 18.)

### *Secondary Water Chemistry Program*

Unit 2 already has a license condition that requires such a program. The current program requirements exceed those proposed. (Rothstein, ff. Tr. 6104, at 19.) Unit 3 can meet all the proposed limits except that for chloride, and measures to meet that limit are being evaluated. (Brons/Josiger, ff. Tr. 6055, at 12; Tr. 6093-97.) The currently favored measure, a condensate polisher, is well into the engineering phase. (Tr. 6095.)

Board questioning brought out the opinion of the Power Authority's witness that, even at the present level, chloride concentration at Unit 3 is well below the level shown to be damaging. (Tr. 6071-72.)

### *Condenser In-Service Inspection Program*

At Indian Point Unit 2, although the license does not require it, in-service examination of the condenser tubes has been regularly performed. (Rothstein, ff. Tr. 6104, at 21-22.) At Indian Point Unit 3, eddy current testing has been extensive and an on-line leakage monitoring system is in use. A more sensitive on-line system is being developed. (Brons/Josiger, ff. Tr. 6055, at 12-13.)

### *Upper Inspection Ports*

These ports are proposed as requirements only for plants licensed after January 1, 1983. (Rothstein, ff. Tr. 6104, at Attachment SR-2.) Indian Point Unit 2 actually has such ports in two of its four steam generators. (Rothstein, ff. Tr. 6104, at 22-23.)

### *Plant Systems Response*

#### *Reactor Coolant System Pressure Control During an SGTR*

SGTR procedure at both plants is designed to:

- 1) Minimize the releases of radioactive material by identifying and isolating the faulted steam generator and by reducing RCS pressure below the steam generator safety valve settings.
- 2) Establish capability to supply feedwater to all steam generators and to isolate feedwater to the faulted steam generator.
- 3) Maintain the ability to remove the necessary residual heat from the reactor through the intact steam generators via the condenser steam dump valves or atmospheric relief valves.

4) Maintain the RCS in a subcooled state during the recovery.

5) Prevent overflowing of the faulty steam generator.

(Brons/Josiger, ff. Tr. 6055, at 13-14; Rothstein, ff. Tr. 6104, at 23-24.)

The procedures use normal pressurizer spray, opening of a PORV, or, as a last resort, an auxiliary pressurizer spray. (Brons/Josiger, ff. Tr. 6055, at 14; Rothstein, ff. Tr. 6104, at 24.) These procedures generally accord with the proposed requirements. (Rothstein, ff. Tr. 6104, at Attachment SR-2.)

### *Safety Injection Signal Reset*

The concern that prompted this requirement (a requirement for review of the manner in which reset of a safety injection signal affects the source from which the safety injection pumps draw) was prompted by the SGTR incident of January 25, 1982, at the R.E. Ginna Nuclear Power Plant.<sup>54</sup>

The designs of Indian Point Units 2 and 3 have been reviewed and they do not have the potential for malfunction displayed by the Ginna plant design. (Rothstein, ff. Tr. 6104, at 25-26; Brons/Josiger, ff. Tr. 6055, at 14.)

### *Containment Isolation and Reset*

In response to NUREG-0578, issued in the wake of the TMI-2 incident, Con Ed made plant modifications that prohibit reopening of the containment isolation valves on reset of the isolation signal. (Rothstein, ff. Tr. 6104, at 26.) The Power Authority made similar modifications at Indian Point Unit 3, and procedures are in effect to maintain isolation of the letdown system to cope with the specific situation that occurred at Ginna. (Brons/Josiger, ff. Tr. 6055, at 15.)

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<sup>54</sup> This incident is specifically mentioned as being one of the motivating factors in the Staff's proposed requirements which are the subject of Board Question 2.2.1. (Rothstein, ff. Tr. 6104, at Attachment SR-2.) It was mentioned frequently both in direct testimony and cross-examination before this Board, not only in connection with the present question (Rothstein, ff. Tr. 6104, at 26; Brons/Josiger, ff. Tr. 6055, at 14; Brons, Tr. 6079-81), but also in connection with an emergency response conducted under the New York State emergency plan. (McIntire, Tr. 2213-14; 2537-39.) It appears that all concerned, witnesses, counsel, and judges, were so familiar with the incident that no direct account of it was ever entered into the record. The incident is discussed in NUREG-0909 and NUREG-0916. We here take official notice of it and of the general fact that it involved a steam generator tube rupture and a release of radioactive material from the primary system through the failed tubes, through the secondary system and ultimately to the environment, an incident similar to that class of events described by Staff witnesses Holahan and Rowsome at 3, ¶ 1 of their testimony. (Holahan/Rowsome, ff. Tr. 6919.)

## ***Radiological Consequences Control***

### ***Standard Technical Specification Limit for Coolant Iodine Activity***

For Indian Point Unit 3, the coolant activity limits are as specified in the Standard Technical Specifications. (Brons/Josiger, ff. Tr. 6055, at 15.) For Indian Point Unit 2, Con Ed's witness felt that those limits may be "overly conservative" when applied without consideration of plant-specific features. (Rothstein, ff. Tr. 6104, at 27.)

### ***Conclusion***

The Board believes that the only significant differences between the proposed requirements and the present state at Indian Point are that Indian Point Unit 3 lacks a continuous loose parts monitoring system for its steam generators, and Indian Point Unit 2 does not currently limit the iodine activity of its primary coolant as required by the proposed Standard Technical Specifications.

We recognize that the contribution to the meltdown risk of SGTR incidents may be small, but we wish not only to avoid catastrophe but to decrease the chance and the impact of incidents like that at the Ginna plant. Although, as the Con Ed witnesses pointed out, the use of the so-called Standard Technical Specification limit for iodine in the coolant may be conservative, we cannot agree that, at Indian Point, with its high population density, the advisable limit should be *less* restrictive than that for the generic case. As to the argument that such a limit could lead to unwarranted shutdowns of the plant (Rothstein, ff. Tr. 6104, at 27), we note that Unit 3 seems able to function with such a limit. (Brons/Josiger, ff. Tr. 6055, at 15.) We therefore recommend imposing the limit at Indian Point Unit 2 as well, at least until the matter is resolved generically.

As to Unit 3's lack of a loose parts monitor, we are unpersuaded that the existing additional Q/A precautions against introduction of foreign objects constitute a sufficient substitute for continuous monitoring. Nor is the Board convinced that monitoring is unnecessary. (Tr. 6077-80.) The presence of such a system at Unit 2 (Rothstein, ff. Tr. 6102, at 14) suggests that its inclusion is within the realm of engineering practicality. We thus recommend, in view of the experience at the Ginna power plant and in view of the high population density near Indian Point, that a loose parts monitoring system be fitted to the steam generators at Unit 3. In sum, therefore, we recommend that, if the plants continue to run, expeditious steps should be taken to:

1. Fit the Indian Point Unit 3 steam generators with a loose parts monitoring system in conformance with Regulatory Guide 1.33.
2. Impose the proposed Standard Technical Specification limit for primary system radioiodine on Indian Point Unit 2.

## **I. Commission Question 3 and Contention 3.1: Emergency Planning**

Commission Question 3 asks:

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

This Commission Question was not adjudicated directly; instead, it was answered by the litigation of the contentions admitted under Commission Question 3. In particular, Contention 3.1, discussed below, addresses the degree of conformance with NRC Planning Standards and with NRC/FEMA guidelines of state and local emergency plans; and Contentions 3.3 and 3.9 address the minimum number of hours' warning for an effective evacuation. We refer the Commission to Tables XIII to XVI, *infra*, for the range of evacuation times.

Contention 3.1 states:

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

This contention was based on contentions submitted by UCS/NYPIRG, WESPAC and RCSE, and the Board designated UCS/NYPIRG as the Lead Intervenor.

By and large, the parties did not submit testimony that explicitly addressed particular planning standards. Only the NRC Staff, through FEMA, and New York State did so. Instead, most of the parties' testimony addressed other, more specific contentions. Nevertheless, there was a good deal of testimony that was generally relevant to Contention 3.1 and that, in some instances, did not address other contentions under Commission Question 3.

In evaluating the testimony, we are mindful of the fact that FEMA's position should be taken as a rebuttable presumption. In this regard, FEMA has concluded that all the planning standards have been met save 10 C.F.R. § 50.47(b)(10) and (16). (McIntire, *et al.*, ff. Tr. 14,720, Letter from Petrone to McLoughlin (April 14, 1983) at 1-3.) FEMA concluded that these two standards have not been met because of (1) a lack of written commitments for bus drivers in Westchester County, and (2) a lack of a Rockland County Plan. (*Id.*) Accordingly, our initial discussion of each planning standard focuses on the arguments and evidence of the parties disputing FEMA's finding with respect to that planning standard.

We will address *seriatim* each planning standard as it applies to the *Westchester, Putnam, and Orange County Plans*, but before doing so, we think it expedient to address the level of planning in Rockland.

Rockland originally subscribed to the four-county emergency planning effort, but withdrew in May 1982. (Gdanski, ff. Tr. 3369, at 2-3.) In doing so, it rejected a draft radiological emergency response plan prepared by consultants (Parsons, Brinckerhoff, Quade & Douglas, and EDS Nuclear) hired by the Licensees. (*See* Parsons, ff. Tr. 11,773, at 7.) Instead, Rockland commenced its own planning process. A draft was prepared by the Rockland Office of Emergency Services and was submitted to Rockland County Citizens Advisory Committee for review. (D. McGuire, Tr. 10,945-52.) In the interim, New York State has adopted the draft Rockland County Plan as a compensating measure. (Davidoff, Tr. 11,634.) It was this plan that New York State attempted to implement during the 1983 exercise.

Although FEMA, in its post-exercise assessment, found that the lack of a Rockland County Plan constituted a significant deficiency of planning standard 10 C.F.R. § 50.47(b)(16) (Responsibility for the Planning Effort), we believe the deficiency to be wider. The draft Rockland Plan that the State has adopted as a compensating measure is not yet complete and *has not* been reviewed by FEMA (Tr. 14,931-32); and the omissions are substantial. For example, the Rockland Plan contains no provisions for the evacuation of schoolchildren. (Scharf, Tr. 11,169-70; *see* NY Ex. 10.) Moreover, completed plans are necessary for adequate training. Similarly, the absence of completed plans has prevented the implementation of the public education requirements in Rockland. (Davidoff, Tr. 11,330; McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 40-41.) Accordingly, we conclude that other planning standards, such as 10 C.F.R. § 50.47(b)(1), (7), (10), and (15), are not met in Rockland County. We do not believe it would be productive for us to perform (*sua sponte*) a further evaluation of the incomplete Rockland Plan



against the planning standards of 10 C.F.R. § 50.47(b) and the evaluation criteria of NUREG-0654 (Rev. 1). Suffice it to say, neither the draft Rockland County emergency response plan, nor the State compensatory plan satisfy the planning standards.<sup>55</sup>

We wish also to comment, at this point, on the quality of Intervenor's testimony. Although the Intervenor presented a plethora of witnesses, only a few had any expertise to offer. To a great extent, the remainder of their testimony had little, if any, probative value.<sup>56</sup>

In addition, upon review of the proposed findings, we find that the Intervenor often strung together citations to individual testimony, each of which related only to a very narrow point with respect to a particular county plan; and intervenors then offered the string citation in support of a broad, generalized criticism of all the emergency plans and of preparedness. We have not, however, followed suit. We draw no inference as to the adequacy of one county's plan from testimony on the adequacy of another's. Nor does testimony on one county's plan bolster testimony on another county's plan. Moreover, we have attempted to view each witness' testimony with the proper perspective; we are not quick to extrapolate from an isolated observation to a generalized conclusion, absent some probative indication that the observation is representative.<sup>57</sup>

### ***Organizational Control***

Section 50.47(b)(1) states:

(1) Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the Emergency Planning Zones have been assigned, the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

Further guidance is provided by NUREG-0654, FEMA-REP-1 (Rev. 1): "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (Nov. 1980) [hereinafter NUREG-0654], Section II.A.

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<sup>55</sup> The Board reaches no conclusion as to the adequacy of the new State Compensatory Plan, the provisions of which are unknown to it; nor is it aware of the progress with respect to planning in Rockland in the five and one-half months since the record was closed (though it is aware that FEMA no longer believes that significant deficiencies exist — see Notice to the Parties (Oct. 4, 1983)).

<sup>56</sup> Much of the testimony offered consisted of the opinion testimony of lay witnesses on matters in which they had no particular competence. Indeed, much of the prefiled testimony we found unhelpful and ruled inadmissible.

<sup>57</sup> For an example, see our discussion of Intervenor's assertion that "the supply of potassium iodide on hand at local police headquarters has exceeded the expiration date," at p. 948, *infra*.

Compliance with this standard as it relates to assignment of responsibility has never really been at issue. The Intervenor and the counties did present a few local officials who admitted to some confusion concerning the emergency plans. (See Int. PF 3.1-6.) However, not one of these witnesses related his testimony to the assignment of responsibility in the plans. Instead, what confusion existed invariably stemmed from lack of experience during the first drill. (See *id.*) In contrast, the onsite plans of each Licensee and the State and four County RERPs delineate the respective responsibility of Licensees, and State and local governments. The plans describe the functions and staffs of the various organizations. In addition, the plans identify the various support organizations that would be called upon in an emergency, including those of the federal government; and the responsibilities of private organizations, including radiological laboratories and the American Red Cross, are identified. (Putnam County RERP (Rev. Jan. 1983), Part III (NY Ex. 11); Orange County RERP (Rev. Jan. 1983), Part III (NY Ex. 12); Westchester County RERP (Rev. Jan. 1983), Part III (NY Ex. 13); State RERP, Part I, §§ I(D), II(B), and III(B) (NY Ex. 3); and Con Ed Emergency Plan (attached as an exhibit to Con Ed Onsite Testimony, ff. Tr. 14,480) § 5.4, and App. A.) We conclude, therefore, on the basis of the provisions of the plans, the testimony of the State's expert witnesses (Davidoff/Czech, ff. Tr. 11,243, at 8), and the FEMA findings, that the responsibilities have been adequately assigned.<sup>58</sup>

Testimony was also heard to the effect that letters of agreement with support agencies had not been executed; and Intervenor asserted that this failure contradicts evaluation criterion A.3 (*inter alia*) of NUREG-0654. (Int. PF 3.1-9, -10.) The Intervenor's position finds support in FEMA's December 1982 Update Report (ff. Tr. 14,720, at 13), which found that agreement letters were missing from both the State and county plans. As far as we know, this evaluation criterion has not yet been met. FEMA did not, however, find that the failure to meet this evaluation criterion under planning standard 10 C.F.R. § 50.47(b)(1) constitutes a significant deficiency of the planning standard itself, and we note that this evaluation criterion is not explicitly required by the planning standard. Instead, FEMA considered the failure to constitute a significant deficiency of the Protective Response Planning Standard (10 C.F.R. § 50.47(b)(10)). (*Id.* at 5-6.) We have no dispute with this approach; although we believe that the lack of letters of agreement is

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<sup>58</sup> See also N.Y. Exec. Law, Art 2-B (Consol. 1982) (PA Ex. 41). Enactment of this provision clarified the responsibilities of the State and local governments during an emergency, and resolved FEMA's only significant concern with respect to this planning standard.

not an insignificant problem, we believe that the problem bears more on the adequacy of emergency resources (planning standard 10 C.F.R. § 50.47(b)(3)) and on the ability of the counties to implement protective responses than it does on the adequacy of the planning with regard to assignment of responsibilities.

Finally, the Intervenor took the position that there has been no demonstration of 24-hour response capability. (Int. PF 3.1-11.) However, we find that Intervenor misstated the record in support of their position. Intervenor stated "Finally, local officials have supported FEMA findings of inadequate numbers of emergency personnel to assure 24-hour emergency response capability." (*Id.*) FEMA, however, *has not* found inadequate numbers of emergency personnel. Nor did the witnesses to whom Intervenor referred provide any probative testimony on the adequacy or inadequacy of the number of emergency personnel.

Accordingly, the Board concludes that emergency planning for Indian Point Units 2 and 3 is in substantial compliance with planning standard 10 C.F.R. § 50.47(b)(1).

### ***Onsite Emergency Organization***

Section 50.47(b)(2) states:

(2) On-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available and the interfaces among various onsite response activities and offsite support and response activities are specified.

Further guidance is provided by NUREG-0654 (Rev. 1), Section II.B.

Intervenor proffered no testimony or evidence on this standard, nor did they submit proposed findings addressing Licensees' compliance. The Licensees, however, offered as evidence the Indian Point onsite emergency plans, and each Licensee presented a panel of expert witnesses. (Con Ed Onsite Testimony, ff. Tr. 11,713; Onsite Testimony, ff. Tr. 11,679.) There was no cross-examination, although the witnesses were questioned extensively by the Board. In addition, the NRC Staff testified to the adequacy of the onsite plans.

The Board, therefore, finds no issue in dispute. From all accounts, Licensees' onsite emergency organization is adequate, and the Board's own summary review of the onsite plans has not contradicted this conclusion. Accordingly, the Board finds that Licensees have met planning standard 10 C.F.R. § 50.47(b)(2).

## ***Emergency Response Support and Resources***

Section 50.47(b)(3) states:

(3) Arrangements for requesting and effectively using assistance resources have been made, arrangements to accommodate State and local staff at the licensee's near-site Emergency Operations Facility have been made, and other organizations capable of augmenting the planned response have been identified.

Further guidance is provided by NUREG-0654, Section II.C. In particular, evaluation criterion II.C.4 states:

Each organization shall identify nuclear and other facilities, organizations or individuals which can be relied upon in an emergency to provide assistance. Such assistance shall be identified and supported by appropriate letters of agreement.

Only this evaluation criterion was in controversy.

Intervenors asserted that assistance resources are not adequately identified. (Int. PF 3.1-14 to 3.1-16.) We find, however, that this assertion is not supported by any evidence of record and is belied by the plans themselves. (See NY Ex. 3, 11, 12, and 13; Con Ed Onsite Emergency Plan, *supra*; and PA-43.) The assertion is also belied by FEMA's findings. (McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 19, 25, 39, 47, and 53.) Intervenors also asserted that volunteer ambulance corps have not been assigned to specific special facilities. (Int. PF 3.1-17.) This assertion, however, is irrelevant to planning standard 10 C.F.R. § 50.47(b)(3) and any of the corresponding evaluation criteria.

Finally, Intervenors asserted that there exist no letters of agreement with reception and congregate care centers. (Int. PF 3.1-18.)<sup>59</sup> There is only minimal support for this assertion in the testimony to which Intervenors referred in their proposed findings. Donald McGuire, the Deputy Director of Emergency Services in Rockland, testified that there were no written agreements with the Red Cross concerning operation of Congregate Care Centers in Bergen County. (Tr. 10,984.) However, the concern appears not to be unfounded. Letters of agreement should be attached to the emergency plans. (See NUREG-0654, § I.A.3.) No such agreements were appended to the State and county RERPs (NY Ex. 3, 10, 11, 12, or 13), and FEMA found in December that the absence of these letters constituted a deficiency. (McIntire, *et al.*, ff. Tr. 14,720, 1982 Update Report at 13.) And the absence of letters of agreement is

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<sup>59</sup> All other assertions in Int. PF 3.1-18 are irrelevant to planning standard 10 C.F.R. § 50.47(b)(3).

also reflected in the deficiency FEMA recently found significant — the lack of agreements for Westchester bus drivers. (McIntire, *et al.*, ff. Tr. 14,720, Letter from McLoughlin to Petrone (April 14, 1983) at 2.) We find, therefore, that the record is inconclusive with respect to planning standard 10 C.F.R. § 50.47(b)(3).<sup>60</sup>

### ***Emergency Classification System***

Section 50.47(b)(4) states:

(4) A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

Further guidance is provided by NUREG-0654, Section II.D.

Intervenors presented no evidence on this planning standard, nor did they submit proposed findings addressing it. Both Licensees and the NRC Staff, however, presented relevant evidence. The onsite and offsite plans establish the four emergency action levels (notification of unusual event, alert, site area emergency, and general emergency) in accordance with NUREG-0654, Appendix 1, and are consistent with each other. The plans also describe the contingencies under which a particular level would be declared. (See Con Ed Emergency Plan, *supra*, § 4; Emergency Planning Document (PA Ex. 43), § 4; New York RERP (NY Ex. 3), at III-27 to III-29; Putnam RERP (NY Ex. 11) at III-21 to III-23; Orange RERP (NY Ex. 12) at III-30 to III-31; and Westchester RERP (NY Ex. 13) at III-31 to III-32. See also Sears, ff. Tr. 12,244, at 14; McIntire, *et al.*, ff. Tr. 1307, Attachment B at 2; PA Onsite Testimony, ff. Tr. 11,679, at 12-13.)

Accordingly, the Board concludes that the emergency classification system complies with planning standard 10 C.F.R. § 50.47(b)(4).

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<sup>60</sup> We note that during the March 1983 exercise, FEMA evaluated only seven *preselected* reception/congregate care facilities (See McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 16), and apparently a determination whether letters of agreement existed was not part of the evaluation. Some of the results of this limited evaluation, however, strongly suggest to us that no letters exist. For example, FEMA discovered that one congregate care center which the plans indicated should accommodate 1200 persons in fact could only accommodate 150 persons. (*Id.* at 31-32; Tr. 15,018.) We believe that this discrepancy would have been eliminated if a letter of agreement had been executed. FEMA's Verification Analysis, which is not in evidence, may resolve the inconclusiveness of the record. See note 82, *infra*.

## ***Notification Methods and Procedures***

Section 50.47(b)(5) states:

(5) Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and followup messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.

This standard is elaborated upon in 10 C.F.R. Part 50, Appendix E, § IV.D. Further guidance is provided by NUREG-0654, § II.E.

Intervenors have raised several points in connection with this planning standard. First, they asserted that there has been no showing that State and local officials "have the capability to decide promptly to notify the public of a radiological emergency." (Int. PF 3.1-22.) Second, Intervenors implied that public officials will not receive prompt information. (Int. PF 3.1-25 to 3.1-27.) Third, Intervenors asserted that emergency workers in Rockland County cannot be promptly notified. (Int. PF 3.1-28 to 3.1-31.) And finally, Intervenors asserted that the provisions for notifying the public are inadequate because (1) the Alert/Notification System (ANS) is inadequate, (2) the Emergency Broadcasting System (EBS) messages are inadequate, and (3) the media personnel are not sufficiently trained. (Int. PF 3.1-32 to 3.1-42.)

### ***Decisionmaking***

Part 50, App. E, § IV.D.3 provides that "[t]he licensee shall demonstrate that the State/local officials have the capability to make a public notification decision promptly on being informed by the licensee of an emergency condition." Section IV.D.3 continues: "The design objective of the prompt public notification system shall be to have the capability to essentially complete the initial notification of the public within the plume exposure pathway EPZ within about 15 minutes."<sup>61</sup>

Intervenors' first point, that there has been no showing that State and local officials have the capability to decide promptly to notify the public

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<sup>61</sup> Intervenors attempt to bolster their conclusion, that Licensees will not promptly notify State and local officials, by pointing to a 1982 steam generator leak during which notification to local officials was delayed. Int. PF 3.1-26. We do not find this reference particularly probative, and it certainly is not a basis for concluding that Licensees would delay notifying public officials in a future emergency. It is our impression, however, that Licensees have not always been circumspect in reporting incidents in the past and may have contributed to the public mistrust. Tr. 385; 3541-42; 11,918. See generally our discussion of Contention 3.4, *infra*.

of a radiological emergency, is based primarily on the testimony of Staff witness Sears. Sears testified that the current State and county plans do not contain provisions to ensure officials will promptly decide to notify the public, and he suggested that Licensees should have the capability to activate the sirens if local officials fail to do so within 10 minutes of notification by the Licensees. (Tr. 12,327-28, 12,338.)

This Staff testimony contradicts the FEMA findings. (See generally, McIntire, *et al.*, ff. Tr. 14,720.) More importantly, however, we find the suggestion that Licensees activate the sirens inconsistent with the regulations. The regulations require a "capability" to inform the public promptly. That capability has been demonstrated. (Tr. 12,240-42; 12,327-28.) The regulations clearly state that the responsibility to activate the system belongs to the State and local governments, and the regulations recognize that notification to the public might be inappropriate under certain circumstances (10 C.F.R. Part 50, App. E, § IV.D.2). We find no justification for a reassignment of the responsibility in contradiction to the regulations.

#### *Licensees' Notification Responsibility*

Intervenors' second point, that public officials will not receive prompt notification from the Licensees, is in part based on a 30- to 60-minute delay during the March 9, 1983, drill from the time an alert was declared to the time the State and Westchester, Orange and Putnam Counties were notified. (McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at ix and 19.) We questioned the FEMA witnesses as to the cause of the delay; the FEMA witnesses, however, had not yet determined the cause, but assured us they would investigate. (Tr. 15,106-07.) There were not, apparently, any delays in notifying the State and counties of subsequent emergency action levels during the March 9, 1983 drill. (See generally McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment.)

FEMA concluded that the delay was a minor deficiency (*Id.* at 19), and we have no reason to dispute the conclusion. We suggest, however, that FEMA be asked to report on the cause of the delay and any ramifications therefrom.<sup>62</sup>

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<sup>62</sup> There is no doubt that the equipment exists to permit prompt notification of public officials. There exists a Radiological Emergency Communications System (RECS) (a dedicated hotline) and a National Warning System Line (NAWAS) to county warning points. In addition, there is an onsite radio communications link to offsite governmental organizations. This capability is described in more depth in our discussion of Contention 3.4, *infra*.

### *Notification to Emergency Workers*

All support for Intervenors' third point, that emergency workers cannot be notified promptly, stems from the situation in Rockland County. (See Int. PF 29-31.) As we have found planning and preparedness generally inadequate in Rockland County and have excluded consideration of that county from further analysis under Contention 3.1, we find no controversy with respect to this planning standard. However, we are not satisfied that the record establishes the adequacy of the capability to communicate with emergency workers, but we discuss this issue under planning standard 10 C.F.R. § 50.47(b)(6), *infra*.

### *Public Notification*

Early notification to the public is accomplished by a system of sirens, backed up by the installation of tone-alert radios in special facilities, and by the broadcasting of pre-drafted messages by designated Emergency Broadcasting System (EBS) radio and television stations. (Sears, ff. Tr. 12,244, at 16; Con Ed Onsite Testimony, ff. Tr. 11,713, at 13; Con Ed Supp. Onsite Testimony, ff. Tr. 11,713, at 1; Davidoff, Tr. 11,450-51. See also NY Ex. 10 at III.5 to III.6; NY Ex. 11 at D-5 to D-12; NY Ex. 12, § III.F; and NY Ex. 13 at F-5 to F-6.)

With regard to public notification, Intervenors first asserted that the siren system is inadequate. Intervenors presented many witnesses who testified that the sirens were inaudible. However, with only one exception (Tr. 10,728), this testimony related to the sounding of the sirens during the 1982 exercise. Since then, the system has been substantially upgraded and now appears adequate. (See Con Ed Supp. Onsite Testimony, ff. Tr. 11,713, at 1; Tr. 11,759; McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 26, 39, 48, and 53.) Intervenors also asserted that there is no backup source of power for the sirens and that backup procedures for notifying the public promptly are inadequate. (Int. PF 3.1-34.) Their proposed finding is patently deficient in explaining and supporting this alleged inadequacy. FEMA was the first to raise the issue. In the assessment of the 1982 exercise, FEMA found that route alerting procedures<sup>63</sup> should be developed. (McIntire, *et al.*, ff. Tr. 1307, 1982 Post-Exercise Assessment, at 31.) And FEMA testified before this Board that an alternative means for alerting the public is not provided in the plans, although a limited capability for route alerting was

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<sup>63</sup> Route alerting is the use of vehicles mounted with loudspeakers to alert the offsite population. (Sholly, ff. Tr. 8398, at 10; Guido, Tr. 5004; Goldfarb Supp., ff. Tr. 9821, at 1.)



demonstrated during the 1982 exercise. (McIntire, *et al.*, ff. Tr. 1307, at 44-45; *see also* Marasco, Tr. 5486-87.)

In addition, Intervenor's witness Sholly testified that in the event of an area-wide power failure, the sirens will not function. (Sholly, ff. Tr. 8398, at 9-10.) The Board found this allegation significant, because loss of offsite power is a significant severe-accident initiating event. Other witnesses were asked whether the sirens would work in the event of a blackout, but they did not know. (Kaplan/Goester/Bley, Tr. 7038; Marasco, Tr. 5551-52.)

We have examined the FEMA reports and testimony prepared after the 1982 post-exercise assessment, and we find no subsequent discussion of the need for route alerting procedures. It is possible that FEMA was only concerned with the need for route alerting when the siren system was inadequate. It is also possible that route alerting procedures have now been developed. The Staff asserts that "a back-up route alerting system is provided in the emergency plans for each county." (Staff PF 3.1-36.) The Staff cites the county RERPs, but references no page or section numbers; and we have reviewed the recent amendments to the county RERPs and were unable to find such provisions.

Accordingly, we conclude that this issue is unresolved. We recommend that the Commission require the Staff and FEMA to report: (1) whether route alerting procedures exist; and (2) if route alerting procedures do not exist, whether such procedures are needed. Clearly, if the siren alerting system will not work during a power failure, a route alerting system may be necessary.

Intervenor's also asserted that tone-alert radios have not been installed in all special facilities or that the recipients do not understand their operation. (Int. PF 3.1-33.) However, there is little support in the record for this assertion. Although the record is not sufficient for us to determine that tone-alert radios have been installed in all appropriate special facilities, it does demonstrate that this is one area of preparedness that has been aggressively pursued by the Licensees. (McIntire, *et al.*, ff. Tr. 14,730, Post-Exercise Assessment at 27, 40, and 54; Tr. 13,122; Intervenor's Stipulation #2, ff. Tr. 11,670; Tr. 10,703, 10,728; Tr. 10,373, 10,391; Tr. 9883; Tr. 5581-82; Marasco, ff. Tr. 5388, at 2-3; Tr. 4515.)

With respect to the EBS messages, Intervenor's presented an expert witness, Professor Donald D. Smith.<sup>64</sup> Professor Smith testified that the messages were not adequately prepared. He advocated pretesting the

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<sup>64</sup> Professor Smith is a professor of mass communication in the School of Journalism and Mass Communication, University of Iowa.

audience and preparing a multitude of messages, each tailored to a particular sociological segment of the population. In addition, Professor Smith did not believe that sufficient attention had been given the wording of the messages and did not believe the messages would elicit the appropriate response. (Smith, ff. Tr. 10,269.)

Professor Smith's testimony, however, addressed earlier versions of the messages. Professor Smith examined the recent, revised messages and found them to be a distinct improvement and "models of logic." (Tr. 10,302, 10,346.) He still found some poor wording; for example, he suggested that informing the public that emergency information has previously been disseminated would create a great deal of anxiety for those listeners who had not heard the prior messages. (Tr. 10,303.)

We found Professor Smith's testimony interesting, but we believe that the level of sophistication he advocated for EBS messages exceeds the regulatory requirements and is perhaps impracticable. We do not understand how, if particular messages were tailored toward particular classes of persons, those messages would be delivered to the appropriate class. And we do not know the number of messages that would be necessary or the logistical demands involved in their delivery; nor did Professor Smith. (Tr. 10,275-77; 10,363; 10,367.)

The planning standards merely require "clear instructions." While we agree that there is always room for improvement (*see* Staff PF 3.1-40), we conclude, based on FEMA's review and our own summary review of the messages, that they are adequate. We suggest, however, that the State and counties re-examine Professor Smith's criticisms (Tr. 10,302-07) to consider if revisions would be beneficial.

Finally, Professor Smith advocated disaster reporting training for media personnel, because their delivery of the messages and of other information could have profound results. In fact, some such training already exists. (*See* Westchester RERP, at PE/I-3, PE/I-31; and NY Ex. 7 at 2.)

Accordingly, we conclude that emergency planning at Indian Point is in substantial compliance with planning standard 10 C.F.R. § 50.47(b)(5), but we recommend that the Commission require NRC Staff and FEMA to report on the existence and/or need for route alerting or other procedures in the event the siren system fails.

## ***Emergency Communications***

Section 50.47(b)(6) states:

(6) Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.

Further guidance is provided by NUREG-0654, § II.F.

There is no real dispute as to the efficacy of the command communications system; communication between the Licensees, the State, the counties, and the NRC is ensured by dedicated hot lines and is backed up by radio link. *See* note 62, *supra*. Intervenors asserted, however, that the communications system is inadequate because: (1) the various police departments lack a common frequency; and (2) no emergency communications system exists for support groups such as bus drivers, ambulance drivers, schools, and reception centers. (Int. PF 3.1-46 to 3.1-51.)

With respect to the inability of police from different departments to communicate with each other by radio, we do not find that the record supports a finding that this inability prevents an adequate response capability. The more important communication links are those between the county officials and their subordinate police departments, and between police departments and their own officers in the field. This capability obviously exists and suffices for the many everyday emergencies to which the police respond. We do not doubt that a common-frequency radio system in New York State would be a significant improvement, but we do not find any particular evaluation criterion unfilled by the present capability.

With respect to communications with support personnel and facilities, however, we cannot find that this planning standard has been met. As far as we can determine, the normal telephones are the primary means for communication with these personnel and facilities, with some additional communications capability provided by radio-equipped county vehicles and by the Radio Amateur Civil Emergency Services (RACES).<sup>65</sup> (*See, e.g.,* Bates, ff. Tr. 5658, at 3; Bates, Tr. 5661; Marasco, Tr. 5505; Bohlander, Tr. 5748-49, 5754, and 5758; Curran, Tr. 5105; McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 25,

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<sup>65</sup> The record does indicate that some buses are equipped with radios, but to what extent we cannot tell. In Westchester, during the March 1983 exercise, four of the five buses selected to participate in the exercise were equipped with radios. (McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 30.) In Rockland, however, the buses that were used lacked radios, and FEMA found that reliance on commercial telephones for bus communications constituted a deficiency. (*Id.* at 38-39 and 43. *See also* Siegel, Tr. 9925.)

30, 46, 53, and 57.) The record does not demonstrate that this communication capacity is adequate.<sup>66</sup> Nor can we rely in this instance on FEMA's findings. Demonstrating the adequacy of the communications capability with support personnel and facilities does not appear to have been an exercise objective during the 1983 exercise. However, even if this capability has been assessed during the 1983 exercise, we could not draw a favorable inference from the absence of a significant deficiency finding; we do not believe it is valid to extrapolate any general conclusion from FEMA's findings, which were based in this instance on a very small, preselected sample set of bus drivers, ambulance drivers, and reception centers. *See McIntire, et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 15-17.

On the other hand, we cannot find that the communications system is inadequate. We simply do not know the capacity of the telephone system and the demands thereon during an emergency, nor do we know to what extent supplemental communications capability exists. Accordingly, we find the record inconclusive with respect to planning standard 10 C.F.R. § 50.47(b)(6).

### ***Public Education and Information***

Section 50.47(b)(7) states:

(7) Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (*e.g.*, listening to a local broadcast station and remaining indoors), the principal points of contact with the news media for dissemination of information during an emergency (including the physical location or locations) are established in advance, and procedures for coordinated dissemination of information to the public are established.

Further guidance is provided by NUREG-0654, § II.G.

Public information brochures have been developed and revised for Westchester, Putnam, and Orange Counties. (*See* WBCA Ex. 1, FOE Ex. 1, UCS Ex. 14.) The brochures address all the topics specified in NUREG-0654, § II.G.1.

Intervenors asserted that the brochures are ambiguous and confusing, and will be ignored or forgotten by the public. (Int. PF 3.1-65, 3.1-68, and 3.1-69.)<sup>67</sup> The only probative evidence Intervenors presented,

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<sup>66</sup> Communications with support personnel and facilities may also be a problem in Rockland County. (Gdanski, ff. Tr. 3369, Ex. B at 11; Gdanski, Tr. 3528; D. McGuire, Tr. 4157; Kralik, ff. Tr. 4303, at 7; Kralik, Tr. 3582-83, 3607; Scharf, ff. Tr. 11,166, at 5; Scharf, Tr. 11,218-19.)

<sup>67</sup> The Intervenors also asserted that the brochure should be published in foreign languages. We address that issue under Contention 4.7 and incorporate by reference our conclusions on Contention 4.7 herein.

however, was the testimony of Professor Smith (Smith, ff. Tr. 10,269, discussed *supra*), but Professor Smith's testimony related primarily to the EBS messages. What little direct testimony Professor Smith gave with respect to the brochures was based on his review of the unrevised brochures<sup>68</sup> and did not distinguish the brochures from the EBS messages. (See, e.g., *id.* at 12.) Professor Smith's thesis was that the public communications (the EBS messages and the brochure) were not properly worded. The brochures and the EBS messages, however, are fundamentally different. In failing to distinguish them, Professor Smith ignored the very different roles they are meant to play. (Compare Smith, ff. Tr. 10,269, and Tr. 10,353 with *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), LBP-83-27, 17 NRC 949 (1983).) The EBS messages are response-invoking communications, but the brochures are not. More importantly, however, Professor Smith admitted that he was evaluating the brochures against a "state of the art" standard (Tr. 10,279) and was advocating requirements that exceeded those of NUREG-0654 (Tr. 10,352-53). We cannot accept, therefore, Professor Smith's opinion.

We afford little weight to Intervenor's assertion that people will ignore or forget the information contained in the brochures. 10 C.F.R. § 50.47(b)(7) requires that information "be made available" to the public. Annual dissemination of a brochure is a reasonable way to make the information available and should eventually lead to public awareness of emergency responses;<sup>69</sup> but it is impractical and not within Licensees', the State's, or the counties' power to demand a fully, instantly educated public. We conclude, based on FEMA's appraisal and our own review of the brochures, that those brochures are adequate.

We cannot, however, find that the distribution of the brochures has been adequate. As of the close of our record, the revised brochure and posters had not yet been distributed in Westchester (nor, of course, in Rockland);<sup>70</sup> if such distribution has not been accomplished, planning standard 10 C.F.R. § 50.47(b)(7) has not yet been met.

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<sup>68</sup> Professor Smith testified, after examining the revised brochures, that it was an improvement and might indeed meet the regulations. (Tr. 10,336-37, 10,353.)

<sup>69</sup> We also find that the brochure's educational value is complemented by other educational techniques (posters, newspaper advertisements, slide shows). (See McIntire, *et al.*, ff. Tr. 14,720, at 27, 48, and 54; Schmer, Tr. 12,129; Scalpi, Tr. 12,154.)

<sup>70</sup> McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 28.

## ***Emergency Facility and Equipment***

Section 50.47(b)(8) states:

(8) Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

Further guidance is provided by NUREG-0654, § II.H.

Intervenors presented no case on this planning standard and it is apparent from their proposed findings that they do not understand its scope. Not one of their proposed findings is relevant to 10 C.F.R. § 50.47(b)(8) as interpreted by the evaluation criteria of NUREG-0654 § II.H.<sup>71</sup> NUREG-0654, §§ II.H.10 and II.H.11 are the evaluation criteria relating to offsite emergency equipment; those criteria only require an inventory of equipment and provisions for inspection/repair. The other evaluation criteria of NUREG-0654, § II.H, require the establishment of support centers, the EOF, EOCs, an onsite monitoring system, an offsite data acquisition system, and a meteorological monitoring system. There is no dispute that these criteria have been met. (*See* Sears, ff. Tr. 12,244, at 24-26; PA Onsite Testimony, ff. Tr. 11,679, at 21-24; Davidoff, Tr. 11,322.) By contrast, Intervenors addressed their proposed findings to the adequacy of communications and means for controlling radiological exposure. Those items are the subject of planning standards 10 C.F.R. § 50.47(b)(6) and (b)(11) respectively, and we so treat them.

Based on FEMA's assessment and our own review of the emergency plans against the particular evaluation criteria of NUREG-0654, we conclude that planning standard 10 C.F.R. § 50.47(b)(8) has been met.

## ***Accident Assessment***

Section 50.47(b)(9) states:

(9) Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

Further guidance is provided by NUREG-0654, § III.

Intervenors presented no case on this planning standard, and there is no real dispute with respect to the proposed findings submitted by Licensees and the Staff.

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<sup>71</sup> In the absence of any evidence to the contrary, we give considerable weight to the evaluation criteria in NUREG-0654 in interpreting the requirements of the Commission's emergency planning regulations. *Cf. Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), LBP-83-32A, 17 NRC 1170, 1177 n.5 (1983).

Licensees have installed a Reuter Stokes Sentry 1011 Remote Environmental Monitoring System consisting of 16 monitors within a two-mile radius of the plant. The information recorded is relayed to the Meteorological Information and Dose Acquisition System (MIDAS) at the EOF, as are meteorological data.<sup>72</sup> The MIDAS System can then make predictions for the plume and ingestion pathway EPZs. There are also Ludlum Monitors (area radiation monitors) at approximately 25 locations within the four-county area. In addition, Licensees also maintain two field monitoring teams with 24-hour immediate response capability, and about 50 backup monitoring teams are available. (PA Onsite Testimony, ff. Tr. 11,679, at 22-27; Con Ed Onsite Testimony, ff. Tr. 11,713, at 16-17; Sears, ff. Tr. 12,244, at 25-28; Con Ed Emergency Plan, *supra*, § 7.3.2; PA Ex. 43 at IP-1011. *See also* McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 20, 28, 41, 49, and 55.)

The State and counties also have monitoring teams. Moreover, the State and counties can access Licensees' Atmospheric Release Advisory Capability (ARAC) system and MIDAS data. (Scalpi/Schmer, Tr. 12,151-52; Curran, Tr. 5076; J. McGuire, Tr. 3794; NY RERP (NY Ex. 3) at H-4; Sears, ff. Tr. 12,244, at 28; Power Authority Onsite Testimony, ff. Tr. 11,679, at 26.)

Intervenors have pointed to the testimony of two county officials who stated they would prefer to rely less on Licensees' monitoring capabilities. (Int. PF 3.1-84.) This sentiment, however, does not belie the overall assessment/monitoring capability.<sup>73</sup> Accordingly, the Board finds that planning standard 10 C.F.R. § 50.47(b)(9) has been met.

### ***Protective Response***

Section 50.47(b)(10) states:

(10) A range of protective actions have been developed for the plume exposure pathway EPZ for emergency workers and the public. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.

Further guidance is provided by NUREG-0654, § II.J.

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<sup>72</sup> Licensees' meteorological monitoring capability is described in detail in our discussion of Contention 3.6, *infra*, and is found adequate.

<sup>73</sup> Intervenors also referenced their findings on training and communication. (Int. PF 3.1-87.) We choose to keep the planning standards separate where possible, however, and address training and communications under planning standards 10 C.F.R. § 50.47(b)(15) and (b)(6), respectively.

The record presents no dispute as to the adequacy of the onsite protective actions. (See Con Ed Onsite Emergency Plan, *supra*; PA Ex. 43; compare NUREG-0654, §§ II.J.1 to II.J.8.)

The Intervenor did present testimony on the adequacy of protective actions for the public in the plume exposure pathway EPZ. Most of the testimony, however, was of little probative value, and much of it addressed the more specific issues raised in Contentions 3.2, 3.3, 3.7, 3.9, 3.10, and 4.2. These specific contentions are discussed *infra*, and that discussion will not be repeated here.<sup>74</sup> The deficiencies noted by this Board with respect to the specific contentions enumerated above are: (1) that insufficient attention has been given to protective actions during a severe winter storm (Contentions 3.3, 3.6, and 4.2); (2) that plans for the protection of schoolchildren are in an unacceptable state of flux (Contention 3.6); and (3) that in Rockland and Westchester, insufficient attention has been given to the identification of the non-institutionalized, mobility-impaired populace and the assessment of their needs (Contention 3.10).

The only issue raised by Intervenor under planning standard 10 C.F.R. § 50.47(b)(10) and not subsumed by a specific contention relates to protective actions for the ingestion pathway. (See Int. PF 3.1-103 to 3.1-108.) Unfortunately, despite this issue's potential importance (owing to the unique vicinity of Indian Point), Intervenor's case did little more than state the obvious — that the proximity of New York City magnified the potential consequences and correspondingly required a greater planning effort for the ingestion pathway. The intervenors merely asserted the general insufficiency of detail in the State plan. (See *id.*)

If Intervenor have been remiss in prosecuting this issue, however, the proponents of the plans have been equally remiss in its defense. FEMA, in its June 1982 evaluation of the planning provisions for the ingestion pathway, determined that there were no details of protective measures to be used for ingestion pathway. Then, in the December 1982 update report, FEMA stated that "adequate information on surface water inventory and the location of produce and dairy farms was furnished to FEMA. This completes information requirements for ingestion pathway protective actions." (McIntire, *et al.*, ff. Tr. 14,720, 1982 Update Report at 1, 5.)<sup>75</sup> We have no idea, however, what information

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<sup>74</sup> In particular, sheltering (Int. PF 3.1-91 to 3.1-95) is discussed under Contention 4.2; removal of impediments (Int. PF 3.1-96 to 3.1-100) is discussed under Contentions 3.3 and 3.9; and transit-dependent populations (Int. PF 3.1-101 to 3.1-102) are discussed under Contention 3.10.

<sup>75</sup> As far as we can determine, neither planning nor preparedness for the ingestion pathway was evaluated during the March 1983 exercise. (See McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment.)



has been provided. The State Plan admitted into evidence contains no such information. (See NY Ex. 3; NY Ex. 6.) The State Plan does little more than incorporate by reference the Food and Drug Administration and EPA Protective Action Guides. (See *id.* at III-40, and III-43 to III-49.) Moreover, FEMA's conclusion, that the "information requirements" have been met, begs the question whether *planning* is sufficient.

Accordingly, we find the record inconclusive as to whether planning for the ingestion pathway is adequate. With respect to protective responses in the plume exposure EPZ, we find, based on our conclusions on Contentions 3.2, 3.3, 3.7, 3.9, 3.10, and 4.2, that planning standard 10 C.F.R. § 50.47(b)(10) has not been met.

### ***Radiological Exposure Control***

Section 50.47(b)(11) states:

(11) Means for controlling radiological exposures, in an emergency, are established for emergency workers. The means for controlling radiological exposures shall include exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides.

Further guidance is provided by NUREG-0654, § II.K.

Intervenors' principal assertion with respect to this planning standard was that adequate numbers and types of dosimeters are not available. (Int. PF 3.1-75, 3.1-113.) The assertion is not entirely unfounded. FEMA has twice found as a deficiency the absence of permanent record dosimeters and 24-hour capability to determine doses received by emergency personnel. (See, e.g., McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 33; McIntire, *et al.*, ff. Tr. 1307, 1982 Post-Exercise Assessment at 36-37.) However, New York State subsequently agreed to procure permanent record dosimeters and started acquiring low-range, self-reading dosimeters. In the interim, high-range civil defense dosimeters would be used. (McIntire, *et al.*, ff. Tr. 14,720, 1982 Update Report at 2, 7.) Intervenors' testimony and assertions are therefore stale. New York will distribute 950 self-reading dosimeters and 5500 permanent record dosimeters during 1983. (NY Ex. 8.) We do not believe that a significant problem exists in this area.

Intervenors also asserted that the supplies of potassium iodide (KI) are insufficient. (Int. PF 3.1-115.) This issue is similar to that of the adequacy of the dosimeters. Intervenors based their assertion on a FEMA finding during the March 1983 drill that, although KI was available for distribution, some Westchester transportation companies did not have

adequate supplies and had not instructed their drivers in its use.<sup>76</sup> (McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 32.) This deficiency was found to be minor, and Intervenors have not shown any more widespread problem such as would contradict FEMA's conclusion.<sup>77</sup> Intervenors also asserted that "the supply of potassium iodide on hand at local police headquarters has exceeded the expiration date." (Int. PF 3.1-115.) The only support for this broad assertion, however, was the testimony of Hickernell, a lay witness for the Intervenors. Hickernell testified that during the March 1983 drill she observed some bottles of KI tablets in the police communications room of the Ossining Municipal Building and the bottles were labeled with a June 1981 expiration date. (Tr. 14,543.) While we are certainly concerned with the possibility that outdated supplies of KI might be stockpiled, we cannot subscribe to Intervenors' broad assertion.

Intervenors' last assertion of any substance was that the counties do not have procedures for collecting and disposing of contaminated wastewater. (Int. PF 3.1-114.) Again this assertion is based on a previous FEMA finding of deficiency. And again, FEMA has been satisfied by the response to its finding; in this case, the emergency plans were to be revised to provide for the disposal of contaminated wastes. (McIntire, *et al.*, ff. Tr. 14,720, 1982 Update Report at 2, 7.) These revisions were scheduled to be made by January 15, 1983. (*Id.* at 7.) However, we have reviewed the 1983 amendments to the State and county RERPs, and we are unable to determine whether adequate revisions have been made. (See Putnam RERP (NY Ex. 11), Procedure 4, Attachment 12; Orange RERP (NY Ex. 12), Procedure 3, Attachment 13 at HE 13-17; Westchester RERP (NY Ex. 13), Procedure 3, Attachment 13 at HE 13-20.) We do not find that intervenors' allegation has been sustained, but we suggest that the Commission ask FEMA to report on the adequacy of the waste disposal provisions.

Accordingly, we determine that emergency plans are in substantial compliance with planning standard 10 C.F.R. § 50.47(b), although several minor deficiencies remain.

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<sup>76</sup> We address the adequacy of emergency worker training under planning standard 10 C.F.R. § 50.47(b)(15), discussed *infra*.

<sup>77</sup> Intervenors raised several other points, none of which seriously questioned compliance with planning standard 10 C.F.R. § 50.47(b)(11). (See Int. PF 3.1-118 to 3.1-120.)

## Medical and Public Health Support

Section 50.47(b)(12) states:

(12) Arrangements are made for medical services for contaminated injured individuals.

Further guidance is provided by NUREG-0654, § II.L, and by the Commission's decision in *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-83-10, 17 NRC 528 (1983).

Intervenors have not submitted proposed findings on this planning standard. UCS/NYPIRG did, however, present testimony of James L. Murphy, a public health specialist. (J. Murphy, ff. Tr. 11,060.) Murphy testified *inter alia* that he had surveyed health care facilities in the region and concluded that they had insufficient capacity and would be unable to treat many people with exposures in excess of 100 rem.

In admitting the Murphy testimony, we noted the imminence of the Commission's decision in *San Onofre, supra*; and we remarked that our evaluation of the Murphy testimony could be affected by that decision. (Tr. 11,059-60.) The Commission has now rendered that decision. In short, the Commission decided that with respect to the few individuals who might be both contaminated and injured, "the arrangements that are currently required for onsite personnel and emergency workers provide emergency capabilities which should be adequate for treatment of members of the general public. Therefore, no additional medical facilities or capabilities are required for the general public." *San Onofre, supra*, 17 NRC at 536.<sup>78</sup> With respect to individuals only exposed to radiation, the Commission stated that an *ad hoc* capability is sufficient. For these individuals, "[e]mergency plans should . . . identify those local or regional medical facilities which have the capabilities to provide appropriate medical treatment for radiation exposure. No contractual agreements are necessary and no additional hospitals or other facilities need be constructed." *Id.* at 537 (footnote omitted).

Murphy's testimony is not consistent with the Commission's decision.<sup>79</sup> The Licensees', the Staff's, and New York's testimony and

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<sup>78</sup> The Commission also stated "[t]o meet the emergency planning regulation, it has been the general practice for licensees or offsite authorities to make special arrangements for emergency treatment of contaminated injured onsite personnel and emergency workers. . . . The Commission [also] believes it is prudent to identify local or regional medical service facilities considered capable of providing support for contaminated injured individuals." 17 NRC at 535.

<sup>79</sup> The Board does not accord the Murphy testimony much weight. Murphy based his conclusions on a survey he conducted, but he was inexperienced in conducting surveys; his sample was far too small, and the questions were poorly worded. (Tr. 11,062, 11,070-74, 11,076-82.) The bottom line was that Murphy disputed the planning basis used, a basis entirely consistent with *San Onofre*. (See Tr. 11,084-86.)

exhibits demonstrated compliance with this planning standard. The Licensees have executed a letter of agreement with the Peekskill Community Hospital for the treatment of contaminated injured persons, and with the Verplanck Ambulance Association for 24-hour service in transporting such persons. (Con Ed Emergency Plan, *supra*, §§ 6.5.2-6.5.3 and Appendix A; Emergency Planning Procedures Document (PA Ex. 43), at IP-1021; Sears, ff. Tr. 12,244, at 5-6, 38-39.) In addition, the State RERP identifies 47 hospitals that have the capability to treat contaminated individuals. (State RERP (NY Ex. 3), Part III, § II at 12-12(c).) Moreover, New York's witness Donald B. Davidoff, Director of the New York Radiological Emergency Preparedness Group, testified that every hospital and nursing home within the EPZ had been contacted to determine their capabilities and to alert them to their responsibilities. (Tr. 11,413-14.) Finally, training for hospital personnel has been provided. (NY Ex. 9.)

Accordingly, the Board finds that, based on the evidence presented by Licensees, the Staff, and New York State and consistent with the FEMA findings, planning standard 10 C.F.R. § 50.47(b)(12) has been met.

### ***Recovery and Reentry Planning and Post-Accident Operations***

Section 50.47(b)(13) states:

- (13) General plans for recovery and reentry are developed.

Further guidance is provided by NUREG-0654, § I.I.M.

Intervenors presented no evidence on this planning standard, nor did they submit proposed findings with respect to compliance with the standard. However, recovery and reentry procedures are included in the State, county, and onsite emergency plans. (State RERP (NY Ex. 3), Part II, § IV at IV-1 to IV-7; NY Ex. 10, § IV at B-4; NY Ex. 11, § IV; NY Ex. 12, § IV.B; PA Ex. 43 at 7-4.) These procedures were found satisfactory by the Staff and FEMA. (Sears, ff. Tr. 12,244 at 39; McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 21, 33, 45, 52, and 59.) Our own summary review was in accord, and we conclude that planning standard 10 C.F.R. § 50.47(b)(13) has been met.

### ***Exercises and Drills***

Section 50.47(b)(14) states:

- (14) Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities, periodic drills are (will be) conducted to develop

and maintain key skills, and deficiencies identified as a result of exercises or drills are (will be) corrected.

This regulation is complemented by 10 C.F.R. Part 50, App. E, § F.1. Further guidance is provided by NUREG-0654, § II.N.

The RERPs provide for annual exercises. (See State RERP (NY Ex. 3), at II-12 to II-14, Part III, § I, Procedure F; NY Ex. 10, § VI.B; NY Ex. 11, § II.B.3; NY Ex. 13, § II.B.B; PA Ex. 43, § 8.) To date two full-scale exercises have been held, one in March 1982 and one in March 1983.

The Intervenors did not present a case with respect to this planning standard; some Intervenor and county witnesses did, however, criticize the exercises that had been conducted. One particular criticism was that the exercise did not require the mobilization of sufficient resources for a realistic evaluation of preparedness. (See Int. PF 3.1-122, and 3.1-124.)

This criticism is not unfounded. The resources mobilized were too small a sample from which to draw a general conclusion on preparedness (See McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 13-16), and in many instances, the resources were preselected. (*Id.*) However, we do not doubt that practicality constrains the scope of the exercises. Moreover, FEMA employed Argonne National Laboratory to conduct an extensive survey of emergency resources. This procedure, we believe, adequately compensates for the limitations on the evaluation potential of the actual exercise.<sup>80</sup>

Intervenors also asserted that the conditions were not adequate to assess emergency response capability; they advocate unannounced drills at different times of day or night. (Int. PF 3.1-123.) FEMA does require that the exercises be conducted under varying conditions (NUREG-0654, § II.N.1.b), but this requirement is clearly predicated on a succession of annual exercises. The planning and preparedness at Indian Point are in their infancy, and we do not find it unreasonable that the first two exercises have been announced, daytime exercises.

Accordingly, we conclude that planning standard 10 C.F.R. § 50.47(b)(14) has been met.

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<sup>80</sup> A survey does not compensate for the lost training opportunity and training is a fundamental purpose of an exercise. However, such training is more efficiently conducted during resource-specific drills than during full-scale exercises. See NUREG-0654, § II.N.2.

## ***Radiological Emergency Response Training***

Section 50.47(b)(15) states:

(15) Radiological emergency response training is provided to those who may be called on to assist in an emergency.

This regulation is complemented by 10 C.F.R. Part 50, App. E, § IV.F. Further guidance is provided by NUREG-0654, § II.O.

With respect to this planning standard, Intervenors asserted that training has been inadequate for: bus drivers, school personnel, ambulance drivers, personnel at special facilities, hospital staff, police, and emergency workers. (Int. PF 3.1-127 to 3.1-143.) They cited as primary support for this assertion, however, the Argonne National Laboratory Verification Analysis (*See* note 82, *infra*), which is not in evidence. Nevertheless, there was considerable testimony from local officials and emergency response personnel that much necessary training had not yet been conducted. (Guido (Westchester County Sheriff), ff. Tr. 4913, at 2; Curran (Commissioner, Westchester Department of Health), ff. Tr. 5043, at 4; *contra* Curran Supp., ff. Tr. 5043, at 1-2; Jurkowski (Deputy Commissioner, Westchester Department of Transportation), ff. Tr. 5211, at 5; Marasco (Director, Westchester Office of Disaster and Emergency Services), ff. Tr. 5388, at 2; Marasco Supp., ff. Tr. 5388, at 2-4; Kaminski (Director of Planning, Westchester Department of Hospitals), ff. Tr. 5567, at 2-3; Bohlander (Commissioner, Westchester Department of Public Works), ff. Tr. 5726, at 2; Goldfarb (Ossining Police Chief), Tr. 5800; Goldfarb, ff. Tr. 9820, at 2; Wishnie (Ossining Town Supervisor), Tr. 9867-68; *contra* Wishnie, ff. Tr. 9820, at 1; Siegel, Tr. 9886; Elliot (Yorktown Supervisor), ff. Tr. 10,874, at 1; Ellefson (Captain, Ossining Volunteer Ambulance Corps), ff. Tr. 10,048, at 1; Ellefson, Tr. 10,005-60. *See also* Narod-Shiek, ff. Tr. 10,838, at 3; Corwin, ff. Tr. 10,838, at 1; Corwin, Tr. 10,861; Murray, Stipulation 17, ff. Tr. 11,670; Iurato, ff. Tr. 9898, at 2; Ziegler, ff. Tr. 10,711, at 1; Gunn, ff. Tr. 10,702 at 1; Everhart, ff. Tr. 4390, at 2; Connelly, Tr. 10,059; J. Murphy, ff. Tr. 11,060, at 11-15; Awalt, Tr. 10,530; Richter, ff. Tr. 10,524, at 2; Richter, Tr. 10,527; Bergman, ff. Tr. 10,524, at 2; Schultz, Tr. 5837-39.)<sup>81</sup> This testimony is borne out by deficiencies noted by FEMA in its Post-Exercise Assessment. (*See, e.g.* McIntire, *et*

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<sup>81</sup> Testimony to the same effect was heard with respect to Rockland County. (D. McGuire (Deputy Director of Emergency Services, Rockland) Tr. 10,974-77; Holland (Police Chief, Haverstraw), ff. Tr. 1661, at 6; Kralik (Rockland County Deputy Sheriff), ff. Tr. 11,132, at 2; Kralik Supp., Tr. 11,135; Scurti, Tr. 11,146, 11,155-57, and 11,161; Scharf, ff. Tr. 11,166, at 3; Sekelsky, ff. Tr. 10,437, at 1; Bower, ff. Tr. 11,103, at 2-3; and Brooker, Tr. 10,229.)

al., ff. Tr. 14,720, Post-Exercise Assessment, at 31, 32, 33, 51, 56, 57, and 59.) On the other hand, there was significant testimony that much training was ongoing. (Davidoff, Tr. 11,396; Scalpi, Tr. 12,098; Schmer, Tr. 12,099; D. McGuire, Tr. 10,990-91; O'Rourke, ff. Tr. 11,520, at 3; O'Rourke Supp., ff. Tr. 11,567, at 1. *See generally* PA PF 726-33.) Nevertheless, the Board cannot find that the record demonstrates an adequate degree of training. At best, the record is inconclusive, and it is certainly stale.<sup>82</sup>

Intervenors also asserted that the training curriculum is inadequate. (Int. PF 3.1-144.) We agree with this assertion to the extent it is based on inadequacies in New York State's training manual, the 1983 Emergency Worker Reference Manual. (PA Ex. 42.) There are several glaring errors in this manual, and it is written at a technical level that greatly detracts from its utility to a lay emergency worker. (Sears, Tr. 12,358-68.) We believe the manual needs extensive revision and subsequent review.

Accordingly, based on the foregoing, the Board cannot conclude that planning standard 10 C.F.R. § 50.47(b)(15) has been met.

### ***Responsibility for Planning Effort***

Section 50.47(b)(16) states:

(16) Responsibilities for plan development and review and for distribution of emergency plans are established and planners are properly trained.

Further guidance is provided by NUREG-0654, § II.P.

As previously stated, we find that planning in Rockland is generally inadequate. Intervenors also asserted that planning standard 10 C.F.R. § 50.47(b)(16) has not been met with respect to Westchester County. (Int. PF 3.1-153 to 3.1-155.) However, we find no support in the record for this assertion, and no basis for disputing FEMA's finding that this planning standard has been met in Westchester, Orange, and Putnam Counties.

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<sup>82</sup> Two relevant documents, with contradictory imports, have been submitted to us pursuant to the duty of participants to apprise the Board of relevant developments: Argonne National Laboratory, "Indian Point Nuclear Power Station: Verification Analysis of County Radiological Emergency Response Plans," ANL/EES-TM-228 (May 1983); and FEMA Addendum to Verification Update Report (Update as Reported by NYS Radiological Emergency Preparedness Group as of August 3, 1983) (filed August 4, 1983). We do not believe that any purpose would be served by our reopening the record to receive these documents into evidence, nor have we considered them in our evaluation. However, we commend them to the attention of the Commission.

**Conclusion**

The Board concludes that as of the close of the record, emergency planning at Indian Point was inadequate in that the present plans did not meet several of the 16 mandatory standards of 10 C.F.R. § 50.47(b) and were not in conformance with NRC/FEMA guidelines. We find that planning and preparedness in Rockland County was generally deficient. With respect to the Licensees, New York, and Westchester, Putnam and Orange Counties, our specific findings are as follows:<sup>83</sup>

- 50.47(b) (1)  
NUREG-0654,  
Evaluation Criterion A
  - no significant deficiencies
- 50.47(b) (2)  
Evaluation Criterion B
  - no significant deficiencies
- 50.47(b) (3)  
Evaluation Criterion C
  - record inconclusive as to existence of letters of agreement with reception and congregate care facilities
- 50.47(b) (4)  
Evaluation Criterion D
  - no significant deficiencies
- 50.47(b) (5)  
Evaluation Criterion E
  - no significant deficiencies, but record inconclusive with respect to the existence of or need for route alerting or other procedures in the event the siren system fails
- 50.47(b) (6)  
Evaluation Criterion F
  - record inconclusive as to adequacy of capability to communicate with emergency workers
- 50.47(b) (7)  
Evaluation Criterion G
  - public information brochures and posters were not distributed in Westchester
- 50.47(b) (8)  
Evaluation Criterion H
  - no significant deficiencies
- 50.47(b) (9)  
Evaluation Criterion I
  - no significant deficiencies

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<sup>83</sup> We are mindful that developments subsequent to the close of the record may have corrected some or all of the deficiencies.



50.47(b)(10)  
Evaluation Criterion J

- insufficient attention was given to protective actions during a severe winter storm
- plans for protection of schoolchildren were not finalized
- in Westchester (as in Rockland) insufficient attention was given to the identification of the non-institutionalized, mobility-impaired populace and assessment of their needs
- no letters of agreement for Westchester County bus drivers
- record inconclusive with respect to protective response planning in the ingestion pathway EPZ

50.47(b)(11)  
Evaluation Criterion K

- no significant deficiencies, but record inconclusive as to adequacy of provisions for disposal of contaminated wastewater

50.47(b)(12)  
Evaluation Criterion L

- no significant deficiencies

50.47(b)(13)  
Evaluation Criterion M

- no significant deficiencies

50.47(b)(14)  
Evaluation Criterion N

- no significant deficiencies

50.47(b)(15)  
Evaluation Criterion O

- training of emergency workers was deficient — record inconclusive as to extent of this deficiency
- training manual was deficient

50.47(b)(16)  
Evaluation Criterion P

- no significant deficiencies

## **J. Contention 3.2: Human Responses**

Contention 3.2 states:

The emergency plans for Indian Point Units 2 and 3 do not conform with NRC/FEMA guidelines because the assumptions made therein with respect to human response factors during a radiological emergency are erroneous. Hence, the

estimates of evacuation times and of the feasibility of timely evacuation for certain areas are incorrect.

This contention was based on pleadings by UCS/NYPIRG, WESPAC, and Parents. The Licensees presented the following expert witnesses: Dr. Robert L. DuPont, Dr. Sidney Lecker, and Dr. Russell Dynes. Dr. DuPont is a Clinical Professor of Psychiatry, Georgetown University Medical School. (DuPont, ff. Tr. 8852.) Dr. Lecker is a board-certified practicing psychiatrist. (Lecker, ff. Tr. 11,966.) Dr. Dynes is Executive Officer of the American Sociological Association, Washington, D.C. In 1979, Dr. Dynes was appointed head of the Task Force on Emergency Response and Preparedness, President's Commission on the Accident at Three Mile Island. (Dynes, ff. Tr. 11,966.) These witnesses gave testimony concerning the response of emergency workers and the public to emergencies. The Intervenor (USC/NYPIRG) presented the following expert witnesses: Dr. Kai T. Erikson, Dr. Murray Melbin, Dr. Albert J. Solnit, and Dr. Robert Jay Lifton. Dr. Erikson is a Professor of Sociology and American Studies, Yale University. (Erikson, ff. Tr. 9563.) Dr. Melbin is a Professor of Sociology at Boston University. (Melbin, ff. Tr. 9944.) Dr. Solnit is Sterling Professor of Pediatrics and Psychiatry and Director of the Child Study Center, Yale University. (Solnit, ff. Tr. 10,459.) Dr. Lifton is Foundations' Fund Research Professor of Psychiatry, Yale School of Medicine, New Haven, Connecticut. (Lifton, ff. Tr. 12,425.) The NRC Staff presented a FEMA panel of witnesses composed of Mr. Philip McIntire, Acting Chief, Natural and Technological Hazards Division, FEMA; Mr. Ihor Husar, Program Manager, Radiological Emergency Preparedness Program, FEMA Region II, and Mr. Joseph H. Keller, Senior Scientist, Exxon Nuclear Idaho Company, Incorporated. (McIntire, *et al.*, ff. Tr. 1307.) In addition, many other witnesses proffered by the Intervenor made relevant remarks (*e.g.*, Davidoff/Czech, Northrup, Everhart, Curran, Guido, Marasco, Bates, Bohlander, Johnson/Brooker, Gochman, Podwal, and Scalpi/Schmer).

This contention was well litigated, and the testimony presented disparate opinion on two fundamental issues: (1) whether emergency workers would respond to a radiological emergency; and (2) whether the public would comply with instructions during a radiological emergency.<sup>84</sup>

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<sup>84</sup> Dr. Melbin also raised an issue that the emergency plans might not be adequate because they fail to account for the decreased effectiveness of persons awakened at night. (Melbin, ff. Tr. 9944, at 1-2.) (Other arguments Dr. Melbin made with respect to the nighttime evacuation time estimates had no bearing on human response factors and are irrelevant to Contention 3.2.) This criticism, however, was made without any knowledge of, or reference to, the provisions of the emergency plans. (See Tr. 9945-46.) Therefore, we find Dr. Melbin's argument undeveloped; although we do not doubt that one's

(Continued)

The Licensees and the FEMA witnesses presented what is apparently the conventional theory. Studies of human response to emergencies show that panic does not occur during mass evacuations and that public disobedience is limited to isolated acts by individuals. (McIntire, *et al.*, ff. Tr. 1307, at 24; Dynes, ff. Tr. 11,966, at 7-10; Lecker, ff. Tr. 11,966, at 9-11.) With respect to emergency workers, both lay and professional, past experience demonstrates that these workers will fulfill their duties. (McIntire, *et al.*, ff. Tr. 1307, at 25; Lecker, ff. Tr. 11,966, at 7-8; Dynes, ff. Tr. 11,966 at 7-8.)

The Intervenor's witnesses did not dispute the conventional theory, but instead disputed its application to a radiological emergency. Dr. Erikson testified that a radiological emergency was different from other emergencies because the threat was invisible and of uncertain duration. (Erikson, ff. Tr. 9563, at 4-5; Tr. 9587.) Dr. Lifton classified emergencies as natural and man-made, and remarked that the latter results in long-lasting psychological effects — anger, bitterness, and confusion. As a subcategory of the man-made emergency classification, Dr. Lifton described accidents involving a threat of invisible contamination. Dr. Lifton felt that a radiological emergency would typify the invisible contamination emergency (Lifton, ff. Tr. 12,425, at 2-3), and the greater dread of such an emergency would negate an orderly response. (*Id.* at 4-5.) Dr. Lifton also testified that there would be a unique, long-lasting psychological effect associated with a radiological emergency — the Radiation Response Syndrome (RRS). RRS is the result of a victim's sense of being contaminated, the uncertainty and delay in the health effects of radiation, and the imagery of radiation-induced death. (*Id.* at 5-12.) Dr. Lifton believed that RRS could impair the effectiveness of the victim's behavior during the process of evacuation. (*Id.* at 8.) The Intervenor's witnesses concluded, because of the unique threat of a radiological emergency, that emergency workers (particularly laymen drafted into an emergency role) would not fulfill their duties, and that the public would not obey instructions. In particular, parents will attempt to pick up their children at school despite instruction to the contrary, and many people would evacuate spontaneously. (Erikson, ff. Tr. 9563, at 5-9; Lifton, ff. Tr. 12,425, at 7-9.)

There is a dearth of empirical evidence for or against the opinions of Intervenor's witnesses. Witnesses on both sides of this controversy

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efficiency may be temporarily reduced immediately after being wakened, without some link to the actual plans we must find Dr. Melbin's conclusion with respect to those plans speculative. We also find that Intervenor's have not submitted proposed findings addressing Dr. Melbin's arguments. Accordingly, we afford them no further discussion.

pointed to the Three Mile Island accident in support of their beliefs. Licensees' witnesses testified that Three Mile Island demonstrated that there is no significant difference between radiological and non-radiological emergencies (Lecker, ff. Tr. 11,966, at 1, 3, and 6; DuPont, ff. Tr. 8852, at 6-9; Tr. 11,980-82), and FEMA witnesses testified that the emergency workers had responded at both TMI and Ginna. (Tr. 2173-76, 2214-16, and 2538.) Intervenors' witness, Dr. Erikson, on the other hand, referred to the spontaneous evacuation at TMI in support of his opinion. (Erikson Supp., ff. Tr. 9563, at 3; Tr. 9611.) Dr. Erikson later acknowledged, however, that the persons who evacuated at TMI were not disobeying any instructions (Tr. 9618) and were entirely orderly in their evacuation (Tr. 9623).

Dr. Erikson also referred to a survey conducted at Shoreham which purportedly showed that a significant percentage of the population in the Shoreham EPZ would evacuate spontaneously in the event of a radiological emergency, and that a significant percentage of emergency workers would not respond to a radiological emergency until they had ensured their families' safety. (Erikson Supp., ff. Tr. 9573, at 2-3.) Whether the same attitudes are held at Indian Point, however, was not demonstrated; and Licensees' witness, Dr. Lecker, testified that in an actual emergency, a person can be expected to conform with pro-social behavioral patterns and to follow an emergency plan even though that person earlier disavowed so doing. (Lecker, ff. Tr. 11,966, at 8, 10.)

Finally, Dr. Lifton's emphasis on RRS as a cause of non-cooperative behavior during a radiological emergency is not well founded. RRS is a chronic syndrome that has been observed, for the most part, in survivors of Hiroshima and in persons exposed to radiation during nuclear weapons testing. (Lifton, ff. Tr. 12,425, at 7-8.) No basis has been advanced for concluding that RRS would develop early in the course of an accident at a nuclear power plant.

### ***Conclusion***

The Board finds, therefore, that the human response assumptions made by the Indian Point planners are reasonable. Our finding does not disparage the opinions held by Drs. Erikson and Lifton. These witnesses are credible experts. However, the theory they advocate is unorthodox, lacks empirical support, and is contradicted by the equally credible opinion of Licensees' witnesses. We believe it reasonable to adopt the conventional wisdom; to do otherwise would be to abandon, on the basis of conjecture, the only available data base for emergency planning assumptions.

<sup>1</sup>Our finding is not based solely on a preference for orthodox assumptions, but is also based on evidence of record in support of the assumptions. We believe the experiences at TMI and at Ginna support the assumptions, particularly with respect to the responsiveness of professional emergency workers. (See Lecker, ff. Tr. 11,966, at 6; Dynes, ff. Tr. 11,966 at 10; McIntire, Tr. 2173-76, 2214-16, 2538; Lecker, Tr. 11,992-94, 12,034-35.) And Dr. Erikson conceded that it might be a reasonable assumption to assume the responsiveness of professional emergency workers. (Erikson, ff. Tr. 9563, at 6.) Furthermore, quite a few competent witnesses testified that professional emergency workers do not forsake their duties. (Davidoff/Czech Supp., ff. Tr. 11,313, at 8; McIntire, Tr. 1613-16; Northrup, Tr. 4246; Everhart, Tr. 4397; Guido, Tr. 4942-43; Curran, Tr. 5127; Marasco, Tr. 5492-93; Bates, Tr. 5662-63; Bohlander, Tr. 5801-02; Johnson/Brooker, Tr. 10,228; Podwal, Tr. 11,880; and Scalpi/Schmer, Tr. 12,109-10.)

Although we have found that it is reasonable to assume that emergency workers will respond, we do not believe the Indian Point planners should be satisfied with an assumption. There remains a concern among lay persons who might have emergency duties — particularly teachers and bus drivers — that they might be torn between the needs of their families and their emergency duties. (See, e.g., Gochman, ff. Tr. 10,436, at 1; Stipulation #5, ff. Tr. 11,670.) These conflicts can be readily resolved by proper planning and implementation. If letters of agreement are obtained for bus drivers, presumably those drivers will not be subject to, or will have resolved, conflicting duties. Similarly, schools can easily resolve or accommodate conflicts which teachers may have; for example, in one school district even if 50% of the teachers left their classes, there would still remain enough teachers to assign one to each bus. (Everhart, Tr. 4476.)

The same holds true for the cooperativeness of the public. The evidence indicates that the public will comply with a plan and with instructions; but it is the lack of a plan or clear instructions that may present a problem. The spontaneous evacuation at TMI may well have been the result of such a lack or ambiguity of direction. Similarly, parent disregard of instructions not to attempt to pick up their children at school demonstrates a lack of confidence that their children are being protected. (Cf. McIntire, *et al.*, ff. Tr. 1307, at 26; Lifton, Tr. 12,456-57.)<sup>85</sup> Therefore, to ensure the validity of an assumption that

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<sup>85</sup>Intervenors' witness, Dr. Solnit, testified that parents would, out of due concern for their children, be uncooperative and attempt to reach their children immediately. (Solnit, ff. Tr. 10,459, at 3.) This

(Continued)

most parents will not rush to the schools to pick up their children, the Indian Point plans must contain clear instructions for the evacuation of schoolchildren, and the public must be properly educated. (*Id.*)

We conclude, therefore, that the assumptions with respect to human responses are reasonable if the emergency plans are completed and properly implemented.<sup>86</sup>

### K. Contention 3.3: Evacuation Time Estimates

Contention 3.3 states:

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

This contention was based on contentions submitted by UCS/NYPIRG, WBCA, and RCSE, and the Board designated UCS/NYPIRG as the Lead Intervenor.

The Licensees presented a panel of witnesses composed of Michael S. Della Rocca, Bruce E. Podwal, and Peggy L. Rosenblatt who gave testimony concerning the evacuation time estimate study prepared by Parsons, Brinckerhoff, Quade & Douglas. These witnesses are employed by Parsons, Brinckerhoff, Quade & Douglas. (Parsons, ff. Tr. 11,773.) The Intervenor's (UCS/NYPIRG) witness was Robert L. Morris, who testified about his review of the Licensees' evacuation time estimate study prepared by Parsons, Brinckerhoff, Quade & Douglas. (Morris, ff. Tr. 9726.) The New York State witnesses were: Donald B. Davidoff and Lawrence B. Czech. (Davidoff/Czech, ff. Tr. 11,313.) Staff's witnesses were: John R. Sears and Dr. Thomas Urbanik, II. Mr. Sears gave testimony concerning his review of the Licensees' evacuation time estimate study. (Sears, ff. Tr. 12,244.) Dr. Urbanik testified regarding

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statement, however, was tangential to the thesis of Dr. Solnit's testimony, that a temporary separation from one's parents might be traumatic to a child. No support was offered for Dr. Solnit's opinion that parents would immediately seek their children, and the opinion does not appear consistent with the testimony of any of the other expert witnesses. Accordingly, we afford little weight to the opinion. As to Dr. Solnit's discussion of trauma, we find it irrelevant to the correctness of the human response assumptions.

<sup>86</sup> The three areas of planning and preparedness that we find deficient and destructive of the reasonableness of the human response assumptions are: (1) the execution of letters of agreement for support personnel (*see* discussion of planning standard 10 C.F.R. § 50.47(b)(3) and (b)(10), *supra*); (2) the evacuation plans for schoolchildren (*see* discussion of Contention 3.7, *infra*); and (3) the completion and implementation of the public education program (*see* discussion of planning standard 10 C.F.R. § 50.47(b)(7), *supra*).

his review and evaluation of the evacuation time estimate studies prepared (1) by Parsons, Brinckerhoff, Quade & Douglas, Inc., for the Licensees, and (2) by CONSAD Research Corporation for FEMA. (Urbanik, ff. Tr. 1861.)

Evacuation time estimates for the plume exposure pathway emergency planning zone are required by 10 C.F.R. Part 50, Appendix E, § IV, and the criteria generally used for adjudging their adequacy are given in NUREG-0654, Appendix 4. The Licensees have provided an evacuation time estimate for the Indian Point plume exposure pathway EPZ; this study was prepared by the consulting firm of Parsons, Brinckerhoff, Quade & Douglas, and is entitled "Methodology to Calculate Evacuation Travel Time Estimates for the Indian Point Emergency Planning Zone." (Con Ed Ex. 10.) It estimates the times required to evacuate permanent residents, transients,<sup>87</sup> and special facility populations<sup>88</sup> in each emergency response planning area (ERPA) in Westchester, Rockland, Orange, and Putnam Counties under normal weather conditions and under adverse conditions at the following times: (1) night, (2) evening, (3) weekday — school in session, (4) weekday — school not in session, (5) weekend/holiday — summer daytime, and (6) weekend/holiday — winter daytime. (Con Ed Ex. 10, App. F.)

Evacuation time estimates for each population were also calculated by radial segment for the following scenarios: (1) school in session — normal weather, (2) school in session — adverse weather, (3) nighttime — normal weather, (4) nighttime — adverse weather. (Con Ed Ex. 10 at 46-49, Tables 13 to 16, reproduced here as Tables XIII to XVI. These times represent the time for the last vehicle in a sector to clear the sector boundary. (*Id.* at 45.)

### ***The Parsons-Brinckerhoff Methodology***

The evacuation time estimate methodology comprised four basic steps: (1) population identification and demand estimation;<sup>89</sup> (2) identification and evaluation of travel modes by which individuals exit from

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<sup>87</sup> Transients include employees not residing in the EPZ, people staying at hotels and motels in the EPZ, visitors to parks and recreational areas, and day and resident camps within the EPZ. (Con Ed Ex. 10 at 11.)

<sup>88</sup> Special facility residents include persons in hospitals and other health care facilities and nursing homes; schools — public and private, day care, nursery, elementary, middle and high; group homes, convents, and monasteries; and correctional facilities. (Con Ed Ex. 10 at 14 and App. B.)

<sup>89</sup> Estimates of the resident population, special facility population, and transient population were based on data prepared by the four counties in the EPZ, on data provided by the Tri-State Regional Planning Commission, on data from various Park Commissions, and from contacts with special facilities. (Con Ed Ex. 10 at 7-15; Parsons, ff. Tr. 11,773 at 9-10.)

**TABLE XIII**  
**Evacuation Travel Time Estimates by Sector**  
**School in Session Scenario**  
**Normal Weather**

Sector	Resident Population		Special Facilities	Transients
	With Autos	Without Autos		
	From - To	From - To	From - To	From - To
<b>2-Mile Radius</b>				
A	5:10 - 8:45	5:10 - 8:45	5:25 - 9:00	5:10 - 8:45
B	4:45 - 8:05	6:50 - 10:15	4:55 - 8:20	4:45 - 8:05
C	1:15 - 2:05	1:20 - 2:05	1:30 - 2:20	1:15 - 2:05
D	1:15 - 2:05	1:20 - 2:05	1:30 - 2:20	1:15 - 2:05
<b>5-Mile Radius</b>				
E	5:15 - 8:50	5:15 - 8:50	7:00 - 10:25	5:15 - 8:50
F	4:50 - 8:10	7:10 - 10:35	5:15 - 8:20	4:50 - 8:10
G	6:50 - 11:30	7:10 - 11:50	7:05 - 11:45	6:50 - 11:30
H	1:40 - 2:10	3:15 - 3:35	1:55 - 2:25	1:40 - 2:10
<b>10-Mile Radius</b>				
I	6:05 - 10:15	6:50 - 10:15	8:20 - 12:40	6:05 - 10:15
J	5:10 - 8:15	7:40 - 10:40	7:15 - 9:45	5:10 - 8:15
K	6:55 - 11:40	7:15 - 12:00	7:55 - 12:15	6:55 - 11:40
L	5:30 - 9:25	6:00 - 9:50	5:50 - 9:40	5:45 - 9:40
<b>360° EPZ</b>				
M	6:55 - 11:40	7:40 - 12:00	8:20 - 12:40	6:55 - 11:40

**Notes**

- (1) The evacuation travel time ranges presented in this Table are based on operational strategies indicated in the evacuation implementation procedures. Lower bound evacuation times (shorter times) can be anticipated when:
  - (a) Unexpected long-term capacity restrictions on key highway links owing to incidents such as accidents, vehicle breakdowns, and highway construction, do not occur.
  - (b) A high state of operational readiness (traffic control officers mobilized, traffic control devices operational, all buses stationed to begin their initial runs, etc.) is attained;
  - (c) An informed and cooperative public follow directions as instructed.
 Upper bound evacuation travel times (longer times) are representative of a situation where:
  - (a) Capacity restrictions adversely affect traffic flow, but not to the point where a breakdown in traffic flow would result;
  - (b) A low state of operational readiness results from minimal mobilization of the emergency workforce;
  - (c) A low degree of cooperation from the public occurs.
- (2) The evacuation travel time ranges are indicated as hours : minutes.
- (3) Normal weather conditions are considered to be clear sky and dry roadway pavement for the above scenario.
- (4) The population subgroups included in this Table are:
  - (a) resident population (with and without automobiles);
  - (b) special facilities (schools, colleges, nursing homes, hospitals, other health care facilities, residential facilities such as group homes, convents, and monasteries, and military installations);
  - (c) transients (employees, visitors to parks, resident and day camps, hotels, and motels).



**TABLE XIV**  
**Evacuation Travel Time Estimates by Sector**  
**School in Session Scenario**  
**Adverse Weather**

	Resident Population		Special Facilities	Transients
	With Autos	Without Autos		
<b>2-Mile Radius</b>				
A	10:55	10:55	11:10	10:55
B	10:00	12:25	10:15	10:00
C	2:30	2:35	2:45	2:30
D	2:30	2:35	2:45	2:30
<b>5-Mile Radius</b>				
E	11:00	11:00	12:40	11:00
F	10:05	12:45	10:20	10:05
G	14:20	14:40	14:35	14:20
H	2:35	4:15	2:50	2:35
<b>10-Mile Radius</b>				
I	12:40	12:40	15:25	12:40
J	10:15	12:55	11:55	10:15
K	14:30	14:50	15:10	14:30
L	11:40	12:05	11:55	11:50
<b>360° EPZ</b>				
M	14:30	14:50	15:25	14:30

**Notes:**

- (1) The evacuation travel time estimates presented in this Table are based on operational strategies indicated in the evacuation implementation procedures.
- (2) The evacuation travel times are indicated as hours : minutes.
- (3) Adverse weather conditions are considered to be a slippery roadway surface (e.g., due to snow or ice) and/or reduced visibility (e.g., due to fog or heavy rain) for the above scenario.
- (4) The population subgroups included in this Table are:
  - (a) resident population (with and without automobiles):
  - (b) special facilities (schools, colleges, nursing homes, hospitals, other health care facilities, residential facilities such as group homes, convents, and monasteries, and military installations).
  - (c) transients (employees, visitors to parks, resident and day camps, hotels, and motels).

**TABLE XV**  
**Evacuation Travel Time Estimates by Sector**  
**Nighttime Scenario**  
**Normal Weather**

Sector	<u>Resident Population</u>			
	<u>With Autos</u>	<u>Without Autos</u>	<u>Special Facilities</u>	<u>Transients</u>
	From - To	From - To	From - To	From - To
<b>2-Mile Radius</b>				
A	2:20 - 3:50	2:20 - 3:50	2:35 - 4:05	2:20 - 3:50
B	2:15 - 3:45	2:30 - 4:00	2:30 - 4:00	2:15 - 3:45
C	0:25 - 1:20	0:25 - 1:25	-	0:20 - 0:25
D	0:25 - 1:20	0:45 - 1:25	-	0:20 - 0:25
<b>5-Mile Radius</b>				
E	2:55 - 4:45	2:55 - 4:50	2:40 - 5:00	2:55 - 4:45
F	2:20 - 3:50	2:30 - 4:00	2:30 - 4:00	2:15 - 3:50
G	3:20 - 5:35	3:40 - 5:55	3:35 - 5:50	3:15 - 5:25
H	0:30 - 1:25	0:45 - 1:25	-	0:30 - 0:35
<b>10-Mile Radius</b>				
I	3:30 - 5:45	3:30 - 5:45	3:45 - 6:00	3:30 - 5:45
J	2:40 - 4:00	3:00 - 4:10	2:50 - 4:10	2:40 - 3:55
K	3:40 - 6:10	3:50 - 6:15	3:55 - 6:25	3:20 - 5:35
L	2:40 - 4:25	3:05 - 4:55	3:00 - 4:45	2:40 - 4:25
<b>360° EPZ</b>				
M	3:40 - 6:10	3:50 - 6:15	3:55 - 6:25	3:30 - 5:45

**Notes:**

- (1) The evacuation travel time ranges presented in this Table are based on operational strategies indicated in the evacuation implementation procedures. Lower bound evacuation times (shorter times) can be anticipated when:
  - (a) Unexpected long-term capacity restrictions on key highway links, owing to incidents such as accidents, vehicle breakdowns, and highway construction, do not occur;
  - (b) A high state of operational readiness (traffic control officers mobilized, traffic control devices operational, all buses stationed to begin their initial runs, etc.) is attained;
  - (c) An informed and cooperative public follow directions as instructed.
 Upper bound evacuation travel times (longer times) are representative of a situation where:
  - (a) Capacity restrictions adversely affect traffic flow, but not to the point where a breakdown in traffic flow would result;
  - (b) A low state of operational readiness results from minimal mobilization of the emergency workforce;
  - (c) A low degree of cooperation from the public occurs.
- (2) The evacuation travel time ranges are indicated as hours : minutes.
- (3) Normal weather conditions are considered to be clear sky and dry roadway pavement for the above scenario.
- (4) The population subgroups included in this Table are:
  - (a) resident population (with and without automobiles);
  - (b) special facilities (schools, colleges, nursing homes, hospitals, other health care facilities, residential facilities such as group homes, convents, and monasteries, and military installations);
  - (c) transients (employees, visitors to parks, resident and day camps, hotels, and motels).
- (5) Gaps in this Table indicate that there is no special facility in the given Sector.

**TABLE XVI**  
**Evacuation Travel Time Estimates by Sector**  
**Nighttime Scenario**  
**Adverse Weather**

	<u>Resident Population</u>		Special Facilities	Transients
	With Autos	Without Autos		
<b>2-Mile Radius</b>				
A	4:45	4:45	5:00	4:45
B	4:40	4:50	4:50	4:35
C	1:40	1:40	—	0:25
D	1:40	1:40	—	0:25
<b>5-Mile Radius</b>				
E	5:55	5:55	6:10	5:55
F	4:45	4:55	4:55	4:40
G	6:50	6:55	7:05	6:45
H	1:40	1:45	—	0:35
<b>10-Mile Radius</b>				
I	7:05	7:05	7:20	7:05
J	4:50	5:05	5:05	4:50
K	7:35	7:45	7:50	6:55
L	5:25	5:55	5:45	5:25
<b>360° EPZ</b>				
M	7:35	7:45	7:50	7:05

**Notes**

- (1) The evacuation travel time estimates presented in this Table are based on operational strategies indicated in the evacuation implementation procedures.
- (2) The evacuation travel times are indicated at hours : minutes.
- (3) Adverse weather conditions are considered to be a slippery roadway surface (e.g., due to snow or ice) and/or reduced visibility (e.g., due to fog or heavy rain) for the above scenario.
- (4) The population subgroups included in this Table are:
  - (a) resident population (with and without automobiles);
  - (b) special facilities (schools, colleges, nursing homes, hospitals, other health care facilities, residential facilities such as group homes, convents, and monasteries, and military installations);
  - (c) transients (employees, visitors to parks, resident and day camps, hotels, and motels).
- (5) Gaps in this Table indicate that there is no special facility in the given Sector.

the plume EPZ (modal splits);<sup>90</sup> (3) roadway evacuation capacity analysis; and (4) assigning traffic movement in accordance with demand, travel modes, and capacity. (Parsons, ff. Tr. 11,773, at 21-28.)

The principal controversy Intervenor raised with respect to methodology centered on Licensees' roadway evacuation capacity analysis. Intervenor's witness Morris testified that Parsons-Brinckerhoff misapplied the Highway Capacity Manual and inappropriately used levels of service D and E, instead of level of service F. (Morris, ff. Tr. 9726, at 1-2.) As explained below, however, the controversy is entirely semantic.

The Parsons-Brinckerhoff roadway capacity analysis disaggregates the evacuation routes<sup>91</sup> into links — each link representing a roadway segment with similar physical and operating characteristics or a portion of a route between other primary intersecting evacuation routes. (Con Ed. Ex. 10 at 28.) Each link is numbered and assigned a capacity — that capacity being a function of the number of lanes, lane width, shoulder width, location and timing of traffic controls, and posted speed limit. (*Id.*) Capacity is measured in vehicles per hour. (Tr. 1891.) This network of links and capacities is then used in the fourth step of the methodology; Parsons-Brinckerhoff used a computer model which, by means of a static assignment algorithm,<sup>92</sup> imposed demand (for each particular scenario) on the road network. The model loaded the network and computed travel and delay times. (Con Ed Ex. 10 at 41 and App. G; Urbanik, Tr. 1948, 1969-70.)

To determine the capacity of the links in the evacuation route network, Parsons-Brinckerhoff used the Highway Capacity Manual.<sup>93</sup> (Parsons, ff. Tr. 11,773, at 21.) The Highway Capacity Manual is the standard reference work for road capacities, (Urbanik, Tr. 1876-78), though its primary application is for road design. (Tr. 2010.) Parsons-Brinckerhoff adopted the maximum "service volume" (corresponding to "service level E") as the upper-bound base evacuation capacity during normal weather conditions, the "service volume" corresponding to "service level D" as a lower-bound base evacuation capacity during

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<sup>90</sup> It was estimated that 90% of the people other than schoolchildren would evacuate by automobile. (Parsons, ff. Tr. 11,773 at 23-24.)

<sup>91</sup> The plume exposure pathway EPZ is divided into 46 emergency response planning areas (ERPAs). (Con Ed Ex. 10, App. A at A-1.) To the extent possible, ERPA boundaries were defined to coincide with political and geographic boundaries familiar to the public. (Parsons, ff. Tr. 11,773, at 5.) Primary evacuation routes were identified for each ERPA. ERPAs were then subdivided into traffic zones along recognizable geographic and political boundaries. Each traffic zone, which represents a population cluster for a particular area loading onto a given roadway, was assigned a primary evacuation route for each mode of travel. (*Id.* at 16; Con Ed Ex. 10 at 26.)

<sup>92</sup> The static assignment procedure assumed instantaneous loading of the evacuation network and concurrent vehicular demand on all roadway segments. (Con Ed Ex. 10 at 41.)

<sup>93</sup> Highway Research Board, *Special Report 87: Highway Capacity Manual* (1965).

normal weather conditions, and 80% of the "service volume" corresponding to "service level D" as the capacity during adverse weather conditions. (Con Ed Ex. 10, App. E at E-1 to E-2.) These terms are explained below and were the cause of the controversy.

The Highway Capacity Manual establishes six levels of service, A through F.<sup>94</sup> They are, in effect, a measure of user-satisfaction. Service level A describes a situation of free flow, with low volumes and high speeds. Each subsequent level describes a greater volume, lower speed, and greater likelihood of interruption. Levels of service D, E, and F describe the following conditions:

Level of service D approaches unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions. Fluctuations in volume and temporary restrictions to flow may cause substantial drops in operating speeds. Drivers have little freedom to maneuver, and comfort and convenience are low, but conditions can be tolerated for short periods of time.

Level of service E cannot be described by speed alone, but represents operations at even lower operating speeds than in level D, with volumes at or near the capacity of the highway. At capacity, speeds are typically, but not always, in the neighborhood of 30 mph. Flow is unstable, and there may be stoppages of momentary duration.

Level of service F describes forced flow operation at low speeds, where volumes are below capacity. These conditions usually result from queues of vehicles backing up from a restriction downstream. The section under study will be serving as a storage area during parts or all of the peak hour. Speeds are reduced substantially and stoppages may occur for short or long periods of time because of the downstream congestion. In the extreme, both speed and volume can drop to zero.

(UCS Ex. 2.) Each level of service is defined by operating speed and volume-to-capacity ratio.<sup>95</sup> (*Id.*) If the actual operating speed drops below the operating speed associated with a particular service level or if the actual volume/capacity ratio goes to that corresponding to the next lower service level, the next lower service level applies. (*See* UCS Ex. 2, Fig. 4.1.) As a corollary, for any particular road segment there is a maximum volume corresponding to each service level; this volume is called the service volume.

Parsons-Brinckerhoff chose the service volume corresponding to service level E as the upper-bound base evacuation capacity during normal

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<sup>94</sup> Excerpts from the Highway Capacity Manual were marked as UCS Ex. 1, were the subject of considerable cross-examination, and portions were read into the record. (Tr. 1879, *et seq.*) UCS Ex. 1, however, was not admitted into evidence, and we have used it only to define the terms discussed by the witnesses.

<sup>95</sup> Volume is measured in vehicles per hour and measures the actual number of vehicles passing a particular road segment per unit time. Capacity measures the general maximum number of vehicles that can pass a particular road segment per unit time.

weather because at service level E, service volume equals capacity. Service level E describes that level of service at which the roads are taxed to or near capacity. In order to account for events that might reduce the capability of the roads to accommodate evacuating traffic under normal weather conditions — for example, a situation where some traffic control officers designated to monitor checkpoints were unable to fulfill their duties — Parsons-Brinckerhoff reevaluated the time estimates using reduced *capacities*. (Con Ed Ex. 10 at 30.) Pursuant to the advice of the New York State Department of Transportation, Parsons-Brinckerhoff adopted the service volume corresponding to service level D as the lower bound base evacuation *capacity* during normal weather. (*Id.*) In effect, the capacity of the roads was assumed to be reduced by a factor of 0.58 for two lanes, two-way roads; by a factor of 0.7 for four-lane and six-lane undivided highways; and by a factor of 0.9 to 0.95 for four-lane and six-lane divided highways. (*Id.*, App. E.)

Intervenors' witness Morris apparently concluded that, because Parsons-Brinckerhoff adopted service volumes for levels D and E as the upper and lower bound base evacuation capacities for the road links, Parsons-Brinckerhoff assumed that those road links will operate at service levels D and E. (See Morris, ff. Tr. 9726, at 2.) Morris asserted that that in fact many roads will operate at level of service F. (*Id.*) Apparently, Morris misperceived the use of the level D and E service volumes. Those service volumes were taken only to assign *capacities* to the road links. They were not used to assign average operating speeds. (Urbanik, Tr. 1994-95.) The speed at which evacuees will travel when capacity exceeds demand was determined by a formula contained in the Federal Highway Administration *Traffic Assignment Manual* (August 1973):

$$\text{Evacuation speed} = \frac{\text{Free-Flow Speed}}{0.25 \left[ \frac{\text{Demand}}{\text{Capacity}} \right]^4 + 1}$$

(for capacity > demand)

(Con Ed Ex. 10, App. G at G-3.) However, where demand exceeds capacity, the computer model assumes a queuing mode; vehicles are stacked up behind the bottleneck (service level F) and the road travel time is represented by the maximum link delay time incurred along the

route. (*Id.*, App. G at G-4; Urbanik, Tr. 1948-50; *accord* Podwal and Della Rocca, Tr. 11,835-36.)<sup>96</sup>

The Board concludes, therefore, that the criticism of Intervenors' witness Morris with respect to the Parsons-Brinckerhoff capacity analysis is unwarranted.

Morris raised several other issues with respect to the Parsons-Brinckerhoff methodology. First, Morris asserted that the methodology ignored traffic constraints at intersections; he advocated assigning time penalties to link nodes, depending on the number of vehicles that would be crossing or merging with the principal traffic flow. (Morris, ff. Tr. 9726, at 2.) Second, Morris asserted that the methodology failed to consider the inhibiting effect on traffic resulting from trucks and buses on rolling terrain. (*Id.* at 3.) Finally, Morris asserted that the Parsons-Brinckerhoff analysis ignored the effects of accidents and breakdowns. (Tr. 9764, 9792.) Morris did not, however, provide much elaboration.

Licensees' witnesses testified that they had not ignored the effect of intersections on traffic. They assumed orderly merging of traffic and modeled it accordingly. (Tr. 11,846-47.) This assumption is consistent with our finding with respect to contention 3.2, *supra*. Parsons-Brinckerhoff also reduced link capacity by 10% to account for the impact of vehicles trying to go through signalized intersections on primary evacuation routes. (Tr. 11,848.) The effect of intersections was also considered to the extent that Parsons-Brinckerhoff designated in the RERPs those locations where persons should be stationed to mitigate the effect of merging traffic. (Tr. 11,849.) Furthermore, Parsons-Brinckerhoff chose the specific traffic zone boundaries to minimize the amount of cross-traffic that could occur.<sup>97</sup> (Tr. 11,853-54.)

Parsons-Brinckerhoff also considered the effects of trucks and terrain. They considered the effects insignificant because of the slow and congested traffic conditions expected during an evacuation. (Con Ed Ex. 10, at 31.)

Finally, Parsons-Brinckerhoff did consider the possibility of accidents. In developing evacuation routes, Parsons-Brinckerhoff assumed normal two-way traffic, permitting emergency vehicles to enter the evacuating area and minimizing the possibility of a total blockage of a route (traffic could be diverted around that point in the opposing travel lanes). They

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<sup>96</sup> Total evacuation time consists of terminal time (the time to drive via feeder streets in a traffic zone to the first link of an identified evacuation route), roadway travel time (the time required for all vehicles to travel the entire length of their evacuation route and including delay), and round trip time (the time to travel to designated facilities and return to the evacuating area for as many trips as required, plus loading and unloading time). (Con Ed Ex. 10 at 41-43; Tr. 11,831-32.)

<sup>97</sup> See note 91, *supra*.

also selected backup evacuation routes for portions of the primary evacuation network likely to become a bottleneck. (Con Ed Ex. 10 at 27.) Licensees' witnesses also pointed out that specific provisions in the RERP exist to keep evacuation routes free from impediments (Parsons Supp., ff. Tr. 11,774, at 7-8) and that serious accidents were unlikely because of the slowness of the evacuating traffic. (Podwal, Tr. 11,939. See also Urbanik, ff. Tr. 2032-33.)

Accordingly, the Board finds Morris' assertions with respect to methodology refuted by the Parsons-Brinckerhoff testimony and the discussion contained in the Parsons-Brinckerhoff study itself. Moreover, although we recognize that there is uncertainty with respect to the estimates — as indeed there is with any complex estimate — Licensees' estimates sufficiently inform decisionmakers of the uncertainty. They do so by providing a range of evacuation time estimates, and the range is considerable.

By choosing as the reduced capacity of evacuation routes the service volume associated with service level D, Parsons-Brinckerhoff has assumed more than a 40% reduction in the capacity of two-lane roads under less than ideal conditions; and two-lane roads comprise the majority of the evacuation routes. (See Con Ed Ex. 10, App. D.) As a result, the normal weather/school in session evacuation time estimate for the entire EPZ is increased from 6 hours and 55 minutes to 11 hours and 40 minutes. See Table XIII, *supra*. We find that the range more than adequately compensates for the uncertainties in the methodology.<sup>98</sup>

### ***The Parsons-Brinckerhoff Assumptions***

Licensees' witnesses testified that evacuation time estimates contain a number of conservative assumptions. In particular, the evacuation travel times are for the *last* person leaving the EPZ; certain populations (such as persons both residing and working in the EPZ) are double counted; zero absenteeism in school is assumed; the weekend/holiday — summer daytime scenario assumes peak park attendance; roadways are assumed to operate in their normal fashion, with no lane reversals; no ridesharing is assumed; bus capacity ignores standing room; and all traffic is assumed

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<sup>98</sup> In accepting the Parsons-Brinckerhoff methodology, which does not explicitly model the effect of accidents, we must stress that we are not concluding that accidents will not occur. On the contrary, serious accidents should be anticipated, particularly at the start of an evacuation when high-speed travel is still possible. We are not convinced, however, that it is practical or possible to model such accidents. In view of the accident mitigation provisions incorporated in the emergency plans, we believe that Parsons-Brinckerhoff's reduction in capacity to model incidents that would reduce evacuation rate is reasonable.



to travel on the primary evacuation routes. (Parsons, ff. Tr. 11,773, at 32-35.)

The only substantial issue raised with respect to the assumptions (other than human response assumptions discussed under contention 3.2) centered on the severity of the weather conditions assumed for the adverse weather scenario. Intervenor's witness Morris advocated a "worst case" scenario. (Morris, ff. Tr. 9726, at 3.)

Clearly, the Licensees have not calculated a "worst case" estimate. Their adverse weather scenario assumes "reduced visibility (e.g., due to fog or heavy rain) and/or slippery roadway surface (e.g., due to snow or ice)." (Con Ed Ex. 10 at 93; Parsons, ff. Tr. 11,773, at 28-29.) They did not, however, consider a severe winter storm which could render roadways impassable for many hours. (See our discussion of Contention 3.6, *infra*). NUREG-0654, to which we turned for guidance, states as follows:

Adverse conditions would depend on the characteristics of a specific site and could include flooding, snow, ice, fog, or rain. The adverse weather frequency used in this analysis shall be identified and shall be severe enough to define the sensitivity of the analysis to the selected events. These conditions will affect both travel times and capacity. More than one adverse condition may need to be considered.

The Licensees' estimates do account for the effect of slippery roads on travel times and capacity. But we do not think slippery roads are the only winter adversity that needs to be considered.

Licensees' witnesses testified that the adverse weather scenario considered weather conditions "typical of those frequently found in the EPZ. . . ." (Parsons Supp., ff. Tr. 11,773, at 8.) That is no doubt true, and we believe that slippery road conditions are an appropriate element of the evacuation time estimates. But in addition to slippery roads, we have personally observed, while in Westchester and Rockland Counties during this proceeding, snow and icing conditions which made roadway travel virtually impossible. (See discussion of Contention 3.6, *infra*.) We believe such a scenario requires further consideration, because we do not believe we were observing rare events.

The extent to which consideration has been given to the effect of severe winter storms on evacuation time was indicated by Staff witness Urbanik, who testified that the decisionmaker could use the Parsons-Brinckerhoff adverse weather estimate by adding the amount of time necessary to clear the roads. (Urbanik, ff. Tr. 1861, at 7.) This approach, in our view, is unacceptably simplistic. Therefore, we make the following recommendations.

First, so that decisionmakers will clearly understand that, given severe winter storm conditions, they will need to perform an addition to

the evacuation time estimates, it should be clearly stated in the adverse weather tables in the evacuation plans that the estimates do not consider time needed to clear the roads. Second, it should be clearly stated that the time to be added is the time that would be required to clear *all* lanes of all roads; otherwise, the base adverse estimates will be invalid.

### ***Verification***

Contention 3.3 alleged that the Parsons-Brinckerhoff methodology was unverified. Intervenors have not pursued this allegation, and the allegation is completely refuted by the record. Parsons-Brinckerhoff verified their static model by subsequently using a dynamic state of the art model. The results of the comparative analysis showed on an aggregate basis a greater than 96% correlation for the test routes in Westchester and Rockland Counties. (Con Ed. Ex. 10, at 41 and App. G at G-5 to G-9; Parsons, ff. Tr. 11,773, at 27-28.) The evacuation capacities computed were further substantiated by actual travel volume data obtained from the New York Department of Transportation. (Parsons, ff. Tr. 11,773, at 25.) And the basic methodology used by Parsons-Brinckerhoff was a sequential method, described as acceptable in NUREG-0654. (Urbanik, ff. Tr. 1861, at 5.)

Furthermore, FEMA has verified the Parsons-Brinckerhoff methodology. An independent study performed for FEMA by CONSAD Research Corporation produced estimates that differed significantly from the Parsons-Brinckerhoff estimates in only two scenarios, and in those two scenarios, the Parsons-Brinckerhoff time estimates are longer. (Urbanik, ff. Tr. 1861, at 3-9; Parsons, ff. Tr. 11,774, at 36.)

### ***Conclusion***

Based on the foregoing, we conclude that the evacuation time estimates presented by Parsons-Brinckerhoff are based on acceptable, verified methodology, and on reasonable assumptions with respect to normal weather conditions and moderately adverse weather conditions. We find the treatment of severe winter weather to be inadequate in that the tables giving evacuation times do not account for the time needed to clear snow off impassable roads. We recommend that a note be added to the tables, advising decisionmakers that such additional time must be taken into consideration in an evacuation.

## **L. Contention 3.4: Notification**

This contention was sponsored by RCSE and WESPAC and reads as follows:

The administrative control of notification procedures at Indian Point Units 2 and 3 is so deficient that the Licensees cannot be depended on to notify the proper authorities of an emergency promptly and accurately enough to assure effective response.

A number of parties litigated this contention, which stemmed from an alleged history of inadequate notifications of incidents occurring at both of Indian Point's facilities.<sup>99</sup>

### ***Summary of Significant Testimony***

Intervenors' witnesses testified that on four occasions, news of malfunctions at Indian Point were broadcast by a radio station in Rockland County from one to five days after the event occurred, and although no record was kept of the time that news items were received, it was not the station's policy to delay newsworthy items. (Le Moullec, ff. Tr. 9665, at 2-3.) There was testimony that a release of radioactive gas in March 1982 was not reported to the County Executive's Office for more than two hours after the release was discovered and after the release was stopped (Indusi, ff. Tr. 10,443, at 1); and also that the NRC was not notified of a 100,000 gallon water leak in 1982 until three days after it occurred. (Ancona, ff. Tr. 10,781, at 3.)

Westchester County's witnesses testified that there was a delay, during the March 1982 drill, in receiving data from the nuclear facility on dose projection calculations. In order to ensure the earliest possible warning to public officials, County representatives stated that either a reliable monitoring system should be developed or a public representative should be in the control room to ensure emergency notifications to public officials. (Curran, ff. Tr. 5043, at 3; Del Bello, Tr. 6020.) Rockland County's witnesses also testified to an inadequate notification of a steam generator leak that occurred in March 1982. (D. McGuire, Tr. 3988-93.)

The Power Authority's witnesses testified that the experience in Orange County has been that Licensees could be depended upon to

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<sup>99</sup> Parties and witnesses included Intervenors (Le Moullec, Indusi, Elliot, and Ancona), Power Authority (Brons, Lomonaco, Quinn, Schmer and Scalpi), Con Ed (L. Cohen, Jackson, Liebler and Monti), Staff (Sears), FEMA (McIntire, Husar, Keller, Kowieski), Westchester County (Del Bello, Curran), Rockland County (D. McGuire).

report responsibly even minor incidents (Schmer, Tr. 12,114), and that onsite emergency plans contain procedures and requirements to ensure an efficient response to an emergency including a list of authorities that must be notified. (PA Onsite Testimony, ff. Tr. 11,679, at 11-14. *See also* PA Ex. 43, Emergency Plan Procedures Document, App. A.) They also testified that local authorities have been provided computer terminals to enable them to access the onsite Meteorological Information and Dose Assessment System (MIDAS) and obtain relevant data on a 24-hour basis. (Schmer, Tr. 12,115. *See also* J. McGuire, Tr. 3795.)

Con Ed's witnesses testified that there was a history of plant personnel regularly notifying government officials of abnormal conditions, but that, because of notification delays occurring in recent years, administrative procedures have been changed to require reporting of a lower threshold of events. One witness stated that operating personnel were trained in the revised procedures. (Jackson, Tr. 11,746-54.) He indicated that although water in the containment building occurs by design, at the time of the 1980 flooding incident there were no indicators or level alarms to show how much water had entered the area. Since then, Con Ed has installed detector equipment and cameras so this situation can be monitored from the control room. (Jackson, Tr. 11,752-53.)

Staff witnesses testified that: Licensees have established emergency plan procedures (Con Ed Procedure IP-1002 and PA Procedure IP-1030) to provide for initial and follow-up notifications to Federal, State, local, and company offsite emergency organizations when any of the four emergency classes are declared (Sears, ff. Tr. 12,244, at 14); and the Licensees have provided both a primary and backup means for communicating with the principal offsite response organizations (Sears, ff. Tr. 12,244, at 18-19). He indicated that procedures of both Licensees provide prompt and accurate notification to State and local officials within 15 minutes of the declaration of an emergency classification, with initial information on the release of any radioactivity, meteorological data, and any recommended protective actions. Such notification is transmitted over a dedicated party "hot line," the Radiological Emergency Communication System (RECS). (Sears, ff. Tr. 12,244, at 14-15, and 49-50.) The Licensees' shift supervisors were interviewed by Staff and showed an understanding of emergency notification procedures and their responsibility for implementing them. (Sears, ff. Tr. 12,244, at 50.) The Staff's witness stated that a review of the NRC's Incident Response Center log books revealed that for the past three years, Licensees had made over 240 reports, all within one hour of their occurrence, and some within five minutes. The impression received from NRC Incident Response Center staff was that Indian Point personnel report more

quickly and completely than those of any other plant in the country. (Sears, Tr. 12,374-77.) The witness concluded that Licensees' notification procedures conform to NRC regulatory requirements in 10 C.F.R. Part 50, App. E, § IV.D.3, as well as the criteria of NUREG-0654, App. 1.

Witnesses from FEMA provided a Post-Exercise Assessment of the full-scale exercise of emergency planning performed on March 9, 1983 at Indian Point. This assessment revealed that there was a 30-60 minute delay in notifying officials of the declaration of an alert. This deficiency was considered important because the new proposal to dismiss students early may be initiated at the declaration of an alert. (McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 19.) FEMA officials revealed they were uncertain of the source of the delay. (McIntire, *et al.*, Tr. 15,065.)

### ***Conclusion***

The deficiencies in administrative control of notification procedures during emergencies at nuclear-powered generation facilities must be evaluated against the standards, requirements and criteria contained in 10 C.F.R. § 50.47(b)(5), Appendix E, § IV.D.3 of Part 50, and NUREG-0654, FEMA-REP-1, Revision 1, Appendix 1. These precepts are intended to assure that Licensees will promptly inform State and other governmental authorities of the nature of potential radiological emergencies. This contention and the testimony from Intervenors and witnesses from Rockland and Westchester Counties show that Intervenors lack confidence that the plant operators will activate emergency notification procedures. Their concern over relying on an exercise of sound judgment by Indian Point officials in the event of an emergency stems from prior non-reported or late-reported incidents. Where time is of the essence in an emergency, the past may be prologue, they claim. However, the evidence appears to weigh against this claim.

First of all, no evidence was submitted that Licensees have not complied in their emergency response plans with NRC's regulatory requirements on notification of government officials about an emergency. In fact, the unchallenged testimony is that the Licensees have adopted proper procedures to provide for prompt notification; within a 15-minute period, a reliable system of communication provides 18 parties, including the State and four counties, with relevant information on emergencies.

The Board is concerned with the lack of a sufficient explanation in the record for the delay in notifying local officials of a 1980 flooding incident

in Unit 2 and a March 24, 1982 steam generator leak in Unit 3. No adequate reasons were provided why local officials were not informed promptly of these events; instead the Board was advised that Con Ed has changed its reporting procedures and now notifies offsite authorities of even minor events occurring at the site.

New York State officials testified that the record of both Licensees in reporting necessary information to the State and counties had shown consistent improvement (Davidoff/Czech, ff. Tr. 11,313, at 11) and the former Westchester County Executive also indicated satisfaction with improved level of notification (Del Bello, Tr. 5897-99). In its assessment of the most recent exercise (March 9, 1983) of Indian Point's emergency plans, FEMA noted a delay in notifying State and local authorities of the designation of an "alert" level emergency classification. FEMA revealed a lack of knowledge concerning the cause for the delay and, although indicating an intent to look into the matter, has not to date advised the Board of its findings on this matter. (McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 19; Tr. 15,107-08.) As a precaution against some deficiency not being uncovered, we recommend that the Commission request a report on this incident from the Staff.

The Board, despite the unresolved matter above, accepts the testimony supplied by the Staff, and representatives of the State, Orange, Putnam, and Westchester Counties that Licensees' notification procedures are adequate and improving. The communication system for both Licensees includes a public address paging system on site, dial phones, direct-line phones, in-plant audible alarms, a radio system, a radio paging (beeper) system, a National Warning System (NAWAS) line to the county and State warning points and the City of Peekskill, an NRC Emergency Notification and NRC Health Physics Network, a Radiological Emergency Communications System (RECS), and a dedicated hot line between the two reactor control rooms, emergency response facilities, and State and county warning points. (Sears, ff. Tr. 12,244, at 19. *See also* PA Onsite Testimony, ff. Tr. 11,679, at 14.) The Staff's testimony that the Licensees' procedures specify monthly communication checks between the Licensees, State, and local governments, that Indian Point has an unsurpassed record of reporting events to the NRC, and the Licensees' recent policy of reporting even minor events provides the Board with an acceptable degree of confidence that Indian Point's reporting procedures conform to regulatory requirements. Therefore, we conclude that this contention has not been sustained.

## M. Contention 3.6: Meteorological Conditions

Contention 3.6 reads as follows:

The emergency plans and proposed protective actions do not adequately take into account meteorological conditions for Indian Point Units 2 and 3.

This contention, as originally drafted, was advanced by UCS/NYPIRG as their contention I(B)(3). As the Power Authority correctly points out, the bases for the contention indicate that the Intervenor's principal concern involves the adequacy of emergency plans and protective actions under certain meteorological scenarios. (PA PF at 371.) Specifically, the bases address the adequacy of evacuation and sheltering as protective measures when precipitation occurs during a release of radioactivity, during inversions or other adverse meteorological conditions, and during snow or icing conditions. In addition, the Intervenor contended that the emergency plans do not account for the effects of topography on meteorology in the area around Indian Point. (Contentions of Joint Intervenor's Union of Concerned Scientists and New York Public Interest Research Group, December 2, 1981, at 23-26).

Testimony directed toward and/or relevant to Contention 3.6 was submitted by two panels of witnesses presented by the Licensees: John C. Brons, Linda Lomonaco, and Dennis Quinn for the Power Authority; and Lester A. Cohen, Charles W. Jackson, George Liebler, and William A. Monti for Con Edison; these witnesses testified with respect to the meteorological monitoring capability of the Indian Point Station and the meteorology of the Indian Point/Hudson Valley area. (PA Onsite Testimony, ff. Tr. 11,679; Con Ed Onsite Testimony, ff. Tr. 11,713; see also L. Cohen, ff. Tr. 15,197.) In addition, Licensees' testimony from Parsons, Brinckerhoff, Quade & Douglas, Inc., is relevant to Contention 3.6 (Parsons-Brinckerhoff Supp., ff. Tr. 11,773), as is the testimony of Philip Schmer, who was subpoenaed by the Power Authority. (Tr. 12,063 *et seq.*) Staff testimony on Contention 3.6 was presented by John R. Sears, who testified with respect to the meteorological capability at Indian Point, and by Sheldon A. Schwartz, who testified with respect to the weather conditions accounted for by the emergency plans at Indian Point. (Schwartz, ff. Tr. 12,244.) Intervenor's witnesses who presented testimony relating to Contention 3.6 included: Daniel Gutman for UCS/NYPIRG and NYC Council, who testified with respect to certain aspects of the meteorology of the Indian Point/Hudson Valley area;<sup>100</sup>

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<sup>100</sup> We have already reviewed witness Gutman's testimony in our consideration, *supra*, of Commission Question 1, Board Question 1.1, and Contention 1.1. All testimony regarding wind patterns of the Indian Point/Hudson Valley area was considered at that time.

Frank C. Bohlander for Westchester County, who testified with respect to winter storms; and Myles Lavelle for RCSE and WBCA, who testified with respect to winter storms. Finally, the FEMA panel of witnesses, consisting of Roger Kowieski, Philip McIntire, and Joseph H. Keller, testified with respect to protective actions during winter storms in response to Board questions. (Tr. 15,118 ff.)

### ***Meteorological Monitoring Capability***

The applicable guidance with respect to meteorological monitoring is contained in NUREG-0654, FEMA-REP-1, Revision 1; it calls for each Licensee to have the capability of acquiring and evaluating meteorological information sufficient to meet the criteria of Appendix 2 of NUREG-0654. (Sears, ff. Tr. 12,244, at 51.)

There are three meteorological towers on site: a primary 122-meter tower instrumented at the 10-meter, 60-meter, and 122-meter levels; a secondary backup tower which also complies with NRC Regulatory Guide 1.23 and NUREG-0654, Revision 1; and a third, 10-meter tower which serves as a backup to the secondary tower. (PA Onsite Testimony, ff. Tr. 11,679, at 24-26; Con Ed Onsite Testimony, ff. Tr. 11,713, at 20-22; Con Ed Supp. Onsite Testimony, ff. Tr. 11,713, at 2; Sears, ff. Tr. 12,244, at 51.) These towers provide real-time meteorological data to the Control Room and to the Emergency Operations Facility (EOF). (*Id.*) Data from the towers are processed by a Meteorological Information Dose Assessment System (MIDAS) computer, which calculates real-time dose rates for the territory downwind from the plant. (*Id.*)<sup>101</sup> In addition, windsets, capable of monitoring and recording wind direction and speed, are located at distances of from one half to two miles from the plant in each of 16 meteorological wind sectors around the site; data from these instruments are also transmitted to MIDAS. (PA Onsite Testimony, ff. Tr. 11,679, at 24-25; Con Ed Onsite Testimony, ff. Tr. 11,713, at 16, 21; L. Cohen, Tr. 11,718-19.) Further, a 24-hour weather forecast from an independent weather service under

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<sup>101</sup> In addition to the MIDAS system, an Atmospheric Release and Advisory Capability (ARAC) system is available to the Indian Point plants on an experimental basis for dose assessment, plume transport, and atmospheric diffusion calculations, using data from the primary onsite meteorological tower. The ARAC system is capable of showing a three-dimensional wind field of the surrounding area and graphically displaying plume movement and concentration. The New York State Radiological Health Office in Albany, NY, has the ARAC system and can access meteorology and plume and dose predictions for the Indian Point area. (PA Onsite Testimony, ff. Tr. 11,697, at 26-27; Con Ed Onsite Testimony, ff. Tr. 11,713, at 23.) We are not giving any credit to this system, however, because its availability after 1983 is uncertain. (Lomonaco, Tr. 11,693-94.)



contract to the Licensees provides hourly wind speed, wind direction, atmospheric stability, and precipitation forecasts for the Indian Point area. Finally, offsite real-time meteorological data can be obtained from a 100-meter tower located at the Orange and Rockland utilities Bowline plant in Haverstraw, NY, about four miles south of Indian Point, and also from the National Weather Service stations within a 50-mile radius of Indian Point. (PA Onsite Testimony, ff. Tr. 11,697, at 24-25; Con Ed Onsite Testimony, ff. Tr. 11,713, at 21-23.)

We believe that the meteorological monitoring facilities just described provide ample capability for the Licensees to predict the plume pathway and movement in the event of a serious accident at Indian Point. Therefore, the county and State officials responsible for ordering protective action should have available adequate meteorological information to enable them to initiate appropriate protective measures in the event of a serious accident.

### ***Offsite Emergency Plans: Accounting for Severe Winter Storms***

Being able to accurately monitor and forecast meteorological phenomena does not in itself, however, provide all the assurance needed that the emergency plans, themselves, have adequately taken into account the full range of meteorological conditions that can be expected at Indian Point. More particularly, as we have already indicated, we do not believe that sufficient consideration has been given to severe winter storms. The evacuation plans and time estimates of the Licensees' contractor, Parsons, Brinckerhoff, Quade & Douglas, Inc., account for both normal and adverse weather (Parsons-Brinckerhoff). (Parsons, ff. Tr. 11,773, at 20.) But the adverse weather conditions factored into the evacuation time estimates of Parsons-Brinckerhoff were a slippery roadway surface because of snow or ice and/or reduced visibility because of fog or rain, on the basis of which reduced traffic flows were used in modeling evacuation times. (*Id.* at 28-29.) For the winter storm situation, Parsons-Brinckerhoff assumed that roads would be cleared of snow and/or sanded before evacuation would begin; after the roads were cleared, evacuation would proceed, using roadway capacity calculations based on a modest reduction in traffic lane widths.<sup>102</sup> (Della Rocca, Tr. 11,946-47.) But the evacuation time estimates did not take into account situations in which significant amounts of snow and/or ice were still on

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<sup>102</sup> To illustrate what we mean by "modest reduction in traffic lane widths," witness Della Rocca testified that a 10-foot lane would be reduced to nine feet to account for snow on the shoulder of the roadway. (Tr. 11,947.)

the roadways, or in which entire traffic lanes were blocked by vehicles that had become stuck and/or abandoned or by piles of snow left by snow plows.<sup>103</sup> (*Id.*) The Director of Public Works for Westchester County, who is responsible for snow removal operations on county roadways, testified that six to eight inches of snow resulted from an average winter storm. (Bohlander, Tr. 5764.) Under such conditions, it generally takes four to six hours to clear the snow from Westchester County's main roadways. (Tr. 5765, 5768.) If temperatures are very low (below about 20°F) and there is snow with wind, road crews cannot keep the roads clear; vehicles get stuck, traffic backs up, and road crews are prevented from plowing because of the stalled vehicles. (Tr. 5765; Lavelle, ff. Tr. 10,160, at 2.) Stalled vehicles are a widespread phenomenon during heavy snows in the vicinity of Indian Point, as elsewhere. (Lavelle, ff. Tr. 10,160, at 2; Schmer, Tr. 12,197; Sears, Tr. 12,342-43.)

The extent to which protective action and emergency plans have taken into account severe winter storms of the sort we have just been discussing is indicated, apparently, in the testimony of Staff witnesses Schwartz and Sears. Witness Schwartz simply indicated, in his prepared testimony on Contention 3.6, that it was the Staff's position that the emergency plans and proposed protective actions for Indian Point "take into account both fair and adverse weather conditions." (Schwartz, ff. Tr. 12,244, at 2.) Witness Sears testified in greater detail, both in his prepared testimony as well as in response to Board questions. He acknowledged that adverse weather may increase the time required for evacuation or might make evacuation impossible. (Sears, ff. Tr. 12,244, at 53-54.) Under such circumstances, the only protective action possible would be sheltering. Sears suggested that more specific shelter options "might be broadcast," such as recommendations to employ *ad hoc* respiratory protection or to take shelter in a basement. (*Id.*; Sears, Tr. 12,342.) FEMA witness Keller agreed with Sears, that impassable roads during a winter storm would make sheltering the only available protective action. (Keller, Tr. 15,119.)

Witness Sears testified that a radiological accident immediately following a severe snow or ice storm, which had rendered roads impassable, would probably be more of a problem than a radiological accident during a storm. (Sears, Tr. 12,342.) If a radiological accident were to occur during a storm, the radioactive material released would probably be deposited by precipitation close to the plant. (*Id.*) In response to a Board request for more information on the effect of snowfall on plume

<sup>103</sup> This Board experienced all of these roadway conditions during winter storms while in Westchester and Rockland Counties for this proceeding. (Tr. 530, 11,947, and 12,341-42.)

dispersion, Staff witness Blond testified with respect to the current state-of-the-art in modeling precipitation of radioactive material from a plume by snow. (Blond, Tr. 12,953 ff.) There are very little data on the effect of snow as a precipitator of radioactive material. (Blond, Tr. 12,954.) Consequently, snow is modeled as though it were rain. (*Id.*) Staff currently believes, based on observations made during the Ginna steam generator tube rupture accident, that radioactive steam released into very cold air would form into snow and self-rain-out. (Tr. 12,954, 12,957.) This phenomenon is poorly understood at present but is under active investigation by the Staff. (Tr. 12,956.) Also, dispersion of radioactive releases in snowstorms is being investigated actively in the Scandinavian countries. (Tr. 12,957.) The extent to which snow would precipitate out radioactive plume material depends on a number of factors, such as rate of snowfall, wind, and moisture content of the snow. (Tr. 12,957.) Witness Blond believes that wind could carry radioactive snow for fairly large distances. (*Id.*) Snow could also produce local hot spots downwind of the release point, just as rain does. (Tr. 12,958-59.) Hot spots can significantly increase the chance of early health effects. (*Id.*) For a sheltering population, radioactive snow on roofs could increase the exposure of individuals. (Sears, Tr. 12,343.)

### **Conclusion**

We believe that severe winter storms, which are not uncommon in the vicinity of Indian Point, have been given insufficient consideration in the emergency planning for the Indian Point plants. No mention of protective actions during severe weather is contained in the Indian Point emergency brochure. (WBCA Ex. 1.) Staff suggested that emergency broadcasts in the event of an accident during or immediately following a winter storm which rendered roads impassable "might" suggest *ad hoc* respiratory protection or sheltering in basements. But there is no indication that any systematic thought and careful consideration has been given to these possible actions. We know that a snowstorm could lead to hot spots in the vicinity of the plants. If snowfall does cause hot spots, what are the implications of that circumstance with regard to the protection of the public and of emergency workers?

In conclusion, we find the contention that emergency plans and protective actions do not adequately take into account the full range of meteorological conditions for Indian Point to be valid. Therefore, we recommend that the Commission direct the Staff to determine, in consultation with FEMA and local officials, whether special emergency planning measures and protective actions should be put in place to protect the public in the event of a severe accident during a severe winter storm.

## N. Contention 3.7: Evacuating Children

This contention, sponsored by Parents, reads:

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

The issues presented by this contention were testified to by a large number of witnesses, and particularly by those sponsored by Parents.<sup>104</sup> We summarize the evidence below.

### *Summary of Significant Testimony*

Intervenors' witnesses testified that reception centers had not been supplied with food, water, blankets, or medicine (Wishnie, ff. Tr. 9820, at 2) and that neither school officials nor responsible individuals at reception centers had been provided with adequate information on their evacuation responsibilities. (Siegel, ff. Tr. 9898, at 2; Iurato, ff. Tr. 9898, at 2.) Many witnesses testified that parents will go directly to school rather than wait for their children to be transported to evacuation centers. (*See, e.g.*, Daughy, ff. Tr. 9898, at 1; Stipulation #6, ff. Tr. 11,670.) An expert in child psychiatry stated that in order to limit emotional problems and other trauma resulting from emergencies, children should be evacuated with their parents. (Solnit, Tr. 10,459, at 1-4.) There was testimony on special evacuation problems at group homes for retarded children, nurseries, after-school classes, church-school classes, scout camps, etc., and it was alleged that these problems have not been recognized and provided for in emergency planning. (Burnham, ff. Tr. 9997, at 1; Co, ff. Tr. 9997 at 3, 5, 7; Kesselman, ff. Tr. 10,001, at 2; Wayne, ff. Tr. 10,388, at 1; Hare, ff. Tr. 10,038, at 1-2; Awalt, ff. Tr. 10,524, at 2; Gunn, ff. Tr. 10,702, at 1; de Ward, ff. Tr. 10,753, at 1.) There were also repeated opinions that a revised option plan for sending children home early instead of evacuating buses directly from school was unworkable because parents might not be at home. (Roden, ff. Tr. 10,868; Indusi, Tr. 10,418; Ziegler, Tr. 10,711; Sekelsky, Tr. 10,417.)

A Westchester County official commented on the traffic problems inherent in the school's evacuation plan. (Jurkowski, ff. Tr. 5212, at 7.)

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<sup>104</sup> Parties and witnesses included: Intervenors (Wishnie, Siegel, Daughy, Solnit, Burnham, Co, Kesselman, Wayne, Hare, Awalt, Gunn, de Ward, Roden, Indusi, Ziegler, Sekelsky); Westchester County (Jurkowski, O'Rourke); Rockland County (Scharf, McGuire); Licensees (Podwal, Della Rocca, Rosenblatt, Scalpi, Schmer, Lecker); New York State (Davidoff, Czech); Staff (McIntire, Husar, Keller, Kowieski).

The new County Executive proposed an optional plan to send schoolchildren home at an earlier (alert) stage in the event of an emergency; he stated that school officials in the county had endorsed the proposal and that school plans now in effect ensured that someone will take responsibility for children who are sent home. (O'Rourke, ff. Tr. 11,520, at 2; Tr. 11,526-27.) The early dismissal plan was simulated during the March 9, 1983 drill. (O'Rourke, Tr. 11,529.)

Rockland County's witnesses testified that the County does not have an emergency evacuation plan for schools because the original plan has been rejected by its Legislature, but the County subsequently indicated that it would develop a plan. (Scharf, Tr. 11,169-72.) A top official indicated that the County could evacuate people, if necessary, and that a plan would be produced by the end of calendar year 1983. (McGuire, Tr. 11,015-17.)

The Licensees' witnesses (consultants from Parsons-Brinckerhoff) testified that the local radiological emergency response plans (RERPs) give priority to the evacuation of schoolchildren to reception centers outside the EPZ. There, the children are to be picked up by their parents. Since school is in session for less than 20% of the time, the consultants stated, this procedure would not be required for 80% of the year. (Parsons Supp., ff. Tr. 11,774, at 15.) The early dismissal plan is implementable, but has not been modeled yet. (Parsons, *et al.*, Tr. 11,906.) An official from Putnam County stated that the option of sending children home by an early dismissal has always been in the plan (Scalpi, Tr. 12,118), and an official from Orange County estimated that early dismissals have been used in his County more than 20 times in the last five years. (Schmer, Tr. 12,120.) The two officials also testified that there have been no problems with reception care centers serving Putnam and Orange Counties. (Scalpi/Schmer, Tr. 12,122-23.) Finally, Licensees presented an expert who testified that children generally react better than adults in stressful situations because they look to adults (who need not be their parents) with confidence. Children also utilize "optimistic anticipation" and assume a pleasant solution to any crisis. (Lecker, ff. Tr. 11,966, at 4-6.)

New York State witnesses testified that local emergency plans and procedures address the special problems of children in adequate fashion. (Davidoff/Czech, ff. Tr. 11,313, at 13.) The proposal to evacuate children at an earlier stage originated in Westchester's need to have buses available for other evacuations. (Davidoff, Tr. 11,386.) It was the State's view that the plan for early dismissal was not only tested during the March 1983 exercise, but was being considered for implementation. (Davidoff/Czech, Tr. 11,387-90.) The NY State witnesses asserted that

under State education law, families are supposed to file instructions with school districts in the event parents are not home for an early release. (Davidoff/Czech, Tr. 11,464.) The State believes that sending children home earlier should improve the ability to evacuate children by making the plan more efficient. (Davidoff/Czech Supp., ff. Tr. 11,313, at 5, 9.)

The FEMA witnesses testified that sufficient emergency supplies generally are available for a few days at school reception centers and resupply of these facilities would, in the case of an emergency, be almost routine. (McIntire, *et al.*, ff. Tr. 1307, at 35.) FEMA officials confirmed that the early dismissal plan was simulated during the March 9, 1983 exercise (McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 29), and stated that emergency response personnel at reception centers appeared to be well trained in their responsibilities. (McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 31, 50, 56.) The FEMA witnesses also testified that schools, nursery schools, and special facilities including nursing homes and hospitals were equipped with tone alert radios, which spot checks revealed worked well. (McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 27, 54.) In Rockland County, FEMA asserted that owing to the absence of detailed evacuation plans and procedures in the State's compensating plan, the protective response capability could not be measured against a plan. (McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 43.) In Orange County, the capability to evacuate the general population was successfully demonstrated during the exercise (*id.* at 49) and in Putnam County, FEMA concluded, actions to protect the public (during the exercise) including evacuation and activation of reception centers, were also considered generally good. (*Id.* at 56.) Rockland County voted not to participate in the March 9, 1983 exercise. (*Id.* at 34.)

### **Conclusion**

The controversy surrounding the evacuation of schoolchildren is understandable and important. To begin with, the Board is not convinced by Intervenors' testimony that a brief separation from parents during a radiological emergency would produce any permanent negative reactions or other psychological damage to schoolchildren. Young people are accustomed to the company and leadership of teachers and guardians. War-time experiences, relied upon by Intervenors' witness, present no parallel for the evacuations contemplated here.

Evidence concerning public understanding of the adequacy of plans to evacuate schoolchildren is contradictory and confusing. Until several

months prior to the March 9, 1983 exercise, children were to be evacuated by priority use of buses. These buses would then return to pick up other transit-dependent individuals and a small number of children who could not be accommodated during the first run. Children were then to be reunited with parents at reception centers. (See Parsons Supp., ff. Tr. 11,774, at 15.)

A proposal by the new Westchester County Executive called for sending schoolchildren home at an earlier stage (the alert classification) where they could evacuate, if necessary, with parents or other persons previously designated by parents. (See Davidoff, Tr. 11,388-87.) The evidence is unclear as to whether the early-release provision is firmly intended to become a part of the local government response plan and the New York State plan or is already a part of the plan. (See Scalpi, Tr. 12,118.) In any event, it was simulated in the four counties within the EPZ without any indication of deficiency during the exercise of March 9, 1983. The State appears to be enthusiastic about the provision and intends to fund its implementation if the counties care to implement it. (See Davidoff/Czech, Tr. 11,466-68.)

The Board is unable to evaluate the adequacy of the early dismissal plan in providing for the emergency evacuation of children as is required by the protective response provisions of NUREG-0654, § J.10.d. It has not been approved by the State for formal adoption in local response plans, nor has it been officially adopted by any of the four counties in the EPZ. The only conclusion that the Board can reach is that it is being studied and may be adopted if proven feasible. There is also evidence in the record that the developers of the two-wave evacuation concept, Parsons-Brinckerhoff, are not enthusiastic about the early-dismissal plan. Parsons-Brinckerhoff previously considered the scheme and did not accept it. (See Parsons, Tr. 11,905-06.) In light of this unsettled status and its recent emergence in the development of local response plans, the early dismissal plan may have increased public concern over the evacuation of children rather than lessened it. Accordingly, it is the Board's view that this contention must be sustained, without a resolution of this problem.

With respect to the other issues raised by Intervenors, the Board is satisfied that acceptable arrangements have been made or are being made in connection with reception centers and the distribution of tone alert radios for notifying facilities that house children and other dependent populations.

Finally, because of the substantial controversy that permeated the hearings and communities regarding the proper handling of children

during an emergency, the Board believes several activities tended to undermine responsible efforts to provide such emergency planning. Evidence in the record shows that a communication from a Rockland County Advisory Committee on Schools was sent to school officials throughout the County advising them of official reports that thousands of deaths and billions of dollars in property damage would or could occur if a worst-case accident happened at Indian Point. Another communication was forwarded to reception center schools advising the officials concerned that their schools would have to provide radiation monitoring, decontamination, staffing, and maps and directions to related emergency facilities. The communications were misleading and counterproductive. (See Con Ed Ex. 9; PA Ex. 44.) Such activities, one by a committee appointed to advise Rockland County's government on its emergency response plan, and the second by a party in this proceeding, are adverse to the objective both organizations presumably espouse, the responsible protection of children during a radiological emergency.

#### **O. Contentions 3.9 and 4.2(d): Adequacy of the Roads**

Contentions 3.9 and 4.2(d) both relate to the question of whether the existing road system is adequate to accommodate an evacuation. Therefore, we shall deal with them together.<sup>105</sup>

Contention 3.9 states:

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

Contention 4.2(d) states:

The roadway network should be upgraded to permit successful evacuation of all residents in the EPZ before the plume arrival time.

Contention 3.9 is based on original contentions submitted by WESPAC and WBCA, and Contention 4.2(d) was submitted by UCS/NYPIRG.

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<sup>105</sup> Parties and witnesses: Intervenors (Ellefson, Ford, de Ward, Concklin, Holland, Carney, Tomkins, Bowles, Johnson, Bower, Courtney, Ancona, Holzer, Wishnic, Lavelle, Scurti); Rockland County (Northrup, McGuire, Kralik); Westchester County (Guido); New York State (Davidoff, Czech); Licensees (Della Roca, Podwal, Rosenblatt); Staff (McIntire, Keller, Kowieski, Urbanik).



### ***Summary of Significant Testimony***

The Intervenors' witnesses testified that the roads in the EPZ are inadequate for evacuation. They testified that plans do not account for the hilly, two-laned, narrow routes that are typical in the EPZ. (Ford, ff. Tr. 9691 at 3-4; de Ward, ff. Tr. 10,753, at 1; Concklin, ff. Tr. 10,246, at 1; Holland, ff. Tr. 1661, at 6; Carney, ff. Tr. 11,236, at 2; F. Johnson, ff. Tr. 10,388, at 1; Bower, ff. Tr. 11,103, at 3; Tomkins, ff. Tr. 10,118, at 1; Courtney, ff. Tr. 9701, at 2; Ancona, ff. Tr. 10,781, at 2; Holzer, ff. Tr. 10,731, at 1.) They added that (a) thousands of extra cars in parks and on evacuation routes during summertime and holidays would halt evacuations (Holland, ff. Tr. 1661, at 6; Carney, ff. Tr. 11,236, at 1; F. Johnson, ff. Tr. 10,388, at 1; and Ancona, ff. Tr. 10,781, at 2); (b) Rockland County's road system has not kept up with its population growth (Holland, ff. Tr. 1661, at 6 and F. Johnson, ff. Tr. 10,388, at 1); (c) emergency vehicles would not be able to find access to roads during evacuation; and (d) construction projects and weather conditions would make evacuation difficult (Wishnie, ff. Tr. 9820, at 1; Bower, ff. Tr. 11,103, at 3; Lavelle, ff. Tr. 10,160, at 2; Ford, ff. Tr. 9691, at 3-4; Tomkins, ff. Tr. 10,118, at 1).

Several witnesses from Rockland and Westchester Counties testified that narrow, winding roads made the road system inadequate and that highway construction problems would impede evacuation. (Guido, ff. Tr. 4913, at 4; Northrup, ff. Tr. 11,279, at 4; Kralik, ff. Tr. 3577, at 3, 14; and J. McGuire, ff. Tr. 3650, at 13.)

The NY State witnesses, relying on a review by their Department of Transportation of the evacuation time estimates prepared by Licensees' consultants, *Parsons, Brinckerhoff, Quade & Douglas, Inc.*, stated that New York State found that evacuation of Indian Point's EPZ was feasible and the road network capable of handling it. (Davidoff/Czech, ff. Tr. 11,313, at 14.) According to the testimony, the elimination of the "two-wave" use of buses (by sending schoolchildren home first) improves the road situation in Westchester County. Rockland County is studying an expanded use of the Palisades Parkway for evacuation — a plan which the State supports — and each county plan and the State plan now contain specific procedures to remove highway impediments. (Davidoff/Czech Supp., ff. Tr. 11,313, at 10.)

The Licensees' witnesses testified to the development of evacuation plans. First, the planners assembled demographic data; estimates of the resident population, population of special facilities (including schools), and the transient population were prepared. (Parsons, ff. Tr. 11,774, at 9-10; Con Ed Ex. 10 at 7-5. See note 87, *supra*.) The EPZ was divided into 46 emergency response planning areas (ERPAs), the boundaries of

which coincide with political and geographic boundaries familiar to the public. (Parsons, ff. Tr. 11,773, at 5, 16; Con Ed Ex. 10, App. A at A-1.) The ERPAs were then divided into traffic zones, also along recognizable geographic and/or political boundaries. The traffic zones represent population clusters. Each traffic zone was then assigned a primary evacuation route for each mode of travel. The evacuation routes were selected to move traffic radially away from the Indian Point site, in accordance with NUREG-0654. (Con Ed Ex. 10 at 26-27; Parsons, ff. Tr. 11,774, at 16; Parsons Supp., ff. Tr. 11,773, at 6.) Backup evacuation routes were selected for those portions of the primary evacuation roadway network likely to become extremely congested. (Con Ed Ex. 10 at 27; Parsons, ff. Tr. 11,774, at 7.) Care was taken in selecting evacuation routes that were both familiar to and regularly used by drivers in the traffic zone. (Con Ed Ex. 10, at 27; Parsons, ff. Tr. 11,774, at 24-25.) Every primary and backup evacuation route was traveled to assess its adequacy for evacuation purposes. (Con Ed Ex. 10 at 28; Parsons, ff. Tr. 11,774, at 24; Parsons Supp., ff. Tr. 11,774, at 7.)

The Licensees' witnesses also testified that the county RERPs include specific provisions to facilitate the flow of traffic during an evacuation, and the State plan has been recently revised to further define the county and State responsibilities for clearing evacuation routes of impediments. (Parsons Supp., ff. Tr. 11,774, at 7-9.) The plans call for two-way traffic on small roads, thereby minimizing the possibility of a total blockage and permitting access by emergency vehicles. (Con Ed Ex. 10 at 27.) In addition, the law enforcement procedures in the RERPs call for trained traffic control officers to be stationed at key locations throughout the evacuation route network. (Parsons Supp., ff. Tr. 11,774, at 9-10.)

The Licensees' witnesses also testified to the preparation of evacuation time estimates, as did the Staff's witness. These estimates are described in detail in our discussion of Contention 3.3, *supra*. The Licensees' and the Staff's witnesses asserted that the evacuation time estimates fully consider the characteristics of the roads and circumstances that might impede the flow of traffic along those roads.

### ***Conclusion***

The planners have carefully selected a network of evacuation routes and have developed provisions for an efficient evacuation of the EPZ (or parts thereof). They have not ignored the problems which Intervenor pointed out in their testimony. In particular, they have not ignored the limitations of the roads. The evacuation time estimate study recognizes that most of the evacuation routes are two-lane, undivided roads.

(See Con Ed Ex. 10, App. 4.) The more constrictive roads have lower vehicular capacities, resulting in longer evacuation times. (Parsons Supp., ff. Tr. 11,774, at 7.) Parsons-Brinckerhoff has identified roads likely to become bottlenecks and has selected backup evacuation routes for those roads. (Con Ed Ex. 10 at 27.) Parsons-Brinckerhoff also assumed two-way traffic on the small roads, thereby minimizing the possibility of a total blockage. (*Id.*) In addition, the RERPs contain specific provisions to keep the roads free from impediments. (Parsons Supp., ff. Tr. 11,774, at 7-8.) The evacuation time estimates also recognize all the demands that may be placed on the road system. The population estimates include data on park attendance obtained from the various Park Commissions (Parsons, ff. Tr. 11,774, at 10), and the weekend/holiday — summer daytime scenario assumes peak park attendance. (*Id.* at 33.)

Our conclusion that the planners have been careful and conscientious in following the protective response criteria of NUREG-0654 in the development of the evacuation plan, and our conclusion in Contention 3.3 that the evacuation time estimates are reliable, do not completely resolve Contentions 3.9 and 4.2(d). The adequacy of the roads can only be judged by determining whether or not there is 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). The objective of a protective response is maximum dose savings, and the efficiency of protective responses, including evacuation, must be gauged accordingly. *Cincinnati Gas & Electric Co.* (Wm. H. Zimmer Nuclear Power Station, Unit No. 1), ALAB-727, 17 NRC 760, 770-71 (1983).

Unfortunately, no party in the prosecution of this contention attempted to go beyond the evacuation times, and only Con Ed submitted proposed findings that attempted to reach the ultimate finding of fact. (See Con Ed PF 3.9-6 to 3.9-8.) Nevertheless, we find that there was sufficient testimony submitted on other contentions that was also relevant to Contentions 3.9 and 4.2(d).

The evacuation time estimates range from approximately four hours under ideal circumstances (Table XV, *supra*) to approximately 15 hours under adverse conditions (other than roads that are impassable because of a severe winter storm) (Table XIV, *supra*). To answer the question whether the roads are inadequate, we must make a judgment whether there is a significant possibility of an accident scenario for which evacuation is the only appropriate protective response and for which evacuation is infeasible.

According to the Staff's witnesses, the only significant accident probability scenario with a large release/consequence potential is the long-

term overpressurization category — release category C. (Rowsome/Blond, ff. Tr. 8771, at 6.) The Staff witnesses testified that there would be at least eight hours warning for the public to take protective measures. (*Id.*) The Licensees also testified that the late-overpressurization scenarios are the largest contributors to risk. (Licensees, ff. Tr. 6961, at 33-34.) They calculated, however, that there would be at least 12 hours between the initiating event and containment failure resulting from overpressurization, and probably as much as 24 hours. (*Id.* at 90; Liparulo, Tr. 7336-38.) For this scenario, both the Licensees and the Staff agree that evacuation at Indian Point would be feasible and effective. (Acharya, ff. Tr. 8566, at III.C.A-32; Potter, ff. Tr. 12,782, at 5.)

Rapidly developing accident scenarios (which correspond to release categories A and B)<sup>106</sup> are much rarer. According to the Staff, there is only a  $10^{-3}$  probability of such a scenario *given core melt*. (Rowsome/Blond, ff. Tr. 8771, at 6.) However, our own calculation from the Staff's release category figures shows a slightly higher frequency, *i.e.*,  $2 \times 10^{-3}$ ; from Table VI, *supra*, we determine the total probability of a rapidly developing significant release scenario to be  $1.6 \times 10^{-6}$ . This scenario would present only two to three hours from initiating event to release. (Meyer/Pratt, ff. Tr. 12,492, Table III.B.3; Acharya, ff. Tr. 8566, Table III.C.3.) Accordingly, evacuation would not be an appropriate response. However, the Licensees testified that an appropriate and effective response to an interfacing systems LOCA would be sheltering, followed by prompt relocation from contaminated areas. (Licensees, ff. Tr. 6961, at 122.) Their position was bolstered by witnesses from the Staff and from New York State who testified that sheltering is an alternative at Indian Point. (Sears, Tr. 12,342; Keller, Tr. 14,856-57; Davidoff, Tr. 11,394-95. *See generally* our discussion of Contention 4.2(d), *infra*.) The Licensees have analyzed this option and determined the appropriate period of sheltering before relocation. (Licensees, ff. Tr. 6961, at 116-21.)

It is our ultimate conclusion, therefore, that (1) the roadway network planning meets the criteria of NUREG-0654, (2) evacuation is feasible for the most likely release scenario, and (3) an adequate alternative protective response is feasible for the much rarer rapidly developing acci-

<sup>106</sup> Release category A is associated with the  $\beta'$  failure mode (core melt plus concurrent containment failure due to external event). Release category B is associated with steam explosion induced failure and containment bypass — *i.e.*, interfacing systems LOCA. (Meyer/Pratt, ff. Tr. 12,492, Table III.B.3.) According to the Licensees' witnesses, interfacing systems LOCA is the dominant early release scenario with a probability of  $4.6 \times 10^{-7}$ . (Licensees, ff. Tr. 6961, at 33.)

dent scenario. Accordingly, we find that the state of the road system is adequate and need not be upgraded.

#### **P. Contention 3.10: Protecting the Mobility-Impaired**

Contention 3.10 was based on contentions submitted by WESPAC, Parents, and UCS/NYPIRG and states:

The emergency plan fails to conform to NUREG-0654 in that, contrary to Evacuation Criterion II.J.10.d., proper means for protecting persons whose mobility may be impaired have not been developed. Specifically, adequate provisions have not been made for groups named in the bases submitted for the following contentions: WESPAC 6; Parents I, basis (22) and II, basis 7; UCS/NYPIRG I(B)(2), basis (6) and IA, basis (7).

This contention alleges a deficiency in local emergency plans for protecting an extensive list of special populations. These include residents at children's hospitals, residents at community facilities for the mentally retarded, residents at schools for the deaf, prison inmates, nursing home residents, non-English speaking populations, citizens with hearing and learning disabilities, latchkey children and senior citizens. A number of parties litigated the contention and a summary of their witnesses' testimony follows.<sup>107</sup>

#### ***Summary of Significant Testimony***

Intervenors' witnesses testified that they did not receive brochures and consequently did not receive the attached mail-back cards for special assistance, did not receive return calls after submitting their requests for assistance, and that senior, disabled, or housebound patients would not understand instructions in the brochures. (Bergman, ff. Tr. 10,524, at 1; A. Murphy, Tr. 10,761-63, 10,770; Simon, Tr. 10,764-65; Burger, ff. Tr. 10,401, at 1; O'Brien, ff. Tr. 10,524, at 1; Richter, ff. Tr. 10,524, at 1-2; Awalt, ff. Tr. 10,524, at 2.)

Rockland County's witnesses stated that transportation for the disabled appeared to be a problem and that information on cards concerning individuals needing assistance had not been communicated to responsible officials. (Northrup, ff. Tr. 11,279, at 3; Wein, Tr. 4591.) There was

<sup>107</sup> Parties and witnesses are: Intervenors (Bergman, Murphy, Simon, Burger, O'Brien, Richter, Awalt); Rockland County (Northrup, Wein, McGuire); Westchester County (Marasco, Kaminski); New York State (Davidoff, Czech); Licensees (Schmer, Scalpi, Della Rocca, Podwal, Rosenblatt); Staff (McIntire, Keller, Husar, Kowieski).

testimony that 286 cards had been received from persons who might need assistance during an evacuation. (D. McGuire, Tr. 10,961.)

The Westchester County witnesses gave evidence that a list of mobility-impaired individuals had been received (Marasco, Tr. 5490), but that the information concerning the number of housebound individuals in need of special transportation was inaccurate and that vehicles were not available to transport this group. (Kaminski, ff. Tr. 11,617, at 1-3.) Westchester County received 1200 cards, 253 of which were from persons who were disabled or mobility-impaired. (Kaminski, Tr. 11,634-36.) The Director of Planning, Westchester Department of Hospitals, stated that all nursing homes and hospitals in the EPZ have some form of an evacuation plan and that hospitals are required to have one. (Kaminski, Tr. 5621-22.)

The New York State witnesses indicated that the needs of special (dependent) populations were considered in county and State plans and that requests (cards) for special assistance for those in need are referred to the appropriate County Department of Social Services where follow-up contacts are made. It was the view of the State that relatives and friends should recognize that the total burden of protecting special populations cannot be borne by government. (Davidoff/Czech, ff. Tr. 11,313, at 18.) Each of the four counties in the EPZ has made arrangements for those mobility-impaired persons who responded to special-assistance cards, and the testimony indicated new brochures were being prepared with additional postcards for use by the mobility-impaired. The State's witnesses contended that all concerned persons were being urged to help identify the mobility-impaired and their needs. (Davidoff/Czech, Supp. Test., ff. Tr. 11,313, at 11.) Each County RERP calls for ambulances and buses to evacuate the physically handicapped and other mobility-impaired persons. (NY Ex. 10, § IV.M.; NY Ex. 11, Procedure 6; NY Ex. 12, Procedure 5; NY Ex. 13, Procedure 5.) The New York State Department of Health has canvassed all nursing homes and hospitals within the EPZ alerting them to their responsibilities in an emergency. (Davidoff/Czech, Tr. 11,413-14.) The State witnesses also testified that a study of residents in the EPZ revealed very few individuals who neither spoke English nor lived with someone who did; it was determined therefore that foreign language brochures would be impractical. (*Id.* at 13.) Finally, the State witnesses testified that State Education Law requires that the school be furnished with the identities of other adults who will take care of schoolchildren if a parent is not at home during an early dismissal. (Davidoff/Czech, Tr. 11,464.)

The Licensees' witnesses stated there were enough buses and drivers in Orange and Putnam Counties to handle the mobility-impaired popula-

tion (Schmer/Scalpi, Tr. 12,132-35), and Orange County has solicited help from the police, local ambulance corps, and utility companies to help identify additional persons who might need assistance. Every individual is then contacted. (Schmer, Tr. 12,124-25.) Both Orange and Putnam Counties have placed ads in the newspapers seeking information from disabled persons (Schmer/Scalpi, Tr. 12,130-31) and have placed signs in parks advising visitors what to do in an emergency. (Schmer, Tr. 12,186.) Officials from these Counties believe that plans for the transporting of non-institutionalized, mobility-impaired people have been prepared. As people needing special assistance are identified by means of a mail-back card in the public information brochure "Indian Point, Emergency Planning and You," vehicles can be assigned by the county to evacuate them. In addition, all health care facilities, such as hospitals and nursing homes, were surveyed by telephone to assess their population numbers and evacuation needs. Meetings have been held with administrators of general hospitals to discuss the evacuation plan and their facilities. Vehicles and host facilities to which patients would be transported were assigned on the basis of the patients' identified needs. Host facilities for nursing homes and health-related facilities are identified in cooperation with the New York State Department of Health, and vehicles were assigned to nursing homes. (Parsons Supp., ff. Tr. 11,774, at 16-17.) Mobility-impaired residents of special facilities will be taken to host facilities or congregate care centers. (See NY Ex. 11, at A-13; NY Ex. 12, at A-9; and NY Ex. 13, at A-17, A-33.)

The Staff presented testimony of FEMA witnesses who stated that NUREG-0654, § J.10.d does not specify a single method for protecting mobility-impaired individuals because, in many cases, sheltering may be a better protective action than evacuation. They stated that a majority of special (health) facilities own vehicles which would be used in the case of an evacuation, and the plan identifies private bus companies that will supplement special-facility resources in an emergency. The New York State Department of Corrections has a specific policy of shielding for inmates of the Ossining Correctional Facility, and the institution has sufficient shielding capability. Potassium iodide will be issued there if necessary. Schools and special facilities, including nursing homes and hospitals, have been equipped with tone alert radios that worked well during an exercise. (McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 27.)

FEMA also testified that the two methods in county plans for locating the non-institutionalized, mobility-impaired population are the public information pamphlets with a mail-in postcard which will be distributed annually, and at the time of an accident, special telephone numbers for

transportation assistance to be broadcast by the media. Specific departments in each county have been assigned responsibility for the evacuation needs of the mobility-impaired population and will maintain a confidential list of such non-institutionalized persons. Most of the non-institutionalized population live with other people or have neighbors to assist them during an emergency. (McIntire, *et al.*, ff. Tr. 14,720, at 3-4.) The FEMA witnesses stated that disaster history has consistently shown that individuals rely on an extended family and other important social contacts during warning and response periods in natural disasters. It also has shown that friends and relatives will assist special populations, such as latchkey children, during an emergency. The witness testified that if children are to be left alone on a regular basis, the mail-in postcard should be used to indicate a need for special attention. (McIntire, *et al.*, ff. Tr. 1307, at 16.)

FEMA reported that, during the 1983 exercise, the capability to transport and relocate non-institutionalized mobility-impaired persons was simulated; that in Orange County sufficient personnel and resources were available to implement protective action, although a deficiency for wheelchairs and ramps at reception centers was noted (McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 49-50); and that in Putnam County, actions to protect the public were generally good. However, a deficiency was noted among bus drivers regarding their understanding of evacuation procedures, routes to find evacuees, and locating reception centers. (*Id.* at 56-57.) In Rockland County, FEMA reported that although some protective actions were performed well, there was no capability to measure actions to protect the public because of the absence of detailed evacuation plans for that county (*Id.* at 42-45) and in Westchester County, a number of deficiencies were noted in the evacuation of non-institutionalized, mobility-impaired persons. These included ambulance personnel not knowing their responsibilities, not being trained in evacuation procedures, and not having necessary dosimetry equipment. The finding also questioned the supply of ambulances for evacuating nursing homes. (*Id.* at 30-32.)

### **Conclusion<sup>108</sup>**

The special importance attached to the population groups considered by this contention is emphasized by the specific criteria set forth in NUREG-0654, Rev. 1, § II.J.10.d, which reads:

<sup>108</sup> We do not consider problems affecting non-English speaking persons or latchkey children here, inasmuch as they are involved more directly in Contention 4.7.



J.10. The organization's plan to implement protective measures for the plume exposure pathway shall include:

\* \* \*

d. Means for protecting those persons whose mobility may be impaired due to such factors as institutional or other confinement.

The responsibility for ensuring the availability of protective measures is assigned to State and local governments and other local response organizations. Each of the County RERPs, except for that of Rockland County, includes detailed information on evacuation for transit-dependent populations and evacuation plans for special facilities and reception centers. (See NY Ex. 11, 12, 13, and 10, at III-28, III-31, App. A and H.) A radiological response plan for Rockland County is in the draft stage, and it is expected to be completed by the end of 1983.

In evaluating the adequacy of local emergency response plans, it must be recognized that evacuation is only one means for providing protection to mobility-impaired persons. Sheltering is another option and may, depending on circumstances, be preferable.

We believe the evidence is clear that the plans and procedures as they relate to institutionally confined individuals demonstrate a competence and capability to carry out the existing evacuation plans. Many hospitals, nursing homes, and similar health facilities have their own evacuation vehicles and have been contacted directly by State and local health officials concerning their evacuation plans. These plans have been found satisfactory and additional assistance where required has been programmed to be provided. All hospitals and nursing homes in the EPZ are required to have evacuation plans. We note that several facilities referred to by the Intervenors in the basis for this contention (Blythedale Children's Hospital and New York School for the Deaf) are outside Indian Point's plume exposure pathway EPZ and are not subject to the detailed planning requirement.

With regard to non-institutionalized mobility-impaired people, however, the evidence is less reassuring. Contact between government officials and these individuals has been encouraged through the use of mail-back cards incorporated in public information brochures. The local plans call for updating the brochures (and cards) annually. However, evidence of assumption of the responsibility for receiving and processing the information on cards is conflicting and disturbing. In Westchester County, the responsibility for making provisions for mobility-impaired people was diffused through four different departments. The precise number of cards received was in question, and it appeared to the Board that an inadequate effort was being made to assess the needs of this population. We accept Intervenors' witnesses testimony that, in both

Rockland and Westchester Counties; some requests for assistance and for information have been ignored. We conclude that planning for the non-institutionalized, mobility-impaired population in Westchester and Rockland Counties has not been seriously undertaken. However, we reach a different conclusion regarding Orange and Putnam Counties, where active procedures, including advertising, have been undertaken to discover the mobility-impaired individuals who may require assistance.

The Board recognizes that a program to reach the non-institutionalized population is an ongoing process. We concur in the State's view that government cannot bear the total burden of protecting the mobility-impaired in the event of a radiological emergency; family and friends do have a responsibility, as in any emergency, to work out special problems. However, what government can do, it should do; therefore, this Board cannot conclude that efforts to meet the standard in NUREG-0654 have been adequate. This conclusion has been buttressed by the FEMA assessment report on the March 9, 1983 exercise in which deficiencies regarding the mobility-impaired were noted. Accordingly, we conclude that, with regard to Westchester and Rockland Counties, this contention as it relates to emergency planning for non-institutionalized, mobility-impaired persons has been sustained.

#### **Q. Commission Question 4**

Commission Question 4 asks:

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

Evidence submitted on expected improvements in the level of emergency planning generally related to deficiencies previously cited in the 120-day clock procedure and reevaluated during the March 9, 1983 exercise. Where significant, evidence of such deficiencies has been noted in the discussion of contentions under Commission Questions 3 and 4. (See McIntire, *et al.*, ff. Tr. 14,720, Letter from Petrone to McLoughlin (April 14, 1983).) The Commission has received directly from FEMA its conclusions on this exercise and follow-up emergency improvements, and FEMA's Assessment of the August 1983 Exercise of the State Compensatory Plan. See Notice to the Parties (October 4, 1983). Other offsite emergency procedures are considered in the contentions below.

We would not, however, be meeting our responsibility in addressing this issue if we reflected any degree of assurance regarding forthcoming improvements in the level of emergency planning by Rockland County. The evidence and statements of Rockland representatives during this proceeding suggest that an adequate Rockland County plan may not be forthcoming this year, if ever. (See Reisman, ff. Tr. 11,027, and Tr. 11,028-46; D. McGuire Supp., ff. Tr. 10,940, and Tr. 10,941-11,020.) We note that one of the persons directly involved in preparing Rockland County's plan (the Chairperson of Rockland County's Citizen's Advisory Committee) is also a representative of a party opposed to plant operation. (See Tr. 10,953 and ff. Tr. 10,940, at 4; see also Board comments, *supra*, in Contention 3.7, pp. 985-86.) We are, therefore, even less optimistic about the development of a Rockland County plan.

Accordingly, it appears clear to the Board that emergency planning for Rockland County may have to be provided by the New York State's compensating plan, which was partially tested during the 1983 exercises.

#### **R. Contention 4.1: The EPZ**

Contention 4.1 was based on contentions submitted by UCS/NYPIRG and Parents and concerns the size and configuration of Indian Point's EPZ as it may be affected by the high population density surrounding the facility. The contention states:

The plume exposure pathway EPZ should be expanded from its present 10-mile radius in order to meet local emergency needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries.<sup>109</sup>

A number of parties participated in the litigation of this contention and a summary of their testimony follows.<sup>110</sup>

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<sup>109</sup> Before receiving Commission guidance on July 17, 1982 relating to the questions it directed the Board to consider, we received substantive testimony in the record on the EPZ issue. For reasons of clarity and consistency we decided to retain this contention under Commission Question 4. Whether considered here or in connection with Question 3, the substance and compass of the allegation or issue are the same. (See CLI-82-15, 16 NRC 27 (1982), and Board Memorandum and Order, LBP-83-5, 17 NRC at 141-42 (1983).)

<sup>110</sup> Parties and witnesses included: UCS/NYPIRG, Audubon and New York State Attorney General (Beyea, Palenik); New York City Council Members (Littlejohn, Ward, Seley, Kinoy, Spohn, Anderson, Gurin, Solon); New York State (Davidoff, Czech); Westchester County (Del Bello, Marasco, Guido); Licensees (Della Rocca, Podwal, Rosenblatt); Staff (Schwartz, McIntire, Husar, Keller).

### *Summary of Significant Testimony*

UCS/NYPIRG, Audubon, and the New York State Attorney General combined their expert witnesses; they testified that they had modeled the consequences of a PWR-2 type radioactive release at Indian Point out to a distance of 50 miles from the site. The modeling assumed two wind directions, south toward New York City from Indian Point or north from the plant's site, and several different weather scenarios (average weather and rain). They also had modeled the consequences of a PWR-2 release on 19 emergency response planning areas (ERPA) with the wind blowing toward each ERPA. (Beyea/Palenik, ff. Tr. 2900, at 25, 28, 49-52.) The major contributors to early deaths or delayed cancer that are considered in the modeling were inhaled radioiodine and external radiation (whole-body gamma) from the plume and from material deposited on the ground or other surfaces. (*Id.* at 14, 22 (first footnote).)

The model predicted that the consequences of a PWR-2 release beyond 10 miles with a wind blowing toward New York City would be 6,000 to 50,000 delayed cancer deaths and some 400,000 to 2,000,000 delayed cases of thyroid nodules. (*Id.* at 7, 35.) Additionally, large sections of New York City would be contaminated with radioactive deposition and some areas would have to be abandoned for years. A substantial evacuation of the City's residents would have to occur in order to reduce subsequent cancers, injuries, and deaths from prolonged exposure. (*Id.* at 7-8.) The weather and wind conditions postulated occur between 9% and 12% of the time. (*Id.* at 56.) The witnesses also calculated that under rainy conditions or low plume rise, and with wind blowing toward the emergency response planning area, present emergency plans for each ERPA analyzed were inadequate. (Beyea/Palenik, ff. Tr. 2900, at 51.)

The witnesses also testified that radiation doses will not stop at a 10-mile distance from the plant, and in order to incorporate dose reduction methods, emergency plans must include provisions for evacuation, sheltering, distribution of potassium iodide pills, decontamination, milk and food impoundment, and *ad hoc* respiratory protective measures (*i.e.*, breathing through makeshift filters). (*Id.* at 8, 14, 28, 43-49.) If Indian Point reactors are shut down, the consequences predicted will not occur, but if the reactors are allowed to continue to operate, the witnesses advocated expanding the EPZ to reduce the number of injuries and deaths from short-term exposure. Although current emergency planning guidelines assume that *ad hoc* evacuation is adequate beyond the plume exposure pathway EPZ, the witnesses asserted that prepared plans for an evacuation beyond 10 miles would reduce the necessary

evacuation time and thus reduce the consequences of a release. For example, the witnesses estimated that evacuation time in the 10-20 mile region could be reduced by 10 hours; they calculated that this time reduction could save up to 820 lives from latent cancer deaths under rain or snow conditions. (*Id.* at 43-44.)

A PWR-2 release is not the most severe release envisioned in the Reactor Safety Study (WASH-1400), but is close to it. Most analysts have downgraded the possibility of the initiating steam-explosion scenario in the more severe PWR-1 release. Many different accident sequences could lead to a PWR-2 release, and all require core uncovering and breach (or bypass) of containment. The common element of these accident sequences is that an expected 70% of the iodines and 50% of the alkali metals in the core would escape to the atmosphere. (*Id.* at 9, 25.)

The witnesses further testified that the total probability of a PWR-2 release is very uncertain and there is not sufficient experience with reactors over their life cycle to allow a reliable probability estimate. New accident sequences are constantly being discovered, they alleged, which suggests that additional ones are yet to be found and current probability estimates must therefore be incomplete. Additionally, the probability of sabotage is so uncertain that no one has even attempted its calculation. The true probability of a PWR-2 release could be orders of magnitude higher or lower than the limited estimate given in the Reactor Safety Study or in the IPPSS. Accordingly, the witnesses stated there is no way to guarantee the public safety at Indian Point and no scientific basis for assuming that the probability of a PWR-2 release is too low to consider. (*Id.* at 9-10 and 67-70.)

A witness for the New York City Council Members<sup>111</sup> testified that the City has an emergency management plan which is the command and control plan for harnessing its resources in the event of a disaster. (Littlejohn, Tr. 9195.) Under phase three of that plan, the Mayor's Emergency Control Board, composed of the relevant Department heads who may have a role in responding to an emergency, will be mobilized. That Board, assisted by other organizations — such as Con Ed, and AT&T, and the MTA in the event of a radiological emergency — would consider the pending problem and determine how to cope with the emergency. (Tr. 9196.) The witness stated that 80% of the people who

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<sup>111</sup> In ruling on Licensees' motion to strike testimony on Questions 3 and 4 filed by the New York City Council Members, the Board restricted these witnesses to addressing the following issue: "In the event that a radiological accident at Indian Point could necessitate an evacuation or relocation beyond the EPZ, the off-site emergency plans for the facility are inadequate." Unpublished Memorandum and Order, February 25, 1983, slip op. at 3.

need to be contacted could be reached within a matter of minutes. Either the Mayor, Police Commissioner, or Deputy Mayor for Operation convenes the Emergency Board, which meets frequently for planning and operation purposes. (Tr. 9198-99.) New York City does not have plans for a radiological emergency at Indian Point since the NRC/FEMA criteria do not require them. (Tr. 9203-04.) Nor does the City have a plan to assist in enforcing requirements under the ingestion pathway criteria. FEMA has assured the City that the State has such a plan on file and is the preferable agency to handle it. (Tr. 9203.) With respect to civil preparedness functions, the New York City Emergency Control Board has had no contact with the four Counties in the EPZ since New York City deals directly with the New York State Office of Disaster Preparedness. (Tr. 9201-03.) The New York City Police Department has approximately 80 radiation monitoring systems and 126 trained people (Tr. 9205-06), and during an emergency, the City has a capability to communicate through approximately 24 radio and TV stations.

New York City does have a limited emergency evacuation plan designed for hurricanes, floods, snowstorms, or utility problems (Tr. 9211-12), and has 3,000 buses which it could utilize during an emergency. (Tr. 9213.) The City has the capability to shelter limited populations on a short-term or long-term basis (Tr. 9215) and has 8,000 Civil Defense shelters which could be utilized for radiation sheltering. (Tr. 9215, 9246.) The witness stated that New York City had monitored the 1982 Indian Point exercise and would also monitor the 1983 exercise. (Tr. 9232.) New York City emergency plans are updated continually on the basis of emergencies that happen anywhere in the country (Tr. 9241), and an exercise involving an area with 100,000 people was planned. (Tr. 9247-48.) Formal FEMA training sessions have been taken by the staff of New York City's Emergency Control Board in areas of emergency planning, crisis management, and mobilization of resources. (Tr. 9250-51.)

The City's Commissioner testified that the Department of Corrections had no radiological emergency evacuation plan to handle its more than 9,000 inmates. (Ward, ff. Tr. 9166, at 1-3.) Another witness testified that it would be virtually impossible to evacuate the City's dependent population — the elderly, the mentally and physically handicapped, other disabled persons, the homeless, and prison inmates. (Seley, ff. Tr. 9333 at 1-4.) Several other witnesses testified on the number of mobility-impaired elderly in the City, the number in institutional care and the problems they would encounter in an evacuation. (Kinoy, ff. Tr. 9391, at 1-2; Spohn, ff. Tr. 9393, at 1-2.) A witness also testified on the

problems of planning the evacuation of transportation-handicapped persons in New York City. (Anderson, ff. Tr. 9482, at 1-5.) Finally, a panel of witnesses testified concerning the evacuation capacities of major crossings, roadways, and public transit systems in the City. (Gurin, *et al.*, ff. Tr. 9264, at 2-7.) New York City's Director of the Bureau of Radiation Control testified that potassium iodide should be stockpiled and made immediately accessible; he also claimed that sheltering, evacuation, decontamination, and medical treatment would probably be inadequate for the population within 50 miles of Indian Point after a major accident. (Solon, ff. Tr. 8981, at 5, 7.)

New York State testimony indicated that the State has accepted the present 10-mile EPZ as appropriate and has not seen any evidence that a wider zone is more appropriate. (Davidoff/Czech, ff. Tr. 11,313, at 15.)

On behalf of the Licensees, witnesses from Parsons-Brinckerhoff testified that, after consultation with the State, four counties, the Licensees, and other consultants, it was determined that a circular EPZ defined uniformly by a 10-mile radius was inappropriate. Rather, the EPZ was modified to preserve or group major population areas, to simplify boundary definitions (*e.g.*, by using political divisions or major roads), and to recognize important topographic features, such as rivers, hills and valleys, using them as boundaries wherever practical. The consideration and inclusion of these various factors resulted in an irregularly shaped EPZ which generally encompasses an area greater than a 10-mile radius. (Parsons, ff. Tr. 11,774, at 15.) Emergency traffic control extends beyond the EPZ, although evacuation was not modeled beyond the first major intersection outside the EPZ. According to the testimony, the number of roads generally increases beyond the 10-mile point, and because the selection of roads is more diverse, traffic will spread out. (Parsons, Tr. 11,944-45.) Officials from Orange and Putnam Counties confirmed that factors such as demography, topography and land characteristics were taken into account in designing the EPZ. (Schmer/Scalpi, Tr. 12,138-39.)

Westchester County officials testified that planning for a radiological emergency would be improved if representatives from New York City were included in the planning, since any reaction in the City to an accident at Indian Point could hinder evacuation in Westchester County. (Del Bello, Tr. 6013-14.) Also, the Director of Westchester County's Office of Disaster and Emergency Services testified he had not coordinated emergency planning with New York City officials (Marasco, Tr. 5535), nor had the Westchester Department of Public Safety. (Guido, Tr. 5025.)

A Staff witness outlined an NRC/EPA Task Force study on what accidents should be used to prepare emergency plans. (NUREG-0396, EPA 520/1-78-016, "Planning Bases for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants" (December 1978) (hereinafter NUREG-0396).) The study's principal recommendations were that, for emergency planning, a spectrum of accidents, including core melt accidents, should be considered, and an analysis of this accident spectrum led to the final establishment of emergency planning zones (EPZ) around each nuclear plant. (Schwartz, ff. Tr. 12,244, at 3-4.)

The Task Force concluded that no one accident should be singled out as the planning basis because of the wide variety of conditions and accident possibilities. One could well miss relevant points of other accidents if a single accident were selected. (*Id.* at 4.) The spectrum of accidents considered in NUREG-0396 included all the design basis accidents used in the licensing process and all the WASH-1400 scenarios including core melt sequences. The Task Force identified the emergency planning zones and also gave some guidance on time frames and types of radionuclides which should be considered in developing plans. (*Id.* at 4.)

According to the Staff testimony, NUREG-0396 provided the technical basis for NRC's establishing the 10-mile plume exposure pathway EPZ which is summarized 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). The size was based on the following considerations:

- a. Projected doses from the traditional design basis accidents would not exceed Protective Action Guide levels outside the zone;
- b. Projected doses from most core melt sequences would not exceed Protective Action Guide levels outside the zone;
- c. For the worst core melt sequence, immediate life-threatening doses would generally not occur outside the zone;
- d. Detailed planning within 10 miles would provide a substantial base for expansion of response efforts in the event that this proved necessary.

(Schwartz, ff. Tr. 12,244, at 5-6.)

The Staff indicated that NUREG-0396 also illustrates the relative effectiveness of shelter versus evacuation at various distances and reveals that shelter with subsequent relocation after cloud passage may be as effective as evacuation even in severe accident sequences at distances greater than about 10 miles.



The NRC Staff has reviewed the 10-mile plume exposure pathway EPZ established at Indian Point taking into account population and topography and concluded it was appropriately drawn in this case. (*Id.* at 6; Tr. 12,269-78.) According to Staff testimony, the State Emergency Plan addresses the protective measures to be used for the ingestion exposure pathway (50-mile radius) including protecting the public from the consumption of food and water contaminated by radionuclides released during an accident. (McIntire, *et al.*, ff. Tr. 1307, at 36.)

### **Conclusion**

This contention and Intervenor's evidence in its support challenges the adequacy of Indian Point's emergency planning zone (EPZ) — in terms of size — to accommodate the evacuation objectives of emergency response plans. To prove this case, Intervenor attempted to demonstrate the effects of a severe radiological release (PWR-2) beyond the 10-mile EPZ and to show a lack of preparation to evacuate certain dependent populations in such an extended area. We conclude that the testimony fails to prove this contention.

As the Staff's testimony reflects, NUREG-0396 has been used as the technical basis for emergency planning around nuclear facilities. With respect to the area in which planning efforts should be conducted, the plume exposure pathway EPZ is designated as that region for which detailed planning is essential to protect the public if an accident occurs. In recommending a 10-mile radius from the reactor facility for this planning area, the Task Force considered an extensive range of accident scenarios including the severe core melt accident release categories of the Reactor Safety Study (WASH-1400). The major considerations for the 10-mile radius were that (1) projected doses from traditional design basis accidents and most core melt sequences would not exceed Protective Action Guide levels outside the zone, and (2) for the worst core melt sequences, immediate life-threatening doses generally would not occur outside the zone. An objective recognized as important for emergency planning by NRC regulations was the development of detailed plans that would ensure an adequate response for a specified area which could be expanded in the event of a worst-case accident. (NUREG-0654, at 5-11.)

Witnesses Beyea and Palenik challenged these considerations by calculating the health effects on New York City residents from a postulated worst-case accident sequence. The challenge, however, is insufficient. The analysis neither is plant-specific to Indian Point (no probabilistic study was performed; *see* discussion of Board Question 1.3, *supra*) nor

has it pointed out flaws in the local emergency response plans as they are affected in the Indian Point area by conditions of demography, topography, land characteristics, access routes, and jurisdictional boundaries. (10 C.F.R. § 50.47(c)(2).) In calculating his consequences, Dr. Beyea testified that no analysis had been performed of those systems (containment spray, high and low pressure injections, service water, component cooling or electric power) whose reliability could have a direct impact on the possibility of a PWR-2 accident. (Tr. 3016-17; 3028-29.)

In reviewing the history of regulatory requirements for the EPZ area, we express no view as to whether the 10-mile radius can be challenged. The Commission has directed us to look at the status of emergency planning beyond the 10-mile boundary to the extent it is relevant to risks posed by the two nuclear facilities at Indian Point. We do conclude, however, that the witnesses' analysis has not substantiated any claim that risks in operating the facility require a larger EPZ for emergency planning. The detailed study of NUREG-0396 recommended the appropriate generic area for the EPZ after reviewing, as indicated, a full spectrum of accidents, including the more severe of the design basis accidents and the accident spectrum (including PWR-2) analyzed in WASH-1400. The study's conclusion, as it relates to Contention 4.1, is that emergency plans could be based upon a generic distance (about 10 miles) for which predetermined (emergency) actions would provide dose savings. Beyond this generic distance, further actions could be taken on an *ad hoc* basis using the same planning considerations that went into the initial action determinations. (NUREG-0396, at 15-16.)

There was relevant testimony during the hearings from officials who participated in developing emergency response plans that demonstrates the EPZ planning area was discussed and decided on with the cooperation of County officials; there was evidence that the decision took account of major population centers, topographic features, land characteristics, political boundaries, and access routes, and that consideration was given to evacuation routes for a short distance beyond the 10-mile boundary. The fact that the extended area past the EPZ is within the geographical jurisdiction of the four New York Counties included in the EPZ is considered by the planners, and we believe appropriately so, as additional assurance that an extension of emergency activities could be implemented, if necessary.

Intervenors' witnesses Beyea and Palenik conceded that the technical planning report, NUREG-0396, which considered some core melt accidents, demonstrated a significant drop in probability of severe consequences beyond a 10-mile distance. (Beyea/Palenik, Tr. 3194-95.) And

testimony by Licensees' witnesses reflected that using the IPPSS source term and assuming no evacuation or sheltering, they had calculated that about 95% of the early fatality risk is within about four miles of the plant. (See Licensees, ff. Tr. 6961, at 127; Potter, Tr. 7658-59.)

The Board has carefully considered the testimony regarding evacuation problems that could be encountered by the disabled, senior citizens, the homeless, and the handicapped in New York City. It has also evaluated the evidence concerning the City's emergency capabilities. In light of the obvious experience of City officials in dealing with general emergencies and in view of New York City's large and diverse population, the Board can see no reason why coordination of, and consultation on, radiological emergency plans should not take place outside the territorial boundaries of the counties involved in the Indian Point's EPZ. It appears to us that even though not mandated by NRC regulations for radiological emergency planning, and despite the low probabilities of radiation dispersions beyond the EPZ, a prudent course of action for Indian Point planning suggests some coordination of programs with the officials of New York City. New York State has kept the City's emergency planning officials advised of developments at Indian Point, and the City directly monitored the emergency exercises during 1982 and 1983. The regulations require an ability to implement emergency actions beyond a 10-mile region on an *ad hoc* basis and this has been provided for at Indian Point. This evidence of interest by New York City as well as the testimony of Westchester County's former Executive (Del Bello) regarding possible conflicts during an evacuation (Tr. 6013-14) leads the Board to conclude that a prudent course of action in a high-density traffic area requires some additional emergency planning coordination. Such coordination could be highly beneficial in the event of a severe radiological accident where exposure consequences go beyond EPZ borders. We point out that the Board sees no justification for, and is not recommending, an expansion of the EPZ. We merely respond to Commission Question 3 that coordination with New York City officials regarding Indian Point's emergency response plans could be helpful in assisting in *ad hoc* actions beyond the generic 10-mile area. (NUREG-0396 at 16.) Cross-jurisdictional emergency planning is central to the concept of emergency planning zones. A general coordination of such planning in large population regions could ensure a more effective implementation if necessary.

## S. Contention 4.2: Additional Offsite Procedures

Contention 4.2 was based on contentions submitted by UCS/NYPIRG and states:

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

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

We have discussed Contention 4.2(d) in our evaluation of Contention 3.9, *supra* (road network adequacy) and do not repeat that discussion here.

### 4.2(a): Potassium Iodide

#### *Summary of Significant Testimony*<sup>112</sup>

The Intervenor's witnesses testified that potassium iodide (KI) should be distributed within the 10-mile EPZ because it would be extremely helpful when evacuation in ERPAs was not rapid enough to prevent inhalation of radioiodine. In Sweden, potassium iodide has been distributed by mail to the population within six miles of a nuclear plant, and in Tennessee, to residents within five miles of a nuclear facility. (Beyea/Palenik, ff. Tr. 2900, at 66.)

The Director of New York City's Bureau for Radiation Control testified that potassium iodide should be stockpiled and made immediately accessible. If the 8 million residents of New York City were exposed to an average of 10 rem per person during a nuclear accident, about 7,000 cases of thyroid cancer and 20,000 cases of abnormal non-malignant thyroid nodules could occur in the first 20 years. According to this witness, the number of cases of thyroid cancer would double if the average person lived 40 years after the accident. (Solon, ff. Tr. 8981, at 5-6.)

New York State's position is that the potential medical benefit of providing potassium iodide to all residents within the EPZ is outweighed by the potential adverse effects. (Davidoff/Czech, ff. Tr. 11,313, at 16.)

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<sup>112</sup> Parties and witnesses included: 4.2(a) – Intervenor (Beyea, Palenik); New York City Council Members (Solon); New York State (Davidoff, Czech); Staff (FEMA); 4.2(b) – Intervenor (Beyea); Rockland County (Carney); Westchester County (Del Bello); New York State (Davidoff, Czech); Staff (Keller); 4.2(c) – New York State (Davidoff, Czech); Licensees (Schmer, Scalpi); Staff (Sears).

Emergency workers, prisoners, patients, etc., who cannot leave the EPZ will receive an adequate supply of KI for possible use in an emergency. This State policy is being communicated to all facilities in the EPZ so that they can make arrangements to acquire supplies of the thyroid blocking agent. (Davidoff/Czech Supp., ff. Tr. 11,313, at 12.)

The Staff testified that New York State and the counties have adopted the Food and Drug Administration recommendation on the use of KI for emergency workers and captive populations. KI will be given when thyroid dose projections exceed 25 rem. (McIntire, *et al.*, ff. Tr. 14,720, 1982 Update Report at 5.)

### *Conclusion*

Only a few witnesses testified on the merits of administering potassium iodide to the general public. The Director of the New York City's Bureau of Radiation Control recommended stockpiling the drug for possible immediate use in New York City, but indicated he was unaware of the reasons underlying the State's position against administering potassium iodide to the public. (Solon, Tr. 9062.) And witnesses for the Intervenors, Drs. Beyea and Palenik, provided no evidence on the potential side effects of the drug. In our opinion, the New York State Disaster Preparedness Commission's report on the subject matter is dispositive of the issue. (See NY Ex. 2.) The report outlines the medical aspects of potassium iodide, both its use as a blocking agent for radioactive iodine and also its potential harmful side effects. If KI is taken in large doses, thyroid enlargement, increased and decreased gland activity, and other adverse effects can result. Additionally, KI has only a relatively short shelf life (three years). The report recommends the administration of KI, but only if given in the proper dosage at the proper time (before exposure) and at the directive of the State's Commission of Health. (*Id.* at 89-90.) The Disaster Preparedness Commission recommended against pre-distribution of the KI to the general population but indicated that advance planning for its rapid distribution should be arranged. (*Id.* at 89.)

The recommendations of this report were buttressed in the record by a resolution adopted on March 2, 1981, by the Committee on Public Health of the New York Academy of Medicine. After its review of the case, the Committee recommended against stockpiling the drug in New York City and indicated that efforts to distribute KI would negate procedures (such as sheltering) to minimize radiation exposure. The report also found that the costs of stockpiling KI (\$13 million every 2-3 years) in the City would not be cost-effective. (PA Ex. 30.)

Dr. Solon took issue with the Committee report on the grounds that its assessment of a low probability of radioactivity reaching New York City was an engineering judgment which it was not qualified to make. Also, he argued that there are no adverse medical effects from using KI unless excessively large doses are taken. (Solon, Tr. 9061.) However, the Committee pointed out that distribution of KI to households could create problems of possible accidental ingestion and overdose, and it indicated there were professional disagreements regarding the dose levels at which allergic reactions or toxicity can occur.

We conclude that the evidence in support of a predistribution of potassium iodide to the public does not outweigh the medical concerns over its possible misuse; therefore, Contention 4.2(a) cannot be sustained. The evidence demonstrates that potassium iodide is being stockpiled for emergency workers and persons who cannot be evacuated (e.g., prisoners, patients). Thus, the NRC requirements are met. Whether the drug should be distributed to the public is left to the prerogative of State and local governments. (See also NUREG-0654, § J.10.e.) The Board further notes that in the FEMA assessment of the March 9, 1983 exercise, FEMA found some minor deficiencies in the availability of KI and the training in its use among some emergency workers. In light of the fact that use by emergency workers is an existing requirement of New York State's emergency plan, we assume this deficiency will be corrected. (See McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 33, 45, 51 and 59.)

#### **4.2(b): Sheltering**

##### ***Summary of Significant Testimony***

There was little probative testimony provided on this portion of the contention by the Intervenors. A witness from Rockland County, a member of the Planning Board, provided his opinion that a substantial fraction of the homes built in Rockland County during the past 20 years had been built with part of their basements above ground which would not seal out (radioactive) materials from Indian Point. (Carney, ff. Tr. 11,236, at 2; Tr. 11,239.) Dr. Beyea testified that there was not a slow enough air exchange under all weather conditions to provide much protection by sheltering. (Beyea, Tr. 2937-38.)

The New York State witnesses testified that sheltering directives would include recommendations for ventilation control such as the closing of doors and windows, and the turning off of air conditioners. They asserted that county plans make use of public fallout shelters to supplement sheltering in homes, places of work, schools, and similar facilities,

and although the State had not made a specific study of the sheltering capability of the EPZ, it assumed the EPZ contained enough dwellings and other buildings to provide adequate protection for the population. Typically, in the northeast, homes are airtight because they are expensive to heat; accordingly, they do provide some protection. (Davidoff/Czech, ff. Tr. 11,313, at 16-17; Tr. 11,356-57.)

FEMA witnesses testified that there are sufficient structures to shelter the general population residing within the EPZ. Most of the general sheltering will take place in residences and businesses, but public shelters will also be available. (McIntire, *et al.*, ff. Tr. 1307, at 38.) The witnesses indicated that the sheltering is effective for only a relatively limited time — approximately two hours — in most buildings; after that time, sheltering begins to lose its effectiveness because of the infiltration of radionuclides. They stated that sheltering followed by relocation is another option in a fast-moving release scenario. (Keller, Tr. 14,856-59.) The decisionmakers should have some reasonable understanding of the type of dwellings in their areas, since that is one of a number of complex factors which must be considered in deciding whether to call for sheltering. (Keller, Tr. 15,101-04.)

### *Conclusion*

NRC regulations do not require that emergency response plans provide for public fallout shelters for radiological emergencies. In fact, NUREG-0396 recommended that such facilities not be constructed. All of the county plans do contain, however, a sheltering option with related guidelines for decisionmakers. (*See, e.g.*, NY Ex. 10, 11, 12, and 13 at III.H.)

The testimony revealed that sheltering has a limited value, and county plans do make use of public fallout shelters to supplement sheltering in homes, places of work, schools, and similar facilities. FEMA has found that there are sufficient structures to shelter the general population residing within the EPZ. In the final analysis, sheltering is merely one option available to the decisionmaker who will certainly need to consider such factors as the adequacy of local structures in the face of a radiological release. Intervenor's witness, Dr. Beyea, has conceded that if other options are unavailable, sheltering makes sense. (*See* Beyea, Tr. 2938-39.) We conclude, therefore, that Contention 4.2(b) has not been sustained. In several States, sheltering has been eliminated because, as a result of the quality of the housing in the area, a greater air change rate exists than in the Indian Point vicinity. (Keller,

Tr. 15,101.) FEMA and New York State have found the sheltering capabilities adequate, and no probative evidence was submitted on the record to contradict their judgments.

#### **4.2(c): Prohibition of Power Operation During Adverse Weather**

##### **Summary of Significant Testimony**

The Intervenors provided no testimony on this portion of Contention 4.2.

New York State witnesses testified that the work (emergency planning) performed by Parsons-Brinckerhoff was reviewed by the New York State Department of Transportation, is consistent with federal requirements, considers all weather conditions modeled, and indicates a successful evacuation under all weather conditions. (Davidoff/Czech, ff. Tr. 11,313, at 17.) Officials from Orange and Putnam Counties testified that during a severe snowstorm in February 1983, most of the abandoned cars were cleared from the highways in their areas by the morning after the storm. (Schmer/Scalpi, Tr. 12,198.)

The Staff witness testified that adverse weather may increase the time necessary to evacuate an area, and the Licensees' evacuation time estimates have included evacuation times under adverse weather conditions. (Sears, ff. Tr. 12,244, at 53.) The witness stated that the initial recommendation in the event of a degraded plant condition is sheltering, and if weather systems were such that evacuation would not be feasible, more specific shelter options might be broadcast (e.g., to shelter in basements or to use *ad hoc* respiratory protection). Local officials, it was asserted, would take factors such as weather conditions and the roadway network into account. (*Id.* at 53-54.) If, as this Contention advocates, a license condition prohibited power operation when adverse weather degrades the road network, there would be some reduction in risk. However, this reduction could be offset by frequent shutdown and startup transients and by the reduction of grid reliability for the delivery of electricity during such periods.

The Staff witness also testified that for a severe, fast-release accident scenario, sheltering until after plume passage and subsequent relocation from any area subject to ground contamination are the preferred protective actions; the reduction in individual risk from shutting down in anticipation of such scenarios would not depend on calculated evacuation times. (*Id.* at 54.) The Staff witness concluded that instead of shutting down during such adverse weather and road conditions, it is expected that a more significant increase in overall protection during such conditions would be afforded by Licensees making recommendations to alert



the general public at the site emergency level rather than the general emergency level. This would provide the public more time to make preparations for any precautionary evacuation or sheltering that might be ordered subsequently by offsite authorities. (*Id.* at 54-55.)

### *Conclusion*

Although the Board recognizes this contention does not directly involve additional *offsite* emergency procedures that could be taken to protect the public, it was admitted under Commission Question 4 because the proposed measure involves some coordination with local officials concerning the condition of the roadway network. In addition, the proposed measures, if approved, could produce changes in State and local emergency response plans.

The contention contemplates a roadway network incapable of being used for evacuation purposes because of adverse weather conditions. As previously noted, this Board observed such conditions when automobiles left on the highways 16 to 18 hours after a blizzard made travel on major highways in the New York City area difficult and, at places, impossible. In Orange and Putnam Counties, most automobiles were cleared from highways by the morning after the storm. The counties also have improved their procedures for clearing impediments on evacuation routes. (*See Scalpi/Schmer*, Tr. 12,198; *McIntire, et al.*, ff. 14,720, 1982 Update Report at 5.)

As we have noted heretofore, emergency evacuation time estimates have been prepared and take into account an adverse weather scenario. (*Parsons*, ff. Tr. 11,774, at 28-29; *Parsons Supp.*, ff. Tr. 11,774, at 8.) Although the conditions in the modeled scenario were not as severe as the conditions assumed by this contention, the alternatives for the decisionmaker under a worst-case weather scenario are clear. The current evacuation time estimates assume that if there is a major snowfall, the roads will have to be cleared. (*Della Rocca*, Tr. 11,946.) It is contemplated by NRC's emergency regulations that a choice of alternatives be available to accommodate various radiological release conditions. Roads can be cleared if time is available for evacuation, and sheltering can be instituted in a fast-moving scenario where time is of the essence. There is nothing in the regulations to prohibit the Licensees and State and local officials from alerting the public at the site emergency level instead of the customary general emergency level when the road network is or may be degraded by adverse weather. This recommendation was made by the Staff during the hearing and, in the Board's view, presents a

matter for consideration in areas of high population density like Indian Point.

We do not conclude that a public warning should be initiated in every situation where a site alert emergency classification is applicable; however, where severe weather conditions in the Indian Point EPZ area are likely to degrade the road network, emergency plans could be modified to provide for such an early notification to the public. We recommend that the Staff and FEMA explore this suggestion with State and local officials in conjunction with the recommendations under Contention 3.6. The possibility exists that a site area alerting of the public in extremely adverse weather conditions may precipitate early citizen departure that would compound traffic and snow removal problems. However, the Board believes the recommendation deserves further consideration.

The Board is aware that in the event of a snowstorm at the time of a radiological release, deposition will probably not occur very far from the plant. (Sears, Tr. 12,342-44.) However, this probability is dependent on wind velocity and in fact, as the Staff has pointed out, there is a limited amount of data on snowout. (Blond, Tr. 12,953-57.) Even if such conditions should provide limited protection, it obviously would be a different case if the snow conditions occurred after or before the release. (See Board's review of Contention 3.6 for further discussion and details of this weather scenario.)

The Board does not believe that the license condition called for by this contention should be imposed; therefore this contention is not sustained. We also conclude that emergency plans might well be modified to provide for alerting of the public at the site emergency level when adverse weather conditions are likely to degrade the evacuation routes within Indian Point's EPZ.

## **T. Contention 4.7**

Contention 4.7, which was based on contentions submitted by Parents and WESPAC, states:

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

A number of witnesses submitted testimony related to this contention and a summary of their evidence follows.<sup>113</sup>

### ***Summary of Significant Testimony***

Intervenors' witnesses testified that deaf persons would not be able to respond to siren alerts, TV, radio, or loudspeaker announcements (O. Cohen, ff. Tr. 10,020, at 3) and that 600 deaf people live within the 10-mile EPZ in Westchester County. (Rowley, ff. Tr. 10,025, at 1.) It was stated that the disabled who are blind are not likely to bring the clothes, medication, and other items suggested by the brochure. (Burger, ff. Tr. 10,401, at 2.) A survey in Westchester County indicated that the level of understanding and information about emergency plans was very poor despite public dissemination of information. (Altschuler, ff. Tr. 10,880, at 4.) Another witness alleged that 50% of the Spanish-speaking population in Rockland County do not speak English, that another 25% have a limited ability to speak English, and that 6,000 Hispanics live in the Haverstraw area. (del Pillar, ff. Tr. 10,255, at 1-2; Tr. 10,257.) An expert witness in communications stated that the public information brochure and broadcast scripts do not contain the different message content and phraseology that are necessary to achieve unified responses from diverse sociological and psychological segments of the population. (Smith, ff. Tr. 10,269, at 12, 14.)

Witnesses for Rockland County testified that 116 non-institutionalized blind people live in Rockland County in an area which is nearest to and most in danger from an accident at the Indian Point plant; that the plan does not realistically address the plight of people with cataracts and accidental blindness (and other sight-degenerating conditions) (Wein, ff. Tr. 4578 at 1-2); and that within the EPZ, there are approximately 1900 families comprising 6,000 Hispanics. (O'Lear, ff. Tr. 1808, at 2; Tr. 1839.) It was contended that the brochures were written only in English, but that 35% of people in Haverstraw are Hispanic, and other residents speak and read only French, Russian, or Chinese. Of the 17 officers in the Haverstraw Police Department, four are Hispanic. (Holland, ff. Tr. 1661, at 2; Tr. 1692.)

In the view of the New York State's witnesses, alerting and informing persons with non-mobility handicapping conditions (*e.g.*, deafness or blindness) cannot be improved by upgrading emergency plans. Every

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<sup>113</sup> Parties and witnesses included: Intervenors (O. Cohen, Rowley, Burger, Altschuler, del Pillar, Smith); Rockland County (Wein, O'Lear, Holland); New York State (Davidoff, Czech); Licensees (L. Cohen, Schmer, Scalpi); Staff (Sears, McIntire, Keller, Kowieski, Husar).

effort is being made to identify such persons and to assist them with special arrangements, but these people would have problems in any emergency. It was contended that a burden remains with families or friends to identify these individuals in the first instance. Parents or guardians must deal with the needs of minors in advance and must see to their needs in all emergencies. As indicated *infra*, a study revealed that there were very few unsupported non-English-speaking persons and no predominant foreign language spoken in the EPZ. Therefore, FEMA agreed it would be impractical to develop plans or brochures in other languages. (Davidoff/Czech Supp., ff. Tr. 11,313, at 13.)

Licensees' witnesses testified that the public information booklet, "Indian Point, Emergency Planning and You," was being revised, and a program was being undertaken to publicize the booklet. (Con Ed Onsite Supp. Testimony, ff. Tr. 11,713, at 2-3.) In both Orange and Putnam Counties, public meetings have been held to discuss emergency plans and obtain suggestions for improvement. (Schmer/Scalpi, Tr. 12,077-79.)

According to the Staff, NRC regulations require a yearly dissemination of public information. This information must address public notification and protective actions, and must provide general information about radiation and a listing of local broadcast stations to be used during an emergency. A siren system has been installed to alert the public within the 10-mile EPZ. The Staff witness asserted that handicapped, young, or non-English-speaking people have problems in many aspects of modern life, but they are helped by other citizens. Both Licensees hold public information meetings with civic and church groups. Also brochures have questionnaires for residents who may need special arrangements. It is not anticipated that NRC regulations foster a complete understanding by the general public, and the Staff expects that people will help each other during a radiological accident as they would in other emergencies. (Sears, ff. Tr. 12,244, at 58-59.)

FEMA witnesses testified that the primary means of alerting the public to a radiological emergency at Indian Point is a system of sirens. (McIntire, *et al.*, ff. Tr. 14,720, at 5.) During the exercise of March 9, 1983, a spot check by FEMA indicated that the public had heard sirens. (McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 29, 39, 47-48, and 53.) FEMA is developing additional alert and notification testing procedures, and a formal evaluation of the system will be undertaken when those procedures are completed. Public education brochures are being revised and will be distributed when available. Although not all residents understand the brochures, it is believed that they will follow instructions provided by the emergency broadcast system.

The FEMA witnesses also testified that a Public Information Officers work group recently conducted a survey of non-English-speaking persons within the EPZ and found only relatively small non-English-speaking communities. These included 17 Greeks, 961 Spanish and Portuguese, 378 Haitian/Creole, 2000 Yiddish and 50 Orientals. Because of this small number, FEMA agrees with the State and counties' recommendations that it would be impractical to publish brochures in foreign languages. Special posters and telephone inserts are being developed and will be available in 1983. State and county leaders believe a more effective way to reach non-English speakers is through community social and religious leaders. (McIntire, *et al.*, ff. Tr. 14,720, at 5.) The plans do not provide a backup system or alternative means of notifying the general public, but a route alerting capability through police and fire trucks with public address systems was demonstrated in several counties during the 1982 exercise. (McIntire, *et al.*, ff. Tr. 1307, at 44-45.)

### ***Conclusion***

As we indicated in our evaluation of other contentions, the primary methods provided in local emergency response plans to inform and notify the public in the Indian Point area are information brochures, a system of sirens located throughout the EPZ designed to alert people to turn on radios and television sets, and instructions communicated through an emergency broadcast system. Sections E and G in NUREG-0654 Rev. 1 establish criteria for notifying and informing the public of matters relating to a radiological emergency. The record in this proceeding, we are satisfied, reflects the adequacy of efforts made by Licensees, and State and local governments to meet those criteria. The informational and educational materials — brochures and posters — have been, and after revisions, will continue to be widely distributed. The siren system has been tested and found adequate pending development of further alert and notification testing procedures by FEMA. FEMA has expressed some concern about the limited understanding by the public of the appropriate response to the sirens, but we are convinced further public information programs and continued exercises will help broaden public comprehension. We note that FEMA did find, during its assessment of the 1983 exercise, a deficiency in the publication and distribution of the brochures and the posting of informational signs in motels and hotels in Westchester and Rockland Counties. (See McIntire, *et al.*, ff. Tr. 14,720, Post-Exercise Assessment at 27-28, 40-41.) This is evidence, in our view, that communication in a busy

world (and area) is a never-ending process and is a problem that local officials can remedy only with continuing attention.

There is no specific requirement to be met in NRC emergency planning regulations for the special alerting and informing of the groups considered in this contention. Nevertheless, efforts to communicate with handicapped individuals must meet some test of reasonableness. The current methods for reaching the deaf, the blind, the young, and those who do not speak English are not substantially different in radiological emergency planning than those used for reaching groups who do not suffer these handicaps. Public information response cards, other public outreach programs, and the assistance of families and friends help identify individuals in need of assistance. We believe more assistance should be provided, however, for the effectiveness of emergency plans in a densely populated area like Indian Point; and more can be required. No backup system is included in the emergency response plans; if the siren alert system should fail, most of the disadvantaged people discussed here could have difficulties in being speedily informed. A backup system might not only be helpful, but could prove essential for some of the handicapped. We also believe that a renewed and pointed effort should be made to reach those with sight or hearing problems since the faculties of hearing and seeing are those relied on for comprehending siren warnings and emergency messages. (Schmer, Tr. 12,129.) The evidence considered *infra* on problems related to the receipt and handling of cards is pertinent here.

On problems concerning the young, most of the testimony submitted in support of this contention was previously considered in connection with the issue of evacuating children during an emergency. (See, e.g., Burnham/Kesselman, *et al.*, ff. Tr. 9997, *et seq.*) Intervenors have suggested no method for upgrading emergency plans for the young, nor can this Board conceive of one. The care of the young has always been entrusted to parents and temporary guardians such as teachers, counselors, or others so designated. The standard of care for the young in emergencies is the same standard as in non-emergency situations, and no regulatory substitute can improve on the degree of watchfulness that children always require and generally receive.

Finally, in regard to those persons who do not speak English, a conflict exists in the testimony; we are unable to resolve that conflict. A committee of public information officers found no evidence of any large numbers of such individuals. However, testimony by residents of Rockland County (Holland and del Pillar) indicated a large number of Hispanics in Haverstraw in the county. We believe that FEMA should resolve this conflict; if it finds a sizeable number of Spanish-speaking residents in

that community, we recommend the publication of brochures and posters in Spanish as the practical and reasonable solution to such a deficiency.

The Board concludes that portions of this contention dealing with the deaf and blind have been validated, those dealing with the young have not, and part of the contention affecting non-English-speaking Hispanics is still to be resolved. Accordingly, we recommend that a renewed effort be undertaken to communicate emergency planning information to those individuals with seeing or hearing disabilities, and that a backup communication system for such people be investigated. Further, we recommend that FEMA undertake an additional review of the problem involving the non-English-speaking population.

#### **U. Commission Question 5: Comparative Risk**

Commission Question 5 asks:

Based on the foregoing, how do the risks posed by Indian Point Units 2 and 3 compare with the range of risks posed by other nuclear power plants licensed to operate by the Commission? (The Board should limit its inquiry to generic examination of the range of risks and not go into any site-specific examination other than for Indian Point itself, except to the extent raised by the Task Force).

Staff, Licensees, and Intervenors UCS/NYPIRG presented evidence on this question and all filed proposed findings.

Intervenors' position is founded on the belief that probabilistic risk assessment is a very difficult task and its results are very unreliable when used for plant-to-plant comparisons (Sholly, ff. Tr. 12,730, at 4-5.) Intervenors would have us find that there are two essential components of such assessments: one comprising groups of site-related characteristics and another comprising groups of plant-related characteristics. The first group involves the nature of the site and the surrounding environment. It includes meteorology, population numbers distribution, emergency response capability and the like. The second group includes the design of the reactor and the balance-of-plant, operator training, maintenance and emergency procedures, and management capabilities. (*Id.* at 2.) These varying characteristics produce significant variations in the risk presented by different reactors at different sites. But, in the opinion of Intervenors' witness, the uncertainties involved in assessing the site-related characteristics are more likely to be "coherent" from site-to-site than are the uncertainties in assessing plant-related characteristics. That is, the site characteristics are more likely to affect safety in the same manner from plant to plant, affecting various plant assessments in the same way and

leaving comparative rankings on this basis constant. (*Id.* at 4.) Comparisons which involve plant-related (design/operation) characteristics, on the other hand, vary in many different ways with methodology, data base, and fundamental assumptions, and differ in completeness. (*Id.* at 4-5.)

There are many studies about the influence of siting factors on risk, and a large number of sensitivity studies have explored the effects of factors such as meteorology and demographics. (*Id.* at 4.) In particular Sandia Laboratory has produced NUREG/CR-2239,<sup>114</sup> which is a study intended to help define the risks associated with existing reactor sites. It utilized the CRAC-2 accident consequence code to perform consequence calculations for 91 reactor sites using 1970 census population data, regional weather data from 29 National Weather Service stations, and updated economic data. The core inventory was taken as the same for each site (a 3412-MWt PWR, end-of-cycle, with a burnup of 33,000 MWd/metric ton). In addition, assumptions were made to model seven different emergency responses: three sets assuming radial evacuation from a 10-mile zone with delay times of one, three, and five hours; one set assuming evacuation of a 10-mile zone at a radial speed of one mile per hour with a delay time of five hours; a set assuming no evacuation but prompt sheltering and relocation after six hours; a set assuming no response whatever (normal activities); and the seventh set assuming a weighted average of the first three sets (the so-called "best estimate" or "summary evacuation"). (*Id.* at 6-7.)

The study also used five different "Siting Source Terms," SST-1, -2, -3, -4, -5, the derivation of which was separately detailed in NUREG-0773. A brief description of the damage states which yield these source terms is given in Table XVII, which we have adopted from witness Sholly's testimony. More details on the terms are given in Table XVIII, from the same source. (Sholly, ff. Tr. 12,730, App. A at A-1, A-2.)

In the opinion of Intervenor's witness, the study's calculations showed clearly that "the SST-1 source term is the most significant of the five." (Sholly, ff. Tr. 12,730, at 7.)

The study presents conditional CCDF curves for various consequences for each source term; Intervenor's witness selected curves assuming the SST-1 term, summary evacuation (*vide supra*) and actual site population and wind rose. (Sholly, ff. Tr. 12,730, App. B at B-1, Appendix C at C-1 through C-18.) It is important to note that these curves are *conditional*

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<sup>114</sup> Technical Guidance for Siting Criteria Development, D.C. Aldrich, *et al.*, Sandia National Laboratories NUREG/CR-2239, SAND 81-1549, December 1982.



**TABLE XVII**  
**Brief Descriptions Characterizing the Accident Groups**  
**Within the NRC "Accident Spectrum"**

Group 1 (SST-1)	Severe core damage. Essentially involves loss of all installed safety features. Severe direct breach of containment.
Group 2 (SST-2)	Severe core damage. Containment fails to isolate. Fission product release mitigating systems ( <i>e.g.</i> , sprays, suppression pool, fan coolers) operate to reduce release.
Group 3 (SST-3)	Severe core damage. Containment fails by basemat melt-through. All other release mitigation systems function as designed.
Group 4 (SST-4)	Modest core damage. Containment systems operate in a degraded mode.
Group 5 (SST-5)	Limited core damage. No failures of engineered safety features beyond those postulated by the various design basis accidents. The most severe accident in this group assumes that the containment functions as designed following a substantial core melt.

CCDF curves, conditional upon the occurrence of a SST-1 release; that is, the probability of such a release was, in effect, assumed as one. No allowance has been made for the fact that such a release may be very unlikely, and no account has been taken of the fact that the probability of such a release may vary from site to site.

Intervenors' witness pointed out that Indian Point is one of a small group of sites for which the conditional probability of any early fatalities exceeds 0.3 for an SST-1 release; the others are Limerick, Braidwood and Zion. (Sholly, ff. Tr. 12,730, at 9.)

Indian Point is one of only a few sites where a conditional probability of 0.1 corresponds to 1000 or more early deaths; the others are Limerick, McGuire, Midland, and Zion. (*Id.*) There are only a few sites where the number of latent cancer fatalities exceeds 10,000 at a conditional probability of  $10^{-1}$ . (*Id.*)

As to mean value for consequences (a quantity corresponding to expected value as that term is used under Commission Question 1, *supra*), Intervenors' witness pointed out that Indian Point stands second only to Limerick with respect to early fatalities; stands highest with respect to early injuries; and stands highest with respect to latent cancer fatalities

**TABLE XVIII**  
**NRC Source Terms for Siting Analysis**  
**(Sholly, ff. Tr. 12,730, Appendix A at A-2)**

Release Characteristics	Source Term				
	SST-1	SST-2	SST-3	SST-4	SST-5
Accident Type	Core Melt	Core Melt	Core Melt	Gap Release	Gap Release
Containment Failure Mode	Overpressure	H <sub>2</sub> Explosion or Loss of Isolation	—	—	—
Containment Leakage	Large	Large	1%/day	1%/day	0.1%/day
Time of Release (hr)	1.5	3	1	0.5	0.5
Release Duration (hr)	2	2	4	1	1
Warning Time (hr)	0.5	1	0.5	—	—
Release Height (meters)	10	10	10	10	10
Release Energy	0	0	0	0	0
<i>Inventory Release Fractions</i>					
Xe-Kr Group	1.0	0.9	$6 \times 10^{-3}$	$3 \times 10^{-6}$	$3 \times 10^{-7}$
I Group	0.45	$3 \times 10^{-3}$	$2 \times 10^{-4}$	$1 \times 10^{-7}$	$1 \times 10^{-8}$
Cs-Rb Group	0.67	$9 \times 10^{-3}$	$1 \times 10^{-5}$	$6 \times 10^{-7}$	$6 \times 10^{-8}$
Te-Sb Group	0.64	$3 \times 10^{-2}$	$2 \times 10^{-5}$	$1 \times 10^{-9}$	$1 \times 10^{-10}$
Ba-Sr Group	0.07	$1 \times 10^{-3}$	$1 \times 10^{-6}$	$1 \times 10^{-11}$	$1 \times 10^{-12}$
Ru Group	0.05	$2 \times 10^{-3}$	$2 \times 10^{-6}$	0	0
La Group	$9 \times 10^{-3}$	$3 \times 10^{-4}$	$1 \times 10^{-6}$	0	0

among the sites examined. (*Id.* at 9-10.) Even when corrected for power level by numerical scaling, the Indian Point Units plants place first and second in mean (expected) conditional early injuries, latent fatalities, person-rem exposure, and property damage; and place second and third in early fatalities. (*Id.* at 10-11.)

Thus Intervenors would have us note that, when one considers only the conditional probability of various consequences following a severe accident, Indian Point stands above virtually all other sites in potential for serious consequences. As to the notion that plant characteristics may compensate in some measure for the serious results which are predicted should an accident occur, Intervenors are not optimistic. As noted above, Intervenors' witness believes that the plant-related aspects of risk assessment are considerably less well-understood than the site-related aspects. (*Id.* at 4.) Although both the Staff and Licensees presented comparative analyses of this sort, Intervenors pointed out that these analyses admittedly differ from plant to plant and use inconsistent methods and assumptions. (Paddleford, *et al.*, ff. Tr. 12,662, at 9-10; Bley, Tr. 12,674; Rowsome/Blond, ff. Tr. 12,834, at 6; Sholly, Tr. 12,740-42.)

Intervenors believe that there exists no reliable body of probabilistic reactor safety analysis with which the IPPSS can be compared to assess the standing of Indian Point. The landmark PRA, WASH-1400 (Reactor Safety Study, 1975) had such large uncertainties and such omissions that it cannot serve to establish a "range of risks" for comparison with IPPSS. (Sholly, ff. Tr. 12,730, at 14-16.)

The Reactor Safety Study Methodology Applications Program (RSSMAP) produced PRAs for Grand Gulf Unit 1, Sequoyah Unit 1, Calvert Cliffs Unit 2, and Oconee Unit 3, but these studies, in Intervenors' view, also had limited usefulness for comparisons because they used certain highly criticized techniques in common with those of WASH-1400 and their basic conservatism differs from that of IPPSS. (*Id.* at 22-25; Rowsome, Tr. 12,851.)

Although some PRA-like studies have been conducted under the Integrated Reliability Evaluation Program (IREP) (Rowsome/Blond, ff. Tr. 12,834, at 5), they are not comparable to the IPPSS in the events they cover. Because of their limitations as reliability studies rather than risk analyses, the release category frequencies from IREP were not used as input to consequence studies. (Sholly, ff. Tr. 12,730, at 19.) These studies were not aimed at comparison with Reactor Safety Study results. (*Id.* at 20.)

As to the individual PRA studies done for specific plants (Rowsome/Blond, ff. Tr. 12,834, at 5), they generally excluded so-called

external events such as fires and severe weather. Intervenors would have us find that comparisons with IPPSS are not sufficiently reliable to be considered. (Sholly, Tr. 12,741-42.) The individual analyses also differ in details such as their modeling of protective actions and the size of the reactor with which they dealt. (Sholly, ff. Tr. 12,730, at 21, 22.) Only the study conducted for the Zion site is truly comparable to IPPSS, but that yields data from only two reactors. (*Id.* at 22.)

Nor do Intervenors believe that a review of the design features of the Indian Point plants, notably the strong containment buildings (Paddleford, *et al.*, ff. Tr. 12,663, at 20), can help us assess the relative safety of these plants. Indian Point's design features are a "mixed picture," in Intervenors' view. (Sholly, Tr. 12,743-45.)

Lastly, Intervenors, unlike Licensees and Staff, do not feel that comparisons with the Commission's proposed safety goals<sup>115</sup> can be useful in answering Commission Question 5. Intervenors would have us find that such comparisons are meaningless, in part because of the degree of uncertainty in risk estimates (Rowsome/Blond, ff. Tr. 12,834, App. B at B-13, B-19), and in part because the safety goals focus only on early fatality, latent cancer, and core melt frequency. Intervenors would also stress other consequences such as land contamination, financial impact, and non-fatal disease. (Sholly, ff. Tr. 12,730, at 25.) In fine, the Intervenors believe that no valid generic comparison is available.

Staff acknowledges that the Indian Point site differs from the average nuclear power plant site in that the populations within circles of 10-, 30-, or 50-mile diameter around the site are each about 10 times greater than the population around a median site. (Rowsome/Blond, ff. Tr. 12,834, at 28.) The property values are also high. (*Id.*) Were the same plants located at a typical site, the risks to each nearby individual would be about the same, but the societal risk would be only one-tenth as great, simply because there are roughly 10 times as many people at risk at Indian Point as at the average site. (*Id.*) Indeed, Staff witnesses pointed out that the consequences in terms of latent cancer fatalities calculated in NUREG/CR-2239 for an SST-1 release were about a factor of six higher than for the median site. (*Id.* at 30.) Staff witnesses also pointed out that the variation in consequences for the less severe release categories in NUREG/CR-2239 was considerably less than for SST-1, that

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<sup>115</sup> These goals are set forth in "Safety Goals for Nuclear Power Plants: A Discussion Paper" NUREG-0880, and a Commission Policy Statement, 48 Fed. Reg. 10,772 (1982).

indeed for SST-3 there is no substantive difference among sites.<sup>116</sup> (*Id.* at 30-31.)

Staff would also have us believe that, when plotted together, the CCDF curves for all sites studied in NUREG/CR-2239 show “no clear discontinuities in the family of curves” for an SST-1 release. (*Id.* at 32.) We reproduce the figure from NUREG/CR-2239 as Figure 2 here (NUREG/CR-2239, Fig. 2.4.2-1). In the Board’s opinion, when one allows for the logarithmic scale of the ordinates, the “early fatality” curves show two sites lying clearly above the rest and the “early injury” curves show two which are substantially above the others. Comparison with other curves in the report leads us to believe that these two curves represent Indian Point and Limerick. We are inclined to agree with Inter-venors’ witness that these two sites are “outliers.” (Sholly, ff. Tr. 12,730, at 26; Tr. 12,766.)

But, of course, as we noted above, the NUREG/CR-2239 figures represent CCDFs *conditional upon* a large release. They do not allow for the varying probability of such a release at various sites. The Staff notes that there are PRAs available for at least 13 U.S. power plants (Rowsome/Blond, ff. Tr. 12,834, at 5.) Although all of these examine ranges of radioactive release and combine them with probabilities, we are cautioned again that there are large uncertainties in these analyses, that no attempt has been made to resolve inconsistencies in approach and methods, and that the appropriateness of the comparison may be in question. (*Id.* at 6.) Staff witnesses noted, however, that all studies analyzed have treated so-called “internally initiated” events in roughly the same manner, where “internally initiated” events include spontaneous transients and LOCAs and “externally initiated” events include earthquakes, floods, storms, and fires. (*Id.*) Of the 13 PRAs mentioned by the Staff, only four treated externally initiated events at all and only one had a treatment approaching that of the IPPSS for completeness. (*Id.* at 5-7.)

Staff witnesses presented four figures in an effort to compare the import of these analyses and hence give some idea of the relative safety of Indian Point. The first three figures compared core melt frequencies, uncertainty in core melt frequencies, and severe release probability (or frequency) resulting from internally initiated events. They concluded that the core melt frequencies for the Indian Point Units were within the range for all the plants studied and that, when uncertainties were

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<sup>116</sup> There is evidence of record to show that the present source term assumptions may be too large. (Stratton, *et al.*, ff. Tr. 8190.) Smaller source terms would, as mentioned above, reflect more favorably on Indian Point. We have already noted, however, that we believe accepting a reduction in source terms at present would be premature. (See p. 865, *supra.*)

FIGURE 2. Comparison of CCDF Curves for Various Sites (from NUREG/CR-2239)

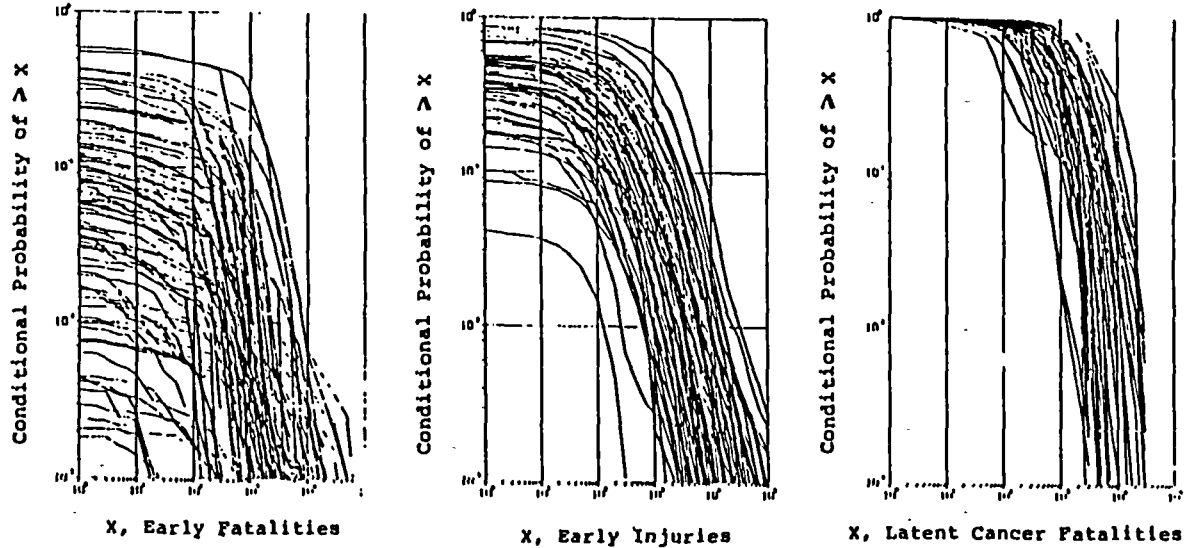


Figure 2.4.2-1. (a) Early Fatality, (b) Early Injury, and (c) Latent Cancer Fatality CCDFs Conditional on an SSTI Release at all 91 Current U.S. Reactor Sites. Assumptions: 1120 MWe reactor, Summary Evacuation, representative meteorology. Range of means: early fatalities 0.4 to 970, early injuries 4 to 3600, and latent cancer fatalities 230 to 8100.

considered, the bounds for Indian Point were within the uncertainty range of the others. (*Id.* at 7-8.) As far as severe release frequency is concerned, when only internally initiated events are considered, the Indian Point Units are among the best. (*Id.* at 9.)

However, their fourth graph, which compared internally initiated events with the total of internally plus externally initiated events for the few plants for which such figures exist, showed that the risk at Indian Point is entirely dominated by externally initiated events. (*Id.*) From these considerations the Staff concluded that the Indian Point Units' societal risk was average for internally initiated events and was likely to be even less in view of the IPPSS-inspired fixes. (*Id.* at B-6, B-7.) Staff also concluded that there is no reason to believe that either the individual or the societal risks posed by Indian Point are well outside the range of risks of other plants licensed to operate by the Commission. (*Id.* at 33.)

Staff believes that Indian Point is qualitatively less vulnerable to certain classes of accidents than other plants. These classes include interfacing systems LOCAs, loss of both offsite and onsite power, failure of auxiliary feedwater, and certain special plant-specific vulnerabilities. (*Id.* at 10.) The small number of large pipes penetrating the containment and very reliable pressure boundary valves decrease the chance of an interfacing systems LOCA; gas turbine generators in addition to diesel generators lower the chance of total power failure and hence lower the chance of auxiliary feedwater failure; and the elaborate study conducted during the IPPSS has found no special vulnerabilities. (*Id.* at 10-14.) Staff also has concluded that the Indian Point units are generally less vulnerable to overpressure failure of the containment than the average plant. (*Id.* at 15-19.)

Both Licensees, in answering Question 5, put some emphasis on a comparison of Indian Point with the Preliminary Safety Goals (48 Fed. Reg. 10,772 (1983)). We are convinced that compliance, or lack of it, with those goals is not a factor in answering Commission Question 5. On its face, the question asks how Indian Point's risks "compare with the range of risks posed by other nuclear plants licensed to operate by the Commission." All currently licensed plants were licensed without regard to the Proposed Safety Goals, and there exists no formal comparison with the safety goals for most plants.<sup>117</sup> The Commission has directed

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<sup>117</sup> Staff witness Rowsome asserted that it was his "understanding and expectation" that the majority of plants in operation meet the mortality guidelines (which Indian Point also does) and that less than half meet the core melt frequency guideline (which Indian Point does not). (Rowsome, Tr. 12,877-78.) This assertion was, however, characterized as a "guess," having no "particular rigor or precision." (Rowsome, Tr. 12,878.)

that "the NRC will continue to use conformance to regulatory requirements as the exclusive licensing basis" (*id.*) during the evaluation period. It seems clear that a comparison with currently licensed plants cannot be effected by comparison with the Proposed Safety Goals and that Commission Question 5 is an inappropriate rubric under which to deal with the matter. We have, therefore, dealt with conformance to the Proposed Safety Goals under Commission Question 1, *supra*.

Licensees agreed that there is no substantial number of plants for which PRAs truly comparable to the IPPSS have been done (Paddleford, *et al.*, ff. Tr. 12,662, at 9-10; Tr. 12,677-78), that there is at present only one. (Tr. 12,677.) Only the Zion PRA and IPPSS considered external initiating events in detail, as we have pointed out. (Paddleford, *et al.*, ff. Tr. 12,662, at 9-10; Rowsome/Blond, ff. Tr. 12,834, at 4-7.) Nevertheless, Licensees' witnesses presented certain comparisons. They adduced a table, prepared by the NRC Staff as part of a memorandum from William J. Dircks to the Commission (Jan. 5, 1983, Draft), in which plant-specific PRAs were reviewed to compare core melt frequency, major release frequency, and early and latent fatality risks to an individual near the plant, all from internally initiated events. The table lists 16 plants including Indian Point Units 2 and 3. (Paddleford, *et al.*, ff. Tr. 12,662, at 11, Table 2.) They note that "[b]ased on the results in this table, the risk to an individual living within one mile of Indian Point compares favorably with the estimated risk to individuals living within one mile of other power plants." And they noted that the Indian Point core melt frequency is within the range of the other estimates presented in the table, and the frequency of a major release compares favorably with the estimates for the other plants in the table. (*Id.* at 12.) This, in the Board's view, is certainly true. However, as we have noted above, the Indian Point risks are dominated by externally initiated events, so a comparison which involves only internally initiated ones seems a weak reed to lean on indeed. We note also that the table the Licensees' witnesses present bears at its head the legend "Warning — There are large uncertainties associated with the values presented in this table. Also, PRAs were not performed using consistent methodologies and assumptions." (*Id.* at 11; Tr. 12,674.) Licensees' witnesses also present quantitative values for the frequency of an interfacing systems LOCA for seven plants including Indian Point Units 2 and 3. (Paddleford, *et al.*, ff. Tr. 12,662 at 13, Table 3.) Here the Indian Point plants display the lowest frequencies of all save one. We have, of course, already noted that the Indian Point plants were, in Staff's opinion, less subject to this particular accident than most.



Where CCDF curves were available for the plants in their Table 2, Licensees' witnesses presented these curves also for early fatalities and latent cancer fatalities. (*Id.* at 16-17.) The witnesses again reached the conclusion that the risks at Indian Point are "within the range" posed by other plants. (*Id.* at 14.) Again the data were for internally initiated events only. (*Id.*)

In an entirely different approach, similar to Staff's qualitative designs comparison but more detailed, Licensees' witnesses listed eight design features which they say "could lead to lower frequencies of major releases from the Indian Point containment than from some others." They are:

- (1) The design and construction of these containments, with a pressure limit of 141 psia and a large volume of  $2.6 \times 10^6$  cu. ft., gives them the capability to withstand internal pressures well in excess of the design pressure of 62 psia. Additionally, the containments can withstand without significant structural damage all credible seismic events that could occur in this area. The containment building configuration allows gases to circulate and mix easily to prevent local accumulation of hydrogen. This configuration also provides for more effective containment heat removal capability. In addition, the geometry of the reactor cavity promotes dispersion of the core debris, thereby increasing its coolability. Also, the geometry of the containment floor provides for easy entry of water to the reactor cavity to cool the debris.
- (2) Containment cooling capability is provided by diverse systems. The design includes five fan cooling units in addition to four pumps capable of providing containment spray recirculation. The availability of any one of the fans or sprays is sufficient to prevent containment overpressure failure. Two recirculation pumps, located inside containment, are unique to Indian Point and are two of the pumps capable of providing containment spray.
- (3) The Indian Point containments have two sumps that provide for recirculation of emergency core cooling water. The presence of two sumps is also unique to Indian Point.
- (4) The presence of the recirculation pumps inside containment provides the capability of recirculating emergency core cooling water without its leaving the containment building.
- (5) Three gas turbine generators are available for supplying power to either unit. This feature is unique to Indian Point and provides an unusual degree of diversity in emergency power sources.
- (6) Confirmatory signals (S signals) are sent upon actuation of emergency safeguards to certain power-operated isolation valves to ensure that, if a valve had been inadvertently placed in an incorrect position, it would be restored to its correct position. This feature reduces the likelihood of bypassing the containment.

- (7) The containment weld channel pressurization system and the isolation valve seal water system help to assure that the containment leak tightness is maintained.
- (8) The service water and component cooling water systems are arranged to maximize redundancy of active components. Any one of six service water pumps can supply any service water load. Similarly, either of two component cooling water pumps can be connected to any component cooling water load. The flexibility provided by these and similar interconnections within and between systems results in particularly low risk from internal initiating events at Indian Point.

(*Id.* at 20-22.)

The Licensees' witnesses noted that the risk reductions due to some of these features have been quantified using information contained in IPPSS. They cite reductions of one or more orders of magnitude in risk because of such features as the gas turbines (5) and the fan coolers (2). (*Id.* at 22.)

Licensees also presented a witness to address the significance of NUREG/CR-2239. (Potter, ff. Tr. 12,782.) In his view, the uniform releases and associated frequencies of NUREG/CR-2239 "should not be assumed to apply to real plants." (*Id.* at 2.) He further pointed out that the releases examined in the IPPSS, releases for which associated frequencies have been carefully evaluated, do not have any simple correspondence to the SST categories of NUREG/CR-2239. (*Id.* at 3.) For example, IPPSS release category 2RW has no SST counterpart. Category 2RW, although a major release, yields no early fatalities in IPPSS because it is delayed and permits effective evacuation. (*Id.* at 5.) It is the assumption of early containment failure coupled with a severe release that yields a high mean estimate for early fatality risk in NUREG/CR-2239 for SST-1. Because no similar release category with late containment failure was used, large overestimates of early fatality risk result unless adjustment is made for plant-specific considerations. (*Id.* at 7.) Licensees' witness ultimately opined that the use of NUREG/CR-2239 figures will overestimate early fatality risk from the Indian Point plants and that the figures are "inapplicable to other plant/site combinations as well." (*Id.* at 10.)

The witness believes that the only reliable conclusions of NUREG/CR-2239 are those in certain sensitivity studies. He credits the conclusions that: (1) a reduction of source term is most beneficial to plants with high population density; (2) emergency response is effective in reducing risk; (3) shielding or early relocation effectively reduce ground dose; (4) a 10-mile evacuation with shelter from 10 to 25 miles

is as effective as a 25-mile evacuation; and (5) emergency response does not greatly affect latent fatality risk. (*Id.* at 11-13.)

Lastly, the witness noted that the mean latent fatality risk for Indian Point, as calculated in NUREG/CR-2239, is 4.7 times the average risk for all sites for an SST-1 release. He believes that this factor suggests that the variations in severe release frequency from plant to plant may be at least as important as variation in population density. (*Id.* at 15.)

### ***Comparison of Indian Point Risk with Non-nuclear Risks***

Licensees presented another witness, Dr. Bernard L. Cohen, whose testimony was directed at a comparison of non-nuclear risks with the risk from Indian Point. (B. Cohen, ff. Tr. 14,427.) The Board admitted this testimony under Question 5, saying, "the Board feels that, although it does not precisely fit under Question 5, it does relate to the overall questions of information which the Commission is trying to obtain." (Tr. 12,724.) Although Question 5 addresses only the relative risk of nuclear power plants compared to one another, we think the Commission may be interested in a comparison of the risk from Indian Point with other risks incurred by the population at large. Therefore, we include here a brief review of Dr. Cohen's testimony and some of his risk figures.

Dr. Cohen made comparisons in two ways:

- (1) He calculated a demographic statistic derived from life-tables, called "Loss of Life Expectancy" (LLE), which would result from many different risks to life, including nuclear power plants. (*Id.* at 3-4.)
- (2) He calculated the number of dollars required to save a life (statistically) for each of several possible life-preserving or accident-preventing measures, including the addition of a filtered vented containment system (FVCS) at Indian Point Units 2 and 3. (*Id.* at 17-27.)

We present here Dr. Cohen's results on LLE, in the form in which he gave them, as Table XIX. Included in the Table is an LLE value for the Indian Point plants of 0.006 day. This estimate means that an individual spending a lifetime near Indian Point would expect his/her life expectancy to be shortened by 0.006 day because of the risk of accidents at Indian Point.

Unfortunately, we have been unable to confirm the result that Dr. Cohen presented for Indian Point using the sources that he cited. The value was obtained using a mortality risk estimate of  $1.2 \times 10^{-8}$  fatality per year, which the witness said was obtained from "Draft Testimony to

**TABLE XIX**  
**Loss of Life Expectancies (LLE)**  
**(From selected sources)**

<b>Activity of risk</b>	<b>Days LLE</b>
heart disease	2100
cigarettes (1 pack/day; male-female average)	1600
working as a coal miner	1100
cancer	980
30 lbs. overweight	900
stroke	520
15 lbs. overweight	450
all accidents	435
Vietnam army duty	400
living in southeastern U.S. (SC,GA,AL,MS,LA)	350
mining or construction work (due to accidents only)	320
motor vehicle accidents	200
pneumonia, influenza	130
alcohol	130
homicide	90
occupational accidents (average)	74
small cars (vs. standard size)	50
drowning	40
speed limit 55-65 mph	40
falls	39
poison + suffocation + asphyxiation	37
fire, burns	27
radiation worker, age 18-65	12
firearms	11
diet drinks (one/day throughout life)	2
all electric power in U.S. (nuclear) (UCS)	1.5
hurricanes, tornadoes	1
airline crashes	1
dam failures	0.5
all electric power in U.S. (nuclear) (Govt. estimates)	0.03*
spending lifetime near Indian Point	0.006

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\*This number includes all Americans, even those who do not live near a nuclear power plant.

be submitted by licensees under Commission Question 5; subject to confirmation.” (*Id.* at 12 n.1.) We cannot confirm this estimate from the testimony submitted by Licensees on Commission Question 5, nor, for that matter, from that submitted by them on Commission Question 1. The total fatality estimate (early fatalities plus fatal cancers) that we are able to obtain from Licensees’ testimony on Commission Question 5 comes to  $9.3 \times 10^{-8}$ . (Paddleford, *et al.*, ff. Tr. 12,662, at 11.) This estimate is consistent with what we can calculate from Licensees’ testimony on Commission Question 1. (Licensees, ff. Tr. 6961, at 38.) If we use this value to perform the calculation used by Dr. Cohen, we obtain an LLE = 0.048 day.

There are some additional problems with Dr. Cohen’s testimony. He stated that the mortality risk he used was the “risk of living near the Indian Point plants” and his LLE = 0.006 day was the average loss “from spending a lifetime in that area.” (Cohen, ff. Tr. 14,427, at 12.) However, he defined neither “near” nor “in that area.” This omission, plus the fact that we have been unable to confirm by study of the Licensees’ testimony the mortality risk estimate he used, makes it impossible for us to ascribe a precise meaning to his estimate. He also gave a figure that would result from conversion of all electric power plants in the U.S. to nuclear power, which he cites in the table as being based on “Govt. estimates.” (*Id.* at 5.) The tabulated LLE = 0.03 day, however, does not agree with the result he obtained when he discussed the Rasmussen Report, which purportedly was the source of his “Govt. estimates”; the result he calculated there was LLE = 18 minutes (= 0.016 day). We cannot explain this discrepancy.

We are not reproducing here Dr. Cohen’s estimates of the cost-effectiveness of installing an FVCS at each Indian Point unit. He compared the cost per fatality averted (in 1975 dollars) for this addition at Indian Point with such estimates for a wide variety of other life-saving and accident-preventing measures. Suffice it to say that he concluded that a much greater saving of lives would result if the amount of money required for installing an FVCS at each Indian Point unit were spent instead on traffic safety and medical care. We have concluded already, on the basis of other testimony, that it would not be cost-effective to install FVCSs at Indian Point at this time. (*See* Contention 2.1(a), *supra.*)

We also note that, although we are unable to verify Dr. Cohen’s figure for the LLE due to Indian Point, his figure is not grossly inconsistent with related figures from other sources. For example, Staff and Licensees concluded that the Indian Point plants would meet the Proposed Safety Goals limit for early fatalities. Since that limit restricts the risk to an individual from a nuclear power plant to less than 0.1% of his

or her total risk of accidental death, it would not be surprising if the LLE from the plants were small compared with that from other hazards. Further, as we have noted in dealing with Commission Question 1, the expected mortality in the population within 50 miles which is occasioned by Indian Point is very small compared to the total expected mortality from all accidents and all cancers. (See p. 869, *supra*.)

### ***Conclusion***

Based on the evidence of record, we believe that several conclusions may be drawn.

First, all evidence seems to agree that there does not exist a body of data from which dependable risk (probability *and* consequence) comparisons can be made over a broad number of plants. At best, one can compare PRAs that were performed using differing assumptions and methodologies to assess those risks which involve internally initiated events, a class of events which do not represent the bulk of risk from Indian Point.

The data of NUREG/CR-2239 compare plants on the same basis, but they truly test only site-related matters (demography in particular) and make no allowance for plant-specific accident probabilities or frequencies. Taken at face value, these data indicate that a large release of radioactivity at Indian Point would have more severe consequences than it would at virtually any other reactor site. That conclusion is so completely in accord with intuitive expectations that it scarcely can be considered informative. Nor is it surprising that, for lesser releases, the site-to-site variation is less.

Arguments based upon qualitative design comparisons suggest that certain features of the Indian Point plants diminish the chance of certain sorts of severe accidents in comparison to other plants, but no quantitative measure of this diminution is available. Clearly there can be no comparison for accidents which involve the matters omitted from IPPSS and all other PRAs, matters such as sabotage, deterioration, and omitted sequences.

We can summarize then with four salient conclusions:

1. A severe release at Indian Point could have more serious consequences than that same release at virtually any other site licensed by the Commission.
2. The chance of a severe release here is probably no greater, and may be less, than elsewhere.
3. No truly reliable overall risk comparison, be it of expected value (mean value), CCDF, or other probabilistic standard,

can be made between Indian Point and other plants in any comprehensive way. On the basis of comparisons involving only internally initiated events, it does not appear that the Indian Point plants present risks worse than those of other plants assessed. There are not enough studies involving externally initiated events to make a meaningful comparison from that standpoint. Unfortunately, it is the externally initiated risks which are the principal contributors at Indian Point.

4. We have quantitatively compared only PRAs involving internally initiated events. That was because, as noted, no statistically significant number of plants other than Indian Point have been analyzed for externally initiated events. If the earlier PRAs were reanalyzed with externally initiated events included, their risks would be closer to the Indian Point risk with externally initiated events included.

## V. Commission Question 6: Effect of a Shutdown

Question 6 and the contentions admitted thereunder are concerned with the impacts that closing one or both Indian Point nuclear plants would produce in terms of energy requirements, environmental impacts, and economic or other consequences. These effects relate to the future well-being and prosperity of New York residents, and the three contentions submitted in connection with the Question were firmly contested by major parties in the proceeding.

Commission Question 6 asks:

What would be the energy, environmental, economic or other consequences of a shutdown of Indian Point Unit 2 and/or Unit 3?

Con Ed and the Power Authority are two of eight utility-members of a highly integrated electric power generation system designated as the New York Power Pool (NYPP). Virtually all of New York State's electric power is produced by the Pool's members, and its reliability is maintained by coordinated practices, which include central dispatch, reserve sharing, joint maintenance planning and unit ownership, and the installation of capacity in excess of the NYPP members' combined customer power demands.<sup>118</sup> To ensure the availability of power supply in the

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<sup>118</sup> The other members of the pool are: Central Hudson Gas and Electric Corporation, Long Island Lighting Company, New York State Electric and Gas Corporation, Niagara Mohawk Power Corporation, Orange and Rockland Utilities, and the Rochester Gas and Electric Corporation. (Fields, ff. Tr. 14,130, at 4-5.)

event of system failures, there is a NYPP requirement that each organization maintain an 18% reserve margin above its peak electric demands. (Streiter, ff. Tr. 13,381, at 22.) The correct growth projections for electrical demand in the New York area were disputed in this hearing, but NYPP estimates an average annual increase of 1.4% to the year 2000 for the State as a whole and 1.3% for the franchise area served by the Indian Point units. Those estimates are in the range of growth projections developed by other national organizations. (Buehring, *et al.*, ff. Tr. 14,130, at 11.)

Witnesses for the parties provided testimony on an extensive list of factors considered essential to any critical assessment of the consequences of closing the two nuclear power plants.<sup>119</sup> The Indian Point units, together, have a total of 49 years of operating life remaining. The testimony, which was subjected to critical and lengthy cross-examination, covered energy reliability, capacity factors, oil and gas prices and availability, load growth forecasts, transmission lines, capacity expansion and coal conversions, capital expenditures, decommissioning costs, nuclear fuel costs, steam generator replacements, price elasticities, Canadian power imports, operation and maintenance expenses, energy alternatives, and in the socioeconomic domain, matters of tax revenues, employment, public transportation fare increases, and other business and governmental impacts. In addition, testimony on the environmental issues — air quality, aquatic resources, terrestrial biota, wildlife and other related areas where some impact might occur — was received.

In the main, the testimony submitted on Question 6 separately addressed (1) energy reliability or the capability of the two Licensees to supply power in the event of a shutdown; (2) the direct economic impact of an early retirement of the plants (termed the replacement energy cost or the economic penalty); (3) the indirect economic consequences or costs of a shutdown; and (4) the environmental impacts of retiring the plants. We summarize below the evidence relating to these issues before evaluating the testimony.

Con Ed's conclusion on Commission Question 6 is that elimination of Indian Point Units 2 and 3 would impose a serious economic burden on ratepayers because it would produce substantial future rate increases not only in the Indian Point service area but also New York State. And

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<sup>119</sup> Parties and witnesses included: Con Ed and the Power Authority (Meehan, Streiter, Conani, Kelly, Dunbar, Hochman, Dean, Rubin); Staff (Buehring, Feld, Fields, Nicholson, Wood, Billups, Laroche, Pentecost, Kornegay, Carnes); State of New York (Parmelee); Greater New York Council on Energy (Rosen); Union of Concerned Scientists (Taylor); and members of the New York City Council (Mavretich, Schlissel).



these increases would be imposed in an area with one of the highest electric rate scales in the country. The Licensee further contends there will be a significant loss of jobs, personal income, and tax revenues in jurisdictions near the facilities and in New York City. As an example, Con Ed points to the impact that closing Indian Point would have on the Metropolitan Transit Authority, the area's largest power consumer. The MTA would be particularly hard hit by the resulting rate increases and would be forced to absorb them through substantial fare increases or reductions in service levels. (See Con Ed PF 6.0-47, 57, 58, 63.)

The Power Authority agrees that closing the Indian Point facilities would lead to substantial increases in costs to consumers by making the purchase of more expensive replacement power necessary. In terms of additional capacity, the Con Ed franchise area (which includes the Power Authority's southeast New York customers) could run short in the 1990's. It is contended that both Licensees would incur increased costs of doing business, and their ability to attract additional sources of capital would be limited. Power Authority supports Con Ed's conclusion that increased power rates brought about by closing Indian Point would have a debilitating effect on the area's economy in terms of public services, employment, and tax revenues. (See PA PF 1194, 1201, 1208, 1248, 1250.)

Intervenors, along with the New York City Council members, joined in a consolidated conclusion that not only would the net cost of closing Indian Point be acceptable but also the rate increases likely to develop would be far less than the increases absorbed by the community during the past decade. In addition, no energy reliability impact would be suffered because the Licensees, if maintained, would be able to provide substitute power in order to meet the area's electrical requirements. (Intervenors' PF 37 and Proposed Conclusion 29.)

The Staff position on energy reliability was similar to that of the Intervenors; the Staff posited that a shutdown of the Indian Point facilities would not have a significant impact on NYPP's ability to produce substitute power. The Staff stated, however, that cancellations or deferments of planned capacity additions could change this outlook. The Staff contended that the cost penalty of replacement power is significant and also that there are significant socioeconomic impacts which, in particular, affect residents in the area of the facility. Finally, the Staff, which submitted the only testimony on the issue, concluded that adverse environmental impacts from substitute power generation did not appear discernible. (Staff Proposed Opinion at 129.)

## **Summary of the Evidence**

### **Energy Reliability**

1. *Licensees' testimony:* Since its most recent report to the State, the NYPP has cancelled three coal-fired electric generating projects (Erie, Jamesport, and Kill), and its schedule to convert 10 oil burning units to coal has been slipping since 1979. It is doubtful that the conversion schedule can be realized, and one of the four new construction units (Prattsville) has had its in-service date delayed until 1989. (Streiter, ff. Tr. 13,381, at 21.) If the units currently under construction (Shoreham, Somerset, and Nine Mile Point 2) are completed and placed in service and if growth rates average only 1.2% per year, those units will satisfy the statewide margin requirement of 22% during the State's 15-year planning period despite the closure of Indian Point. However, if Prattsville (a pumped hydro storage project) were deferred or cancelled, by 1999 the NYPP would be unable to maintain its margin without the Indian Point units. If the peak growth is higher than predicted, the necessary margin would not be maintained in the early 1990's even with the new units operating. Hence, new capacity would be required then if Indian Point were closed. Similarly, the Con Ed franchise area would also run short of capacity if Prattsville were not built and if Indian Point were closed. The area would require the equivalent of Indian Point's capacity by the turn of the century in either new construction or in firm power supply contracts. (Streiter, ff. Tr. 13,381, at 22-23.)

2. *Staff testimony:* The NYPP determines its level of system reserve by using a loss of load probability method and factoring in the impact of emergency operating procedures on systems reliability. It determined a 22% installed reserve margin requirement. This pool margin translates to an 18% requirement for individual utilities when load diversity probabilities are considered. (Buehring, *et al.*, ff. Tr. 14,130, at 6-9.) Based on growth histories and assumptions on demography, economic growth, and customer use patterns, Con Ed and the Power Authority anticipate that each of their power demands will increase at annual rates of 0.7% and 2.4%, respectively, through 1996. These rates are low by historical standards. Power Authority's historical rate of demand growth was considerably greater than Con Ed's because of the transfer of certain loads between the two in 1976-77; the Power Authority assumed responsibility from Con Ed for Indian Point Unit 3 and for the Astoria (Poletti) #6 generating facility. (*Id.* at 11.)

Assuming the completion of programmed generation projects in the NYPP, Con Ed, and Power Authority systems, and using the Con Ed and Power Authority growth rate projections, the Staff performed an

analysis of future reserves to assess energy reliability during peak demand periods. In the two scenarios analyzed — Indian Point units in and out of service — reserve levels for the NYPP and Con Ed were found to be consistently larger than the Pool's minimum requirement. (*Id.* at 11-15.)

The Power Authority is a state-owned system obligated by law to provide electric service to various load categories. Its customers in the Con Ed service area include many State and local governmental entities, *viz.*, Metropolitan Transportation Authority, New York City, Port Authority of New York and New Jersey, New York Housing Authority, Westchester County, Office of General Services, and the Urban Development Cooperation. These entities account for more than 50% of Power Authority's load responsibility in the area for the foreseeable future. Of the 6690 MW of existing capacity owned by the Power Authority, only 1680 MW are located in the southeast New York area. Energy for the Power Authority load in the Con Ed franchise area is supplied by Indian Point Unit 3 and Astoria Unit 6, with some additional energy transmitted from Power Authority's generation facilities located elsewhere in the State. Even though the Power Authority, because of its ownership status, is not obligated to adhere to the Pool's minimum reserve requirement, it meets the Pool's cooperative arrangement by restricting its firm contract sales for a unit to 80-85% of its net capacity; in effect, it maintains an approximate 18% reserve margin. The Staff's analysis shows that Power Authority's system would have a negative reserve margin throughout the study period (1983-95) if Indian Point Unit 3 were shut down. The Staff expects, however, that no adverse reliability impact will occur as long as capacity can be diverted from intersystem transactions and transmission capability is assured. In addition, an existing contractual agreement with Con Ed to supply backup power for Power Authority's customers may also be viable as a source of replacement power. Even though a reserve margin could be maintained by the use of one or a combination of these alternatives, the cost of replacement energy would still be expensive. However, this favorable outlook for system reliability does indicate that there would be no need to build new capacity to replace Indian Point units. (*Id.* at 14-26.)

#### *Direct Economic Impacts (Replacement Energy Cost or Penalty)*

1. *Licensees' testimony:* The direct economic consequences of a shut-down of the Indian Point units were calculated by computing the production cost penalties for the years 1984 through 1999 and projecting those costs on a kilowatt-hour basis to the end of the units' life (2009), using

a 2% annual increase in real dollars. (Streiter, ff. Tr. 13,381, at 3.) The production cost penalty was calculated through the use of a computer model, PROMOD III, a comprehensive tool which simulated the operation of the NYPP system with and without Indian Point units functioning. The model has been widely used by the utility industry, the State of New York, and elsewhere, and is capable of handling forced outages in the system and recognizing transmission transfer limitations that affect the commitment and dispatch of power by the system's generating units. (Meehan, ff. Tr. 13,167, at 3-12.)

In arriving at estimated cost impacts, the major assumptions used for Licensees' reference case were: (1) the units' continued operation through their license expiration dates; (2) an average capacity factor of 63% to the year 2002, declining to 45% by the end of the license period; (3) an oil price decline by 6.7% in 1983, a return to the real 1982 prices by 1985, and an increase at 2% annually in real terms after 1985; (4) an energy consumption increase at a 1.4% rate annually in New York State (1.3% in the Con Ed service area); (5) operation and maintenance (O&M) costs used by the Licensees through 1986, along with Licensees' estimates for capital additions (the additions were annualized over their remaining lives and O&M expenses were assumed to increase at a real rate of 1% per year after 1986); and (6) a 10% discount rate to determine the present value of future cost increases (an inflation rate of 7% plus a real rate of 3%). (Streiter, ff. Tr. 13,381, at 6-26.)

The gross production cost penalty for an Indian Point shutdown through 1999 is estimated to be \$18 billion, most of which (89%) would be borne by ratepayers in the Con Ed service area. (Meehan, ff. Tr. 13,167, at 40.)

After projecting the cost penalty to the year 2009 and making adjustments for additional cost items — working capital and inventory costs, taxes, loss of fuel core, decommissioning costs, additional capacity costs, nuclear O&M costs and capital additions — Licensees' witness determined that the present value of increased costs which the ratepayers of New York State would have to assume over the next 25 years would amount to \$9.0 billion. Ratepayers in the Con Ed service area would face over \$7.8 billion of that amount. Although it is difficult to compute rate increases since the Power Authority receives some power for its customers from its Astoria plant and from upstate sources, the witness's calculations for a six-year period (1984-90) show rate increases for Con Ed's customers ranging from 4.6% (1984) to 3.7% (1990) and for the Power Authority's customers from 33.3% (1984) to 22.7% (1990). Since the Power Authority relies more heavily on Indian Point to provide power for its downstate customers than does Con Ed, the closing of the

units has a greater effect on the Power Authority's downstate customers. (Streiter, ff. Tr. 13,381, at 3-6.) In addition to calculations for a base or reference case, a number of sensitivity analyses were performed by Licensees' witnesses using different assumptions on fuel prices, capacity factors, load growth fuel uses, O&M costs, and steam generator replacements.

Even though the capacity factors for Indian Point Units 2 and 3 averaged 53% and 51%, respectively, to the end of 1981, the use of a 63% capacity factor in the reference case was rationalized on the grounds that the problems the companies experienced with major components have been solved or are in the process of being solved. And there is additional confidence based on the fact that the nuclear power industry has lately shared data on technical problems more rapidly and extensively. Both Con Ed and the Power Authority were also committing large expenditures to resolving their technical difficulties; they would not do so if they lacked belief in their ability to remedy technical problems. The evidence does not support the theory that a lower capacity factor for large saltwater PWRs in recent years demonstrates that such plants decline with age. When data for the existing 14 large saltwater PWRs are reviewed, it is clear that steam generator problems in only three of those plants are responsible for all of the significant loss in the average operating times. Excluding data from small older units, the average capacity factor for all nuclear plants is 62.50%, and for all PWRs it is 65.81%. (Streiter, ff. Tr. 13,381, at 9-12 and Table 7.)

No allowance was made in the reference case analysis for steam generator replacements in either unit. It is calculated that such allowances would account for additional costs totalling \$431 million. (*Id.* at 17-19 and Table 15.) The reference case projection also assumes completion of a transmission project (Marcey-South); the cost of closing Indian Point would be higher if that project is not completed. (*Id.* at 21-22.) With the Indian Point units closed, the costs of power imported from Canada would also increase since such costs are tied to increases in the value of the energy displaced by the imports. (Meehan, ff. Tr. 13,167, at 22.) Licensees' witness also testified that O&M expenditures have increased substantially since 1978 at Indian Point, as they have throughout the nuclear industry. This increase was accounted for by the large increase in NRC requirements since the accident at Three Mile Island and by the maintenance work during extended outages on fan coolers at Indian Point Unit 2 and the steam generator sleeving program at Unit 3. (Streiter, ff. Tr. 13,381, at 14-17.)

In the witnesses' analysis, it was assumed that decommissioning would not occur until 1994 and that the unrecovered capital investment

of Con Ed would, by being treated as an extraordinary loss, continue to be included in its rate base. However, since it has no shareholders, Power Authority would have to recover its investment and the higher price of replacement energy from its customers. This poses a difficult problem because many of the Power Authority's customers can switch suppliers if the Power Authority's prices increase over those of its competitors. Much of the cost increases would have to be absorbed by its upstate customers; for Power Authority's hydroelectric project, it is estimated that this increase would amount to 45% above current levels. (*Id.* at 23-25, 28-30.) It was calculated that the cost penalty, which in the reference case averages over \$400 million annually, would be equivalent to raising the sales tax from 8¼% to 9% or the property tax by 8%. (*Id.* at 31-32.)

In the Licensees' reference case, oil represents 92% of the total replacement fuel in 1984, and this percentage decreases in later years as coal conversions take place. However with load growth, oil is estimated to represent 99% of replacement fuel by the year 1999. (Streiter, ff. Tr. 13,381, at 6.) In considering the expected use of additional oil, it was calculated that the increase in power use would require an additional 192 million barrels during the 1984-99 period, with its accompanying exchange of extra-American dollars to foreign oil suppliers — almost \$2 billion to Canada — for increased energy purchases. (Meehan, ff. Tr. 13,167, at 40.) Another witness for the Power Authority testified that 102 million barrels of oil, mostly imported, would have had to be purchased to produce the 56 billion kWh generated by Indian Point's nuclear reactors since they began operating. Oil will still be the price-setter for energy since it accounts for 50% of commercial fuel used, and there is a general forecast of higher prices in the long run. Oil is a diminishing resource, and all industrialized nations have placed oil-reducing policies into effect because of the continued dependence on foreign suppliers, oil's uncertain availability, and its excessive pricing. (Conant, ff. Tr. 13,667, at 4, 6, 8, 20, 21, 46, 65, 66, 67.)

2. *Staff testimony:* Even though there will be adequate reserves to compensate for the loss of Indian Point, the cost of replacement energy alternatives represents an economic penalty because of the relatively low cost of nuclear power. (Buehring, *et al.*, ff. Tr. 14,130, at 26-27.)

The Staff computed the economic penalty over a 30-year expected lifetime for the Indian Point units. Staff's basic assumptions dealt with the capacity factor, the likely source of replacement energy, the projected costs associated with electricity generated at Indian Point, and the sources of replacement energy. (*Id.* at 26-29.) Although the Staff normally assumes a nuclear unit will operate at an average capacity factor in

the 50% to 70% range, a factor of 50% was conservatively assumed for the Staff's analysis. Calculating the closure of Indian Point at mid-1983, the Staff estimates assumed oil replacement for the deficiency in power through 1989, with new coal units coming into operation in 1990 as the long-term replacement. The Staff's rationale is that economic considerations favor this alternative rather than a continued dependence on oil. All costs in the analysis were escalated at an annual rate of 8% and discounted by a nominal rate of 13%, with a resultant real discount rate of 5% per year. (*Id.* at 33-35, 37-39.)

In its analysis of fuel replacement, the Staff placed heavy reliance on oil in the early years since the nearby energy available for purchase from other NYPP facilities — assuming transmission capabilities — is almost completely oil-fired. The Staff concluded that the coal-converted facilities scheduled by the NYPP will be fully utilized most of the time, even if the Indian Point facilities are operating. With regard to the availability of Canadian imports, Con Ed and the Power Authority are already importing as much of this energy as transmission capabilities will allow. The Staff conservatively estimated a six-year schedule for bringing the Indian Point coal replacement on line. The Staff further remarked that if coal additions and coal conversions are not completed, its estimated long-term energy replacement cost will be too low. Although there is considerable uncertainty on an escalation rate for the price of nuclear fuel and oil, the Staff conservatively assumed that both would increase at the same rate as inflation, 8%, even though it appears that the price of oil will increase faster than the price of nuclear fuel. (*Id.* at 30-32, 34-36.)

The Staff estimated the overall energy replacement cost penalty for shutting down Indian Point at \$5.2 billion in 1983 present value. There is an approximate \$800 million saving due to fixed O&M charges, non-recurring expenses, and the loss of an Indian Point unit for one year due to generator replacement; that saving would reduce the penalty to \$4.4 billion in terms of 1983 present worth value. Although the Staff indicated a difficulty in assigning accurate costs in the event only one Indian Point unit were retired, its general allocation of costs demonstrates the penalty for Unit 3 to be 25% higher than for Unit 2. This difference is due to Unit 3's higher MW rating, its lower estimated fuel cost, and its longer useful lifetime period. (*Id.* at 37-40, 45-46.) The Staff did not estimate decommissioning costs since the funding methods that will be allowed or required for decommissioning vary the costs considerably; therefore they are speculative at this time. (*Id.* at 52-64.)

3. *New York State testimony:* The State estimated the fuel and economic impacts of shutting down the Indian Point units based on its

1982 State Energy Master Plan (SEMP). The plan calls for completion of 2518 MW generation capacity now under construction, another 2350 MW licensed for construction, a 1000-MW pump storage facility to start operating in 1987, and conversion to coal of 3600 MW of existing oil capacity. It also calls for the continued importation of Canadian energy and the development by 1996 of 1552 MW from small hydro, cogeneration, solid waste, and wind capacity projects. (Parmelee, ff. Tr. 13,727, at 3-6.)

In analyzing the cost impacts of shutting Indian Point down, the State used a General Electric Optimized Generation Planning electric systems simulation model (OGP-6) to evaluate different scenarios of Indian Point units operating or shut down. The State used a capacity factor of 57.7%, based on NRC figures through 1981, but excluding the first three years of each plant's operations. (Parmelee, Tr. 13,754.) Three recent cancellations or postponements in the SEMP (Kill, Jamesport, and Erie) were not accounted for in the State analysis. (Parmelee, Tr. 13,762-63.) A discount rate of 10.35% was used, and future oil prices were based on rates published by the Department of Energy. The State used oil as the primary replacement fuel in the early years; the percentage of coal use then would increase and become primary until 1990, when oil again would become the primary fuel used. The time period for the State's analysis was 1984 through 1996 (which covers the State's planning period), and the State computed the cost penalty to be \$2.3 billion (1982 present value). If either unit were shut down, the present value cost would be \$1.1 billion and \$1.2 billion for Units 2 and 3, respectively. The additional fuel requirements in shutting down both units are 154 million barrels of oil, or 72.8 and 81.1 million barrels, respectively, for shutting down Unit 2 or 3 alone. The State used an assumed peak load growth rate of 1.5% annually and made allowances for minor slippages in the coal conversion program and adjustments for recent trends in fuel prices, O&M, and discount rates. An increase in Canadian imports was also assumed. The State estimated that the electric production costs in the Con Ed service area would increase by 2.35¢/kWh by 1996, but indicated that a delay in either the coal conversion program or new coal plants would increase the economic cost and fuel penalties associated with closing the Indian Point units. (Parmelee, ff. Tr. 13,727, at 6-9 and Tables, JMP 2-5.)

4. *Greater New York Council on Energy testimony:* GNYCE analyzed the financial impact to downstate ratepayers as a result of closing both Indian Point units. The analysis utilized a Cost Assessment of Nuclear Substitution (CANS) model to test three scenarios — high, mid-range,



and low. The high and low cases have unlikely assumptions that consistently bias the results toward higher or lower cost effects. The mid-range case represents the best estimates of early retirement, and the period covered by the study is 1983 through 1997. Costs are reported in discounted (present value) 1981 dollars, and the discount rate is 12% (an 8% rate of inflation plus a 4% real discount rate). (Rosen, ff. Tr. 13,788, at 4; ESRG Study at 13-16.)

The GNYCE witness estimated the cumulative impact on required revenues to be \$746 million in the mid-range case, \$3,656 billion in the high case, and \$1,337 in the low case. For the mid-range case, this change represents a 1.9% increase in discounted revenue requirements. (Rosen, ff. Tr. 13,788; ESRG Study at 7-9.) The analysis used a 1981 study performed by the witness for the New York City Energy Office for demand growth and conservation scenarios. In the mid-range case, 50% of a conservation scenario is assumed; 10% more Canadian oil is assumed to be available for downstate use; a conversion of two Con Ed plants at Ravenswood from oil to coal is assumed to be added to the conversion schedule by 1991; oil prices are assumed to escalate at 2% in real terms, and coal prices at between 0 and 2%; and, beginning in 1982, the capacity factor for Indian Point Units is assumed to decline linearly with age so that the Unit 2 capacity factor declines from 55% to 20% and the Unit 3 capacity factor declines from 53% to 20% by 1997. (*Id.* at 17-30.)

The analysis assumes there will be no transmission restraints after scheduled improvements to transmission facilities take place by 1986. With respect to O&M costs, the analysis derived future costs by applying a simple linear least squares fit, beginning with 1981, to the Licensees' historically experienced costs. There was an estimated savings in nuclear fuel computed from avoided expenditures, and also from avoided radioactive-waste-disposal costs. The computations doubled the Con Ed estimates for early decommissioning on the grounds of an expected increase in regulatory requirements. There is an assumed replacement of steam generators in both units (1991 for Unit 2 and 1986 for Unit 3) at a cost of \$130 million and \$132 million (1982 dollars), respectively, and an outage of one year for each plant. (*Id.* at 40-59.)

The witness performed sensitivity tests on four variables: (1) extending the time period by three years, to the year 2000, decreased the absolute impact by \$215 million and the percentage impact from 1.9% to 1.2%; (2) retiring the units in 1985 rather than 1983 reduced the costs from \$746 million to \$290 million and the revenue impact from 1.9% to 0.8%; (3) increasing the discount rate to 14% from 12% decreased the costs by \$70 million, but increased the percentage impact to 2.0%; and (4) assuming a higher capacity factor based on the historical factors of

55% and 53% for Units 2 and 3, respectively, without any disallowance for deterioration through aging, resulted in an additional cost of \$751 million and an increase in percentage impact on the revenue requirements from 1.9% to 3.9%. Also, if the recent decreases in oil prices had been taken into account, the percentage impact from retirement of the units would have been practically eliminated, being reduced from 1.9% to 0.2%. (Rosen, ff. Tr. 13,788, at 6-7; ESRG Study, at 64-67.)

The testimony indicated there were a number of indirect consequences resulting from closing a nuclear facility, but there was considerable controversy over the appropriateness of methods and assumptions used to quantify the costs and benefits. These included health and safety issues, behavioral responses to price increases (price elasticity effects), financial repercussions on utilities, and the secondary effects such as effects on employment, business activity, and household income. (Rosen, ff. Tr. 13,788; ESRG Study at 68-77.)

*5. Union of Concerned Scientists testimony:* This testimony presented a commentary on several previous studies which dealt with the costs of closing Indian Point; it also provided an assessment as to how the economic costs of such closing should be calculated and estimated those costs. The first study, which is not in the record of this proceeding, was performed in 1980 by the U.S. General Accounting Office (GAO) and estimated a 15-year shutdown cost of \$18 billion to New York City taxpayers. The second study, finished later in the same year, was performed under the auspices of the Union of Concerned Scientists and, was, in effect, a critique of the GAO study. The UCS study estimated the cost of closing Indian Point units to be \$4.4 billion. The third study, also not incorporated in this record, was performed for the Power Authority by the Rand Corporation and presented an estimate of the closing cost of between \$7.7 billion and \$17.4 billion, to be borne by the U.S. economy. All figures from the three studies were in 1980 dollars. (Taylor, ff. Tr. 13,298, at 1-2.)

The UCS testimony attempted to discredit the previous study performed by the Rand Corporation on the grounds that it erroneously computed large business costs and secondary effects. (Taylor, ff. Tr. 13,298, at 6.) The witness stated that UCS's own cost estimates would be even smaller because it had overestimated Indian Point's lifespan, had not provided for steam generator replacement, and had used a historical average capacity factor (57%) which was too high. The testimony indicated that the proper estimate for closing Indian Point, after providing appropriate reductions for customer responses to price increases, would be \$4.1 billion in 1980 dollars. (Taylor, ff. Tr. 13,298, at 5-7, 16, and Table A.) The major effect of price increases, UCS alleged, is in the

long-term changes in consumer behavior, and an analysis of historical U.S. data indicates that a long-run elasticity of demand of  $-1.0$  is a reasonable median estimate. The testimony reflected that a 10% price increase in energy costs would only amount to a 0.2% increase in the cost of manufactured goods. (*Id.* at 22, 25-26.)

6. *New York City Council Members testimony:* This testimony provided cost estimates for closing both units of Indian Point and also provided the resulting rate consequences to ratepayers in the Con Ed system in 1984. The study period covers the useful life of both units, and an annual capacity factor is assumed for Unit 2 of 53.77% and for Unit 3 of 48.08%. (Schlissel/Mavretich, ff. Tr. 14,266, at 6-9.) The replacement power is from oil-fired units, and prices are pegged for two different scenarios (one of which assumes a 15% decrease from 1982 prices to account for recent changes, and the other assumes the same price in 1983 as existed in 1982). The price was escalated at 7% annually, the overall rate of inflation. (*Id.* at 14-16.) Capital additions were taken from information supplied by the Licensees and amounted to \$500 million in present worth dollars. An 11% discount rate was chosen to determine present worth. (*Id.* at 18-19, 22.)

The total costs were estimated by the witnesses to be between \$2.918 billion and \$4.729 billion, depending on the type of oil (high or low sulfur content) and the oil prices used in each scenario. The monthly impact in 1984 on a Con Ed customer that uses 250 kWh per month would be between an additional \$1.10 to \$1.48 per month if mixed sulfur oil were used, and \$1.17 to \$1.55 per month if low sulfur oil were used. The percentage rate increase for the first scenario ranges between 2.7 and 3.6% and for the second scenario, between 3.3% and 4.3%. (*Id.* at 23-24.)

### *Indirect Economic Consequences*<sup>120</sup>

1. *Power Authority testimony:* This testimony examined the indirect economic consequences that closing Indian Point Unit 3 would have on the Power Authority's downstate customers and the overall effects on the southeastern New York State's economy of a power price increase due to the closing of both units. The assumption made for the first part of this analysis is that the Power Authority would retain all of its customers after a shutdown and that those customers would bear the full monetary penalty.

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<sup>120</sup> Parties and witnesses included: Power Authority (Dean, Hochman, Rubin); Licensees (Dunbar, Wang); Staff (Billups, Laroche, Pentecost, Kornegay, Carnes); UCS/NYPIRG (Taylor).

The analysis in the first part of the testimony used the cost increases developed by other Licensees' witnesses (Meehan and Streiter) resulting from a shutdown of Indian Point Unit 3: \$210 million annually, which is an average cost increase of 23.7% for the 1984-90 period. The largest customers of the Power Authority are: the Metropolitan Transportation Authority (MTA), 35%; New York City, 32%; the New York City Housing Authority, 13%; and the Port Authority of New York and New Jersey, 11%. (Dean, *et al.*, ff. Tr. 13,645, at 4-7, 17 and Exhibit 1.)

With regard to the MTA, it has been calculated by another witness (Dunbar) that power rate increases would cause a loss of 11,400 jobs in the MTA service area, by persons who would stop using subways and would not substitute any other method of transportation to work. Since census data show that a much higher percentage of persons with low income use mass transit facilities than do those with higher incomes (63% vs. 30%), it is expected that the low-income group will suffer a larger share of the jobs lost. Studies indicate that in the New York City area, the elasticity of demand with respect to fare increases is greater for lower income groups.

In connection with New York City's power rate rise, if costs are absorbed through tax increases, a heavier load would fall on lower income residents who are not able to take the same advantage of tax deductions as those with higher incomes. If rate increases are absorbed through decreasing governmental services, a direct loss of 1620 jobs would result; and because of a multiplier effect (1.5 to 2), this loss could ultimately total more than 2500 positions. If the Housing Authority of New York City and the Port Authority of New York and New Jersey were able to pass their rate increases along to the City, it would just compound the City's financial problems. In Westchester County, where the county government and county subdivisions use power from the Indian Point facilities, a similar effect on reductions in employment would be felt. And there would also be a loss of some 400 jobs directly involved in the operation of the Power Authority facility itself. In total, for the period from 1984 to 1990, increases in the cost of power from the Power Authority could result in the loss of some 16,000 jobs. (*Id.* at 7-18 and Exhibits 2-6.)

In connection with the economic impact that closing both Indian Point units would have on the southeastern New York economy, it is important to recall that the consumers in New York City already pay higher prices for electricity than do those in the rest of New York State and twice as much as consumers in the country as a whole. In New York City, a number of manufacturing industries are large consumers of electric power. By using a Wharton econometric model to estimate changes

in forecast values resulting from a change in the price of electricity, the witness demonstrated that a 5% increase in rates (which is similar to the Con Ed projected increase) for the 1984-90 period would result in a loss of 5000 jobs in New York City, a value added loss of \$160 million to \$726 million annually; an estimated 80% of this employment loss would occur in the manufacture and service sectors of the New York economy. In Westchester County, the model estimated another 700 jobs would be lost and a value added decrease from \$22 million to \$56 million annually in current dollars. (Dean, *et al.*, ff. Tr. 13,645, at 22-27 and Exhibits 7, 8.)

2. *Licensees' testimony:* This testimony presented the calculated indirect economic impact on transportation costs for the MTA and the resultant potential consequences on employment, income, and tax revenues. More than 80% of the transit riders in the New York City area are carried by the MTA system, and although the metropolitan region has only 8% of the national population, it is responsible for 40% of the nation's passenger miles on public transportation. (Dunbar, ff. Tr. 13,604, at 3.) Over 94% of peak hour transportation from four boroughs in New York City to the central business district is by subway. And electricity to power the subway accounts for 7% of MTA's operating costs. Costs for MTA's transportation operations have been increasing at a faster rate than revenues, and since there is little support for increasing taxes or subsidies, the only practical methods for absorbing electric power increases are to reduce service, increase fares or subsidies. (*Id.* at 4-8.)

A convenient measure of the sensitivity of travelers to fare increases is the price elasticity of transit demand. As transit system operations increase fares, ridership decreases. The elasticity can be approximated with the formula:

$$\text{transit fare elasticity} = \frac{\text{percent change in transit trips}}{\text{percent change in fare}}$$

The long-run elasticity of transit demand for New York City has been calculated to be  $-0.371$ . For a 5% increase in revenues (to offset increased power costs), an 8% increase in fares would be needed (a 6¢ addition to the present 75¢ fare). If the increased power charges were to be handled by the fare increase, it is calculated that this would result, by a reasonable long-run forecast year of 1986, in a 3% loss in transit trips, a loss of 11.4 thousand jobs, \$334 million in annual income, and a decline of \$34 million in tax revenue for the City. (*Id.* at 9-15.) On the other hand, if the rate increase were absorbed by a reduction in transit

services, the impact would be more severe since transit demand is more responsive to trip time than to changes in price. Under this latter scenario, the impact would result in a 4% decline in ridership, a loss of 15.3 thousand jobs, \$434 million in annual income, and a reduction of \$46 million in taxes. (*Id.* at 15-20.)

A witness for the Licensees (Wang) also gave testimony on the price elasticity of demand for electricity in Con Ed's most recent rate case. Short run elasticity of demand was  $-0.10$ , and long run elasticity of demand was  $-0.25$ . This short run price elasticity was much less than the  $-0.4$  suggested as reasonable by a witness for GNYCE (Rosen). If the short run estimate of  $-0.4$  had been used, the witness indicated, Con Ed would have had to increase its revenue requirements by \$270 million. (Wang, ff. Tr. 14,061 at 2-5.)

3. *Staff testimony:* The Staff offered an analysis of indirect economic impacts; the analysis considered the net socioeconomic impact of a shutdown of the Indian Point Units 2 or 3, or both, and also considered the net impact from a shutdown if a coal-fired replacement for Indian Point were constructed and operating by 1990. The indirect impact analysis covers only those jurisdictions that currently receive tax payments or in lieu payments for the operation of Indian Point facilities in their areas: Village of Buchanan, Town of Cortlandt, Verplank Fire District, and the Hudson School District. (Billups, *et al.*, ff. Tr. 14,306, at 49-55.)

The operation of the facilities at Indian Point provides 1000 jobs, a \$32 million payroll, the purchase of \$44 million of materials and services in Westchester County and New York City, and the payment of over \$12 million in taxes or in lieu payments. If either Unit 2 or 3, or both, were shut down, there would be such a significant loss of tax revenue that local tax rates would have to be increased from 50% to 1000% to compensate for the deficiency. This tax increase would impose a particular hardship on persons with fixed incomes. (*Id.* at 55-69, 75 and Tables 10, 11.)

It is estimated that if a coal-fired unit were to be constructed in the place of either unit or both, there would be an increase in vehicular traffic, shortages of housing for transient workers, and an increase in ambient noise levels. However, after the plant was in operation, the tax payments from Con Ed and in lieu payments from New York State for Power Authority's operation would constitute a substantial amount of tax revenues to relieve the fiscal problem of local governmental entities. From the perspective of socioeconomic impacts, it is clear that if decommissioning of either unit or both is to take place, an option that allows an early unrestricted use of the site, or as much of it as is practicable,

would be preferable. It is estimated that decommissioning would produce an 80% to 90% reduction in the units' tax assessments. (*Id.* at 69-79.)

4. *Union of Concerned Scientists' testimony:* The UCS testimony indicated that although secondary (*i.e.*, indirect) costs and savings should be included in any comprehensive analysis of the closing of a utility plant, the major effects of price increases would be found in the longer-term changes in consumer behavior. Electric power consumers would reduce their use of electricity by increasing the efficiency with which it is used through more energy-efficient appliances, insulation, etc. Under assumptions appropriate to the U.S. economy, secondary responses will offset 85% to 90% of the direct costs of a 10% increase in primary energy prices. An analysis of historical data of price elasticity of energy demand shows that a 10% increase in prices would cause a 10% decrease in energy consumption because of the substitution of cheaper resources for the more expensive electricity. (Taylor, ff. Tr. 13,298, at 25-26.)

#### *Environmental Impacts*<sup>121</sup>

The Staff was the only party which proffered evidence on this issue. In considering the environmental impacts of closing the Indian Point units, the Staff analysis was based on two scenarios: the first assumed that replacement power for the units for a period of 10 years would be from oil-fired plants in the Con Ed system; and the second assumed that after 10 years, a new coal-fired facility would be placed on line at the Indian Point site with the same capacity. (Billups, *et al.*, ff. Tr. 14,306, at 4.)

As a result of an EPA agreement in 1981, the current Indian Point plants, which have once-through cooling systems that adversely impacted aquatic life, were allowed to operate for a period of 10 years after the implementation of certain mitigative measures, *i.e.*, scheduling outages during critical biological periods, installing angled intake screens, and stocking fish in the river. Although the Staff concluded that no irreversible impacts would result under the terms of the agreement, the loss of certain aquatic resources and the potential for long-term effects would be eliminated if the Indian Point units were shut down. However, those impacts had to be compared with the impacts of operating the replacement power facilities. (Billups, *et al.*, ff. Tr. 14,306, at 8-9.) The Staff concluded that the only major difference in the first scenario would be that the impacts would be distributed over several bodies of water near the Con Ed oil-fired facilities (Hudson, Harlem, and East Rivers) rather than one. In the second scenario, there would be no difference in impact

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<sup>121</sup> Party and witnesses: Staff (Billups, Laroche, Pentecost, Kornegay, Carnes).

unless the coal-fired facility included a closed-cycle cooling feature, in which case the potential for impacts would be substantially reduced. However, there are other potential impacts on aquatic resources that result from coal storage wastes and wastes from combustion and from emission abatement; these wastes contain trace elements (nickel, mercury, and selenium) that can be toxic. (*Id.* at 9-11.)

The Staff testimony indicated that evaluations using EPA models predicted that no air quality standards would be violated by either scenario. (*Id.* at 12-29.) Although the testimony revealed that predicting the effects of air pollutants on particular plant species is difficult, the Staff concluded that the most susceptible crops (gooseberries and spinach) might be impacted by the potential emissions of sulfur dioxide (SO<sub>2</sub>) in both scenarios. (*Id.* at 30-36.) In connection with acid rain (rain or other precipitation having a pH value of less than 5.6), the impact in both scenarios from NO<sub>2</sub> and SO<sub>2</sub> would be so low as not to be discernible. (*Id.* at 37-39.) The testimony also indicated that no contribution to the "greenhouse" effect (increases of CO<sub>2</sub> in the atmosphere which may change regional climate patterns) could be determined by existing models. (*Id.* at 39-41.) It was testified that there would be some impact on terrestrial biota and wildlife species from the coal storage area required for scenario 2. The Staff estimated that 400 acres would be required for onsite storage and disposal of coal wastes — space that is not available at Indian Point. The impact that such storage would have on biota is dependent on many factors which relate to the geological strata of the site selected. Before any regulatory decision on the selection of a site and waste management, an impact analysis would have to be performed for four federally endangered or threatened species which have distributional ranges in counties within 50 miles of the Indian Point site. (*Id.* at 43-48.)

### ***Board Conclusions***

Commission Question 6 imposes on us the responsibility of assessing consequences which are relevant to any consideration of closing the Indian Point units. Since the probabilities of energy, environmental, economic, or other results of a shutdown are subject to the vagaries of future events, we search here for relative and prudent certitude in making our judgments. The sequence in which testimony was submitted during the hearing is followed in our conclusions, except that we have recognized some overlapping in the evidence provided between Commission Question 6 and Contention 6.3.



In our review of the evidence on Question 6, it is apparent to us that the parties have provided a searching examination into the energy, environmental, and economic consequences of closing Indian Point's units. We offer below our judgments on that comprehensive evidence. In arriving at these judgments, we have given considerable weight to the practical need for adequate power sources.

### *Energy Reliability*

The eight utility members that are integrated in the New York Power Pool systems seek to ensure a suitable level of reliability in energy supply by programming capacity in excess of anticipated customer load. In New York State, there is excess capacity to meet a reserve requirement of 22% for the pool as a whole and 18% for individual utilities. The lower reserve margin for each utility accounts for load diversity; it is improbable all systems would experience maximum demand at exactly the same time. (Buehring, *et al.*, ff. Tr. 14,130, at 9.)

The Licensees operate a number of power-generating facilities in addition to their nuclear units at Indian Point. (Indian Point Unit 2 represents 8.5% of Con Ed's rated capacity and Indian Point Unit 3 represents 14% of the Power Authority's rated capacity.) It appears clear that closing both nuclear facilities, which supply 8.5% of the NYPP annual peak load, would have some measurable impact on the system's reliability and their termination could result in an impact on the 18% reserve margin required of both Licensees. (See Streiter, ff. Tr. 13,381, Table 19 for NYPP's reserve margins.)

The unchallenged evidence<sup>122</sup> on the possible consequences of energy reliability in the event of a shutdown was furnished by the Staff and Licensees. (Buehring, *et al.*, ff. Tr. 14,130, at 1-25; Streiter, ff. Tr. 13,381, at 21-23.) Both parties concluded that the pool could sustain a shutdown of the facilities. (Buehring, *et al.*, ff. Tr. 14,130, at 25; Streiter, ff. Tr. 13,381, at 22.) Over the next 15-year period, the Pool's reserve margin ranges from a high of 46% in 1984 to a low of 31.5% in 1999. (Streiter, ff. Tr. 13,381, Table 19.)

However, this conclusion must be modified when reserve margins are looked at in the downstate service area of the Power Authority. As a public corporation, the Power Authority does not have a geographically defined service territory and is directed by law to serve certain customers

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<sup>122</sup> Intervenor GNYCE's witness also provided testimony in this area, but those recommendations concerning additional imports, conservation, and coal conversion are treated elsewhere in this decision. (See Rosen, ff. Tr. 13,788, at 17-21.)

throughout New York State and neighboring states. These include many government agencies, other municipal systems, rural electric cooperatives, certain industrial customers, and the other member utilities of the New York Power Pool. Being essentially a wholesaler of power, it projects a negative reserve margin from 1983 to 1995 if its Indian Point facility were shut down. (Buehring, *et al.*, ff. Tr. 14,130, at 19, Table IV.) Since only 25% of the Power Authority's capacity is located in the southeast New York area, its ability to maintain energy reliability is conditional on its ability to obtain additional transfers or purchases of energy from upstate New York. That ability is, in turn, dependent on available transmission capacity and whether the Power Authority can obtain releases from contractual commitments from some of its customers.

A possibility exists that the Power Authority could purchase surplus power from Con Ed since Con Ed's growth projection is only 0.7% and Con Ed apparently will have ample reserve capacity even with a shutdown of its Unit 2. However, present contractual arrangements with Con Ed to provide backup power services for Power Authority's customers provide no assurance that such a commitment is valid in the event of a permanent shutdown of one of Power Authority's facilities. However, the Board believes an additional agreement is not unlikely if Indian Point Unit 3 closes; hence the Board accepts the Staff and Licensees' conclusion that through purchase or transfer agreements, reserve margins for the Power Authority can be maintained.

Nevertheless, this conclusion is based on the conviction that the reliability of substitute or replacement energy can only be ensured if NYPP's heavy construction schedule is maintained and the load growth projections (estimated at 1.4% in the State and 1.3% in the Con Ed service area) are not substantially exceeded. And the record on the construction schedule does not look too promising to date. In the past year, three new power-generating units have been cancelled or indefinitely postponed in New York, and a fourth has been rescheduled for a later in-service date. (Streiter, ff. Tr. 13,381, at 21.) In connection with growth forecasts, a sensitivity analysis performed by Licensees' witness assumed an increase in the State's growth rate to 2.2%. This is not a substantial increase in terms of historical rates, but it resulted in the need for more capacity by 1998 when the reserve margin would fall below the required minimum. (Meehan, ff. Tr. 13,167, at 13 and Table 3.2.)

There will be adequate reserve capacity in New York State if the Indian Point units are closed as long as the State's energy plan is implemented. This plan calls for bringing on-line within the next 15-year period more than 5,000 MW of new power generation and a

1,000 MW pumped storage hydro project. However, as indicated *infra*, more than 2,350 MW of this additional amount of electricity has already been cancelled or indefinitely postponed. The New York Power Pool could alleviate energy pressures from a shutdown of Indian Point through programming additional coal generation facilities and acquiring additional amounts of Canadian energy imports. There are constraints here. Time must be allowed for construction of new coal generation units which, according to the testimony, reflect a minimum six-year construction program after permit issuance. The testimony also indicates that because of Canada's own domestic requirements reliance on additional large amounts of Canadian power for long-term use would be highly speculative.

It is the Board's judgment, therefore, that if the Indian Point units are closed, it is reasonable to assume that replacement energy can be provided. Such an assumption is subject to serious questions of uncertainty in areas of growth forecasting and the full implementation of New York State's Energy Master Plan.

#### *Direct Economic Impacts*

The cost of replacement power is the major economic impact of closing the units. Estimates of this cost were submitted by six parties to the proceeding.<sup>123</sup> The parties' different assessments range from a high of \$9 billion in 1982 dollars to a low of \$0.746 billion in 1981 dollars.

In light of the differing assumptions and methods used in performing calculations, the diverse estimates of direct economic impact that the evidence produced are not surprising. The assumptions generally covered capacity factors, fuel replacement, fuel costs, operation and maintenance costs, decommissioning charges, capital expenditures, nuclear fuel costs and disposal charges, insurance premiums, energy demand growth rate, and rates of inflation as well as discount rates.

The Licensees utilized a PROMOD III System, a sophisticated and comprehensive computer model, widely used in the private and public sectors of the utility industry, which accounts for forced outages and transmission limitations in performing its production cost analysis. (Meehan, ff. Tr. 13,167 at 3-12.) GNYCE used a Cost Assessment of Nuclear Substitution (CANS) model which utilized independent modules to calculate incremental revenue impacts in defined scenarios.

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<sup>123</sup> The Parties and their principal witnesses were Licensees (Meehan/Streiter); Staff (Feld); Union of Concerned Scientists (Taylor); New York City Council (Schlissel/Mavretich); State of New York (Parmelee); Greater New York Council on Energy (Rosen).

(Rosen, ff. Tr. 13,788, at Appendix A, A1-A3.) The Staff used two different modeling approaches, one by the Argonne National Laboratory (ANL) for detailed production-cost analysis and the other by Entek Research, Inc., to examine the tradeoffs between constructing new capacity and using existing capacity. (Buehring, *et al.*, ff. Tr. 14,130, at 116-19.) New York State used a General Electric simulation model to demonstrate production costs. (Parmelee, ff. Tr. 13,727, at 6-8.) Witnesses from New York City and the Union of Concerned Scientists cited no specific model as the basis for their calculations. (Mavretich/Schlissel, ff. Tr. 14,266, at 6-7; Taylor, ff. Tr. 13,330.)

Several of the parties also performed studies of base or reference cases, which included their most reasonable assumptions; the reference cases were then contrasted with other scenarios using higher or lower assumption factors. A number of sensitivity analyses were also performed to compare cost impacts under different assumptions. (For example, *see* Meehan, ff. Tr. 13,167, at 13; Rosen, ff. Tr. 13,788, at 65; Buehring, *et al.*, ff. Tr. 14,130, at 127.)

We set forth in Table XX the direct economic cost impacts, submitted by the parties to the proceeding, and the major assumptions used by each.

In the Board's view, an effort need not be made here to determine which party or parties produced the most accurate or reasonable assumptions forming the basis for their final estimates. Because of the different assumptions and modeling utilized, and the large uncertainties regarding future events, such an endeavor would have little meaning. Our approach is pragmatic. We discuss first those assumptions for each party that, in diverting from the norm, had the largest influence on its final estimates.

1. The Licensees' case analysis utilized a capacity factor — 63% — that was higher than that used by any other party even though the historical rate through 1987 for Indian Point Unit 2 is 53% and for Unit 3 is 46%. (Streiter, Tr. 13,394.) The higher factor postulated was justified in the belief that serious problems with major components that have been encountered by both units can be solved. The testimony indicated that large expenditures on repairs and large capital expenditures by both Licensees were strong indicators of confidence in this expectation. (Streiter, ff. Tr. 13,381, at 11-12; Tr. 13,405-06.) During cross-examination, Licensees' witness agreed that a lower level of 57% capacity was defensible. A sensitivity analysis based on that assumption produced a cost of \$7.583 billion. (Streiter, Tr. 13,414.) Although both units have had steam generator problems, no allowance in the Licensees' case for the replacement of steam generators was made since neither

**TABLE XX**

	<b>Licensees</b>	<b>Staff</b>	<b>UCS</b>	<b>NY City</b>	<b>NY State</b>	<b>GNYCE</b>
<b>Penalty</b>	\$9 Billion	\$4.4 Billion	\$4.1 Billion	\$4.7 Billion	\$2.3 Billion	\$0.746 Billion
<b>Time Period</b>	1984-2009	1983-2006	1980-2005	1984-2009	1984-1996	1983-1997
<b>Capacity Factor</b>	63%	50%	57%	53.7%-Unit 2 48.08%-Unit 3	57.7%	55% to 20%
<b>Energy Growth Rate</b>	1.4%/yr-Pool 1.3%/yr-C.Ed Franchise Area	1.5%/yr-Pool 0.7%/yr-C.Ed 2.4%/yr-PA			1.7%/yr-Pool	0%
<b>Oil Prices</b>	6.7% decline in 1983 Increase to 1985 21%/yr above inflation after 1985	8% per year Inflation rate	7% Rate of Inflation		Changes yearly from 2% to 7% Increase	0%-4% above 8% Inflation
<b>Replacement Energy</b>	Oil & Coal	Oil to 1990 New Coal-1990	Oil New Coal-1988	Oil & Coal	Oil, Additional Imports, & Coal	Oil, Additional Imports, 50% Conservation Scenario, Coal Conversion
<b>Discount Rate</b>	10%-Discount 7%-Inflation 3%-Real	13%-Discount 8%-Inflation 5%-Real	1980 Dollars  5%-Real	11%-Discount 7%-Inflation 4%-Real	10.35%-Discount Changes-Infla- tion Yr. By Yr.	12%-Discount 8%-Inflation 4%-Real

Con Ed nor Power Authority have concluded firm plans for such expenditures. A sensitivity analysis demonstrated that adding steam generator replacements would add \$800 million to the cost of continued operation, and the Licensees' witness admitted that the decision to omit the item represented a 50-50 intuitive judgment. This would reduce Licensees' replacement cost estimate. (Streiter, ff. Tr. 13,381, at 18 and Table 15; Tr. 13,513.)

The fuel prices used in the Licensees' analysis were on the high side in comparison to assumptions in this area used by other parties. The forecasts used for oil were prepared by the ICF, Inc., for the NYPP in 1982 and assumed a 6.7% decline in that year, a return to higher 1982 prices by 1985, and a 2% annual increase over a 7% inflation rate thereafter. The Licensees' witness testified that future oil price estimates were subject to wide variations and admitted that the vulnerability and uncertainty regarding oil prices would have the greatest influence on cost projections in closing Indian Point. The Licensees' witness indicated that the consensus of experts that oil prices would be flat or declining to 1985 was based on current excess oil production capacity and a pessimism concerning the quick recovery from world recession. (Streiter, ff. Tr. 13,381, at 6-9.)

2. The Staff analysis had three variables that distinguish its calculations from that of other parties. It assumed a uniform capacity factor of 50% and no escalation in fuel prices beyond the rate of inflation. The Staff justified the utilization of these numbers as an effort to add conservatism to its estimates. The analysis also postulated the construction of a new coal facility to provide a complete replacement for Indian Point energy by 1990. (Buehring, *et al.*, ff. Tr. 14,130, at 30, 35, 36.) The Staff's witness recognized that additional coal capacity and coal conversions would be required to ensure the system's independence from foreign oil imports irrespective of the issue of terminating Indian Point facilities. And Staff supports this by indicating its replacement cost estimates must be considered conservative if a collateral construction program did not take place with sufficient magnitude. (*Id.* at 34.)

3. The evidence on direct economic impact produced by the Greater New York Council on Energy revealed the use of a low capacity factor ranging from 55% in 1983 to 20% in 1997, for an average of 43% annually. Justification for this capacity factor, it was alleged, was based on a review of each unit's historical experience, a review of literature on nuclear plant capacity factors, and a regression analysis that indicated large saltwater-cooled PWRs like Indian Point were expected to exhibit deteriorating performances after several years of operation. This resulted

in the witness' decision to assume that capacity factors for Indian Point would decline linearly with age. (Rosen, ff. Tr. 13,788, at 24-29.)

For its mid-range (most reasonable) case, the GNYCE's witness used a no-growth figure for its load projections and assumed the adoption of 50% of a conservation scenario, which it stated was technically feasible as well as being cost-effective compared to energy supply. (Rosen, ff. Tr. 13,788, at 17-18.) However, the elements of that scenario were not produced in the record except to reference its source in a 1981 study performed on another New York power project. Evidence was adduced challenging the validity of that study as it related to conservation and alleging that the data base for it was from three to six years old. (Fitzpatrick, ff. Tr. 14,344, at 34-36.)

GNYCE's witness also added a new coal conversion project (Con Ed's Ravenswood Units 1 and 2) to occur in 1990-91; GNYCE assumed this conversion would be desirable to Con Ed and the New York State regulators, if Indian Point were shut down. However, the costs for such a facility were not included in the case where Indian Point continues to operate. The study also assumed that 10% of additional Canadian power imports would be available on the basis that NYPP and State regulators would redirect it from other New York purchasers. (Rosen, ff. Tr. 13,788, at 20-23.) We note here also that the period studied by GNYCE's witness was a shorter time period (1983-97) than that used by most other parties.

4. The New York State analysis made no allowance for three projects in the State's power generation program (Arthur Kill, Jamestown and Lake Erie) that have been cancelled or indefinitely postponed. Its calculations also assumed the same price for Canadian imports with Indian Point units shut down as would be paid with the units operating, even though the price of such imports is tied to the fossil fuel costs of the NYPP. As these increased, with the closure of Indian Point, the price of Canadian imports would also increase. The State's analysis did not consider transmission limitations in the event of a shutdown, which it agreed would make the penalty understated. (Parmelee, Tr. 13,762-67.)

5. The analysis submitted by the witnesses for New York City's Council members utilized a historical capacity factor of 53.77% for Indian Point Unit 2 and 48.08% for Indian Point Unit 3. Oil prices were assumed to increase, after 1983 at the same overall rate of inflation, 7%. (Mavretich/Schlissel, ff. 14,266, at 8-9, 16.)

6. The testimony of the UCS witness was less an analysis than a commentary on previous studies concerning an Indian Point shutdown. Elements of a prior UCS study, which assumed a new coal plant to replace Indian Point's capacity by 1988, were provided, however. (Taylor, ff. Tr.

13,298, Ex. II at 7-8.) The UCS analysis, even though lacking adequate detail, was based on a capacity factor of 57% and assumed that new coal capacity would ultimately replace Indian Point's nuclear units. (Taylor, ff. Tr. 13,298, Ex. II at 7.)

Several parties in the proceeding provided evidence on the impact of a shutdown on fuel purchases and rate increases. The Licensees' witness testified that increased oil purchases in the event of a shutdown would total close to 192 million barrels of oil with most of the expenditures going to foreign producers. The estimated amount of money going to Canada was set at \$1.9 billion. (Meehan, ff. Tr. 13,167, at 40.) Another Licensees' witness, an expert in the field of world oil trade, testified that in light of the volatile international situation, particularly in the Middle East, industrial nations were reducing their dependence on oil, and measures to increase its use were opposed to this country's national interest. He estimated that 102 million barrels of oil would have had to be purchased to replace the 56 billion kWh generated by Indian Point's nuclear facilities to date. (Conant, ff. Tr. 13,667, at 4, 8-9.) Because of the Power Authority's more narrow customer base, rate increases would be greater for the Power Authority, and it was estimated that from 1984 through 1990, Power Authority's rate increase would average 23.7%, and Con Ed's, 3.4%. (Streiter, ff. Tr. 13,381, Table 4.)

We conclude that the estimates for the cost of replacement power submitted by the six parties are in fact reconcilable by using a cost penalty of between \$4 billion and \$6 billion. It is not reasonable in our judgment to assume a high capacity factor of 63%, as Licensees have done, nor a lesser value, predicted by GNYCE, where the capacity factor decreases linearly from the units' historical rates to a low of 20% by 1997. We do not believe it reasonable to ignore historical averages, as was done in the Licensees' calculations. Nor do we find it reasonable to assume, as the GNYCE witness has done, a final estimate of 20%, which was based on an energy expert's study but which ignored the same expert's higher estimates for the earlier part of the nuclear plant's useful life. (See Rosen, Tr. 13,841-46.) In our view, an average capacity factor of 54-55%, which is moderately above the historical rates of the Indian Point units, is a defensible level; it gives recognition to plausible arguments made by Licensees that major technical problems can be solved and also to arguments by GNYCE that at least one steam generator replacement and a year outage should be considered as a probability in the 15-year life of at least one of the two units. It should be noted that the average capacity factor of all parties combined is between 53% and 54%.

The Board sees no reason why replacement energy for Indian Point should not be computed for the normal lifetime assigned to Licensees'



Indian Point units, instead of for a shortened life as several parties have done. Accordingly, we made an allowance in our final estimate for extending the period assessed for the computation of penalty costs to the year 2006 for Unit 2 and the year 2009 for Unit 3. This has the effect of adding to the penalty estimates computed by New York State and GNYCE.

The estimates of replacement energy costs are particularly sensitive to the fuel prices postulated, and most particularly the price of oil, since, in most of the scenarios looked at by the parties, there is a predominant utilization of oil as the replacement fuel. We assume as reasonable that future oil prices will rise during the lifetime of the units at a 1% real rate plus a 7.5% inflation rate. In view of a continuing complicated world trade picture concerning oil imports, and with this nation's reliance on foreign-produced oil, we view this level as a conservative increase. Since most of the parties have assumed an inflationary increase of 7% to 8%, this figure is not substantially out of line with such forecasts.

With regard to load growth, the Board has been presented with no evidence as to why the NYPP's projection of 1.4% annual increase for the State and 1.3% for the Con Ed service area is unreasonable. Even though these increases were submitted by the utilities themselves, they are much lower than previous increases in energy demands and are in keeping with projections of other companies outside of the State of New York. (See NUREG/CR-1295.) In order to obtain an estimate in current dollar values, the Board assumes a discount rate ranging from 10% to 12%, which covers the assumption factor in this area submitted by most of the parties.

There was a substantial difference in operating and maintenance savings estimated by several of the parties. The Licensees projected a substantial decrease in O&M expenditures, with a consequent reduction in expenditures and a larger penalty in the event of a closure of the Indian Point units. On the other hand, the GNYCE projected a substantial increase in O&M expenditures, which resulted in a larger saving and a lower penalty. We believe that both parties have submitted valid reasons for their O&M assumptions and accordingly, we make no judgment as to which are more valid.

Testimony was submitted on other assumptions such as decommissioning costs, nuclear fuel and disposal costs, and sales and gross revenue taxes; however, the calculations here were not only not uniformly included but also did not have substantial impacts on the final cost estimates submitted. Accordingly, in evaluating the evidence submitted, we ignored the effect of these assumptions in our final judgment.

We conclude that the cost penalty for eliminating Indian Point is substantial and that its termination would increase New York State's reliance on foreign oil, a reliance which currently is much greater than for the nation as a whole. This increase is also contrary to policies embodied in the State's Energy Master Plan. (See NY Ex. 14 at 71.) Several parties submitted evidence on the effect closing only one unit would produce. Because of Unit 3's longer remaining useful life, and its larger MWE rating, both the Licensees and Staff concurred that the Power Authority would incur 57% of the penalty and Con Ed would incur 43%. The Staff estimate, with which we agree, is that if only one unit were shut down the cost penalty would be substantially proportional to the fraction of the total power supplied by that unit. Other power consumers would have to carry part of the increased costs, since Indian Point shutdown would raise electrical prices throughout the State. When considered in this context, the percentages of the penalty assessed are 48% for the Power Authority, 36% for Con Ed, and 16% for other State consumers. However, when it comes to potential rate increases, the evidence shows that since the Power Authority has a relatively greater reliance on Indian Point as a source of energy for its downstate customers and because its base is much smaller than Con Ed's, the effect on its customers downstate is much larger. According to the Licensees, a shutdown would produce a 23.6% annual rate increase for the Power Authority and a 3.4% annual rate increase for Con Ed. (Streiter, ff. Tr. 13,381, at 5-6, Table 4; Buehring, *et al.*, ff. Tr. 14,130, at 40 and Table V.) Although it is difficult to calculate rate increases resulting from a sizeable cost penalty, we can use the rate increase percentages submitted by the Licensees to obtain some general increases for a \$5 billion cost penalty. (See Streiter, ff. Tr. 13,381, at 4-5 and Table 4.) Since the \$5 billion constitutes 55% of the Licensees' \$9 billion total penalty, we estimate the rate increase from 1984 to 1990 for Con Ed's customers to average 1.87% annually and the Power Authority's customers, 12.93%.

#### *Indirect Economic Impacts*

The testimony conflicted on effects the elimination of Indian Point units would have on the economy in the New York City area and on Con Ed's and Power Authority's customers. The Licensees' assessment of the impact of increased power costs on Power Authority's largest customers (Metropolitan Transportation Authority, New York City, New York City Housing Authority, *etc.*) provided evidence that in terms of increased transit fares, unemployment, increased taxes, or reduced governmental services, the burden would be substantial and would fall

most heavily on lower-income groups. The Staff's testimony demonstrated the effects produced by decreased revenues in communities currently receiving tax or in-lieu payments from Con Ed and the Power Authority. The witness for UCS contended only long-term effects on consumer behavior should be considered in the indirect economic impact analysis. These effects, he suggested, would offset price increases through an equal reduction in electricity consumption (*i.e.*, the long-run price elasticity of demand =  $-1$ ). This reduction would come about, he said, through the increased use of more efficient appliances, machinery, and insulation, through a shift to alternative fuels, and through the consumption of fewer electrical services. On cross-examination, UCS's witness testified that no statistical analysis had been performed to determine the correct price elasticity for the Con Ed service area, nor had any effort been made to test the price elasticity level he recommended against actual experience data in the service region. (*See* Taylor, ff. Tr. 13,298, at 25-26; Tr. 13,325-27.) A Licensees' witness testified that in a recent rate case, long-term elasticity used for Con Ed was  $-0.25$ . (Wang, ff. Tr. 14,061 at 3.) On cross-examination, however, the witness also testified that despite a substantial increase (60%) in Con Ed's electricity rates in recent years, there had been no substantial decrease in consumer use. (Wang, Tr. 14,077.)

It is difficult to assess indirect economic consequences. The evidence is convincing that if the Power Authority's replacement penalty had to be recovered by price increases in the Con Ed service area, there would be a significant increase in public transportation rates and in the costs of a wide range of governmental activities. Whether these increases are absorbed by tax increases or service reductions, a significant adverse impact will be encountered in employment, incomes, and other components of the economy. However, we conclude that power rates must remain competitive, and as long as the Power Authority's customers are free to seek other sources of less expensive energy, there would be some public pressure to limit the effect of price increases through subsidies or provisions for additional purchases of cheaper energy from Canadian sources. We recognize also the impact of some price elasticity of demand; conservation may assist in lowering power demands. However, we believe there will still be a substantial indirect impact on the residents of the New York City area created by some increase in electric power rates, though that increase may not be as much as is estimated by the Power Authority.

We are more certain of our evaluation of the economic impact on jurisdictions that will lose tax or in-lieu payments. Here, the consequences will be immediate and burdensome. The evidence indicates that

closing Indian Point will deprive local jurisdictions in the vicinity of the plants of needed revenues to such an extent that several of the local jurisdictions may be forced to merge with larger governmental units. In light of the sizeable loss of revenues involved, we can only agree with the inevitability of that result.

### *Environmental Impacts*

The Staff presented the only evidence on this aspect of Commission Question 6. No air-quality standards were predicted to be violated as a consequence of closing Indian Point, but the Staff anticipated that the yield from the most susceptible crop plants and some local trees might be adversely affected. The analysis also looked at "acid rain" and the "greenhouse effect" and found no discernible impacts. If a new coal plant were to replace Indian Point units, an analysis would be required to identify any impact on four federally endangered or threatened species in the surrounding area. (Billups, *et al.*, ff. Tr. 14,306, at 19-23, 36, 39, 40, 47.)

On the issue of environmental consequences, the Board heard no evidence clearly challenging the Staff testimony that the shutdown of Indian Point would not violate any air-quality standard and that it would eliminate the potential long-term effects on aquatic life. The latter conclusion is contingent on a replacement energy facility having a closed-cycle cooling system to eliminate potential environmental danger. The Board heard no evidence challenging the Staff's conclusion that the termination of Indian Point would cause an increase in sulfur dioxide (SO<sub>2</sub>) levels which would likely cause the yield of the most susceptible crop plants to be reduced and mild foliar symptoms to occur on some species of trees in the New York area. The Board concludes that there would be no significant environmental impact from closing the Indian Point units.

### **W. Contention 6.1: Replacement Power<sup>124</sup>**

This contention is based on an allegation of the existence of excess capacity in the Orange and Rockland Utilities, Inc. (O&R). O&R, which serves Rockland County and other areas, is one of eight NYPP utilities where a pooling of economy energy interchanges (economic dispatch) occurs. The contention states:

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<sup>124</sup> Parties and witnesses were: Intervenor WBCA (Fleisher); Licensees (Meehan); Staff (Buehring, Feld, Fields, Nicholson, Wood).

. An economic consequence of the shutdown of Indian Point Units 2 and 3 would be an economic benefit accruing to Rockland County through the sale of replacement power.

Con Ed claimed that O&R is a net purchaser of energy, notwithstanding its excess capacity. Con Ed alleged that with a shutdown of Indian Point, O&R would suffer an increase in its production costs because O&R's purchase costs would also increase.

The Power Authority concurred with Con Ed's position and stated that the cancellation of Indian Point would have a substantial adverse economic impact on Rockland County.

The Staff position supported that taken by the Licensees, and Staff contended that even if there were excess O&R power to sell, there would be no incentive for its purchase by Con Ed and Power Authority, since less expensive energy would be available in Licensees' own systems or from other Pool members.

Neither the consolidated Intervenors nor any other party made any final recommendations on this contention.

### ***Summary of the Evidence***

1. *West Branch Conservation Association testimony:* This testimony provides an assessment of the benefit that would come to Rockland County (and also Orange County and nearby sections in New Jersey that are served by an O&R subsidiary) if Indian Point Units 2 and 3 were shut down.

According to WBCA's witness, since 1973 or 1974, when its Bowline Unit 2 came on line, O&R has had excess capacity of about 300 MW, which has been a constant tax on O&R's customers. On an average load basis, there have been more than 500 MW of excess capacity available and on a peak load, the excess capacity ranges from 270 MW to 325 MW. During the same period, O&R's customers have not received any "cheap" power from Indian Point's nuclear plants. During 1981-82, O&R sold for resale 510,371 MWh of electricity at a net sale price of \$1.8 million or \$31,000/MW-year. If Licensees purchased from O&R only 10% of the energy lost in closing the Indian Point unit (67 MW-year), it would benefit Rockland County by \$2 million per year (\$31,000 x 67). (Fleisher, ff. Tr. 14,079, at 1-4.)

2. *Licensees' testimony:* The shutdown of Indian Point will have an adverse effect on other utilities including O&R. Although O&R may receive some small benefit from a shutdown for a period of several years, the overall impact on the utility would be to increase production costs. O&R is primarily a purchaser of economy energy, the price for which

will increase if Indian Point units are shut down. (Meehan, ff. Tr. 13,167, at 29, Table 4.4.)

3. *Staff testimony:* The 1982 NYPP Annual Report shows that between 1983 and 1997, O&R will have excess capacity in only a six-year period. The excess capacity ranges from 158 MW to 11 MW. For the remaining nine years, however, it has a projected deficit. As a consequence, with its own forecasted growth and its reserve margin requirements, O&R will not have any capacity to sell. Also, even if there were excess capacity available, both Con Ed and the Power Authority would be able to purchase power elsewhere at a more competitive price. Moreover, even if energy were to be purchased from O&R, the benefits realized by that utility would still be offset by increased costs to the purchaser (Licensees and, ultimately, their consumers). From society's perspective, there is no real economic benefit from a transfer of costs. A valid economic analysis of the real production penalty for the costs of closing Indian Point would exclude such costs and benefits. (Buehring, *et al.*, ff. Tr. 14,130, at 65-69 and Table VI.)

### **Conclusion**

The evidence submitted in connection with this Contention demonstrates conclusively that no beneficial consequences would accrue to customers of the Orange and Rockland utilities as a result of closing Indian Point. For most of its projected load demand, data from the NYPP Annual Report reflect a limited amount of excess capacity (less than 188 MW) for the utility. O&R is primarily a purchaser of economy energy and an elimination of Indian Point units would increase the costs of such energy; accordingly, O&R would not be benefited. (Meehan, ff. Tr. 13,167, Table 4.4.) We conclude further that even if O&R possessed excess energy for sale, a purchase by virtue of an Indian Point closing would just transfer the increased costs from one consumer to another. This would not produce any net benefit from the closing.

## **X. Contention 6.2: Decreased Releases<sup>125</sup>**

Contention 6.2 states:

A benefit would accrue from the shutdown of Indian Point Units 2 and 3 because the environment of children in the vicinity would be improved by a decrease in the release of radioactive material.

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<sup>125</sup> Parties and witnesses were: Parents (Thornborough, Bohning); Staff (Branagan).

The basic foundation of this contention is that children are more susceptible to the damaging effects of radiation than are adults, and since operation of a nuclear facility contributes to some exposure of children to radiation, a shutdown of Indian Point facilities would benefit their environment. And this is alleged to be particularly valid at Indian Point inasmuch as the population surrounding the site contains a larger number of children.

The Power Authority claimed that no evidence was submitted to show an effect of the assumed releases from Indian Point on the population surrounding the units. The Power Authority indicated that actual releases at the facility were thousands of times lower than those calculated by the Staff. Thus, the Power Authority claims that the Staff estimates overstated the health risks.

Con Ed indicated that the undisputed testimony shows that the risk to a child who is exposed to radioactive effluents during one year's normal operation is a small fraction of the risk encountered each year from exposure to natural background radiation. It also concluded that the potential for genetic disorders from such radioactive effluents is a small part of the estimated normal incidence of genetic abnormalities.

The Staff's position was that the exposure of children in the Indian Point vicinity to radiation from routine operations is a small fraction of the doses from exposure to natural radiation. Further, the Staff concluded that the average dose to an individual within 50 miles of the site is three or more orders of magnitude less than the dose to a maximally exposed child.

No other party submitted any recommendations on this contention and only the Staff and the sponsoring party, Parents, presented any evidence in connection with it during the hearings.

The Board asked the Staff to assess the potential genetic impacts that might occur as a result of exposure during normal operations and was advised that the sum of potential genetic disorders that may occur over all future generations within 50 miles of the facilities was estimated at 0.005, a very small value.

### ***Summary of the Evidence***

1. *Parents' testimony:* This testimony attempted to demonstrate that the environment for children around Indian Point would be enhanced by shutting down the units. A disease state induced by an exposure to radiation is the result of cellular damage. The nature and extent of damage induced is largely determined by chance. The environment has always contained a certain amount of background radiation, and the question is

whether there is a threshold dose below which no damage can occur. It has become increasingly accepted that there is no threshold limit, and the scientific literature abounds with studies that demonstrate children are more susceptible to the damaging effects of radiation than adults. Cells undergoing growth and division are more susceptible to radiation damage than are cells that are not undergoing growth and division. The normal operation of a nuclear plant increases background radiation in the immediate vicinity of the plant, and any increase in background will have some consequence. The large number of people surrounding a nuclear facility like Indian Point increases the probability of individuals coming into contact with such radiation hazards. Accordingly, such facilities should be located only in areas of very low population density.

Though the probability may be very small, a single photon or ionizing particle energetic enough to disrupt the DNA molecule is capable of causing a cancer or inducing a mutation. Even at very low mrem doses, the body is still being penetrated by tens of thousands of photons. (Thornborough, ff. Tr. 14,380, at 4-13; Bohning, ff. Tr. 14,380, at 4.)

2. *Staff testimony:* After a review of the Final Environmental Statements and recent Effluent and Waste Disposal Semiannual Reports submitted by the Licensees and a review of the guidance in Appendix I to 10 C.F.R. Part 50, the Staff conservatively estimated that the rate for a maximally exposed individual from a year's normal operation of each Indian Point unit is 10 mrems. In order to obtain a dose of 10 mrems/reactor-year, an individual would have to spend all of his or her time at the site boundary and obtain almost all of his/her food from a place where the highest concentration of radionuclides is expected. (Branagan, ff. Tr. 14,361, at 3-5.) The risk to an individual is calculated by multiplying the dose to the total body by a somatic (*i.e.*, cancer) risk estimator obtained from the "absolute risk" model described in BEIR I. This risk estimator is consistent with others provided by other sources and it yields a risk estimate for a population composed of all age groups of 1.35 cancers per million persons exposed to 10 mrem. To estimate the risk to a child, a multiplying factor for age adjustment of 0.7 was used. The risk of radiation-induced leukemia is greater in children than in a population composed of all age groups, but the risk of other fatal cancers is less in children than in a population composed of all age groups. Both facts were taken into account by the Staff's age adjustment for children. (*Id.* at 7-8.) This produced a risk of potential premature death from cancer to an exposed child from one year's operation to be about one chance in one million. Although the risk to a person 11 to 20 years of age (50% higher) and a risk due to in utero exposure (70% higher) exceeds these values, the differences are not significant. The



use of BEIR III statistics would not have produced significantly different results. The Staff included a table which shows that the effects estimated based on BEIR III would have been less than those based on BEIR I. (*Id.* at 5-9 and Table 1.)

The risk to children as a result of exposure to routine releases is a small fraction of the risk from one year of exposure to natural background radiation. It is also much less than risks from exposure to major sources of radiation such as medical exposures, and it is the same range as the risk from exposure to other common sources of enhanced radiation such as cosmic radiation during airline travel, radon exposure from combustion of natural gas for heating, and byproduct x-rays from television receivers. (Branagan, ff. Tr. 14,361, at 10-11.)

Using a conservative value of 20 person-rem/reactor-year (the FES for the plants use 14) to the total body of the population within 50 miles of the Indian Point site (about 19 million persons), and using a risk estimator based on models described in the BEIR I report, the Staff estimated that about 0.005 of a potential genetic defect disorder may occur. The current incidence of actual genetic ill health in each generation is about 11%. The risk of genetic disorders from the annual operation of the Indian Point plants is estimated to be one part in one billion, a very small fraction of the estimated normal incidence of genetic abnormalities. (Branagan, ff. Tr. 15,143, at 2-6.)

### ***Conclusion***

This contention alleged that a shutdown will produce a physical benefit to the environment of children in the vicinity of the Indian Point units. No evidence was submitted in support of this contention except statements that exposure to any level of radiation was dangerous. Witnesses for Parents alleged that there is no threshold dose exposure but admitted that the contribution to background radiation dose for children from the Indian Point operation would be "miniscule." The Staff presented evidence of studies that demonstrated the dose to a maximally exposed child would be a small fraction of the dose from exposure to natural background radiation and that the risk of cancer from a normal one-year plant operation would be one chance in a million. This risk is much less than the risk from exposure to any of the major sources of radiation and is small in comparison with the current incidence of actual cancer fatalities. At the Board's request, the Staff looked at genetic impacts that might occur as a result of exposure from normal operations and found the occurrences as one part in a billion of the estimated normal incidence of genetic abnormalities in the first five generations of the 1980

population. The Staff's evidence on this Contention was not seriously challenged and is accepted by the Board.

#### **Y. Contention 6.3: Cogeneration and Conservation<sup>126</sup>**

Contention 6.3 states:

Considering the savings in operating expense which would result from shutting down Indian Point Units 2 and 3, and allowing for the ways in which cogeneration and conservation can mitigate the costs of replacement power, the net costs of shut-down are small; in fact, they are smaller than previous studies by the Union of Concerned Scientists, the U.S. General Accounting Office, or the Rand Corporation suggest, and are entirely acceptable.

Savings in operating expenses have been considered in the testimony on Question 6 and will not be reviewed again here.

This contention, submitted by the GNYCE and supported in part by GNYCE's major witness (Rosen), had as its main adherents, witnesses Commoner and Schrader, sponsored by the Members of the New York City Council. Their case was that conservation based on an accelerated replacement of less efficient appliances (refrigerators, air conditioners, and light bulbs), as well as the introduction of small-scale cogenerators, could replace the power generated by Indian Point Units 2 and 3, thereby justifying a shutdown of the facilities.

The Power Authority contended that the case for substituting conservation and cogeneration for Indian Point is implausible, unrealistic, and unpersuasive. It asserted the potential for cogeneration in southeast New York is extremely limited. Both Licensees alleged that their peak load and energy forecasts already contain projections for conservation potential in southeast New York.

Con Ed alleged that proposals to replace old appliances with new ones did not adequately consider funding for such a program and contended that if such a program were established, it would not offset the costs of shutting down Indian Point. The utility also alleged that air quality would be more adversely affected by cogeneration facilities than by large central generating stations, that actual conversions to cogeneration have been very low, and that the availability of gas for gas-fired cogeneration would be very uncertain.

The Staff's position was that conservation and cogeneration, even if vigorously encouraged and implemented, would not replace and could

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<sup>126</sup> Parties and witnesses were: Intervenors (Commoner, Schrader, Rosen); Licensees (Freudenthal, Wagers, Stewart, Fitzpatrick); Staff (Buchring, Feld, Fields, Nicholson, Wood).

not significantly mitigate the cost penalty of shutting down Indian Point. The Staff also contended that any additional incentive for conservation and cogeneration resulting from price increases caused by a shutdown would be insignificant. Furthermore, conservation and cogeneration would only be accomplished at a cost of reduced usage, decreased consumer satisfaction, or increased expenses to achieve further efficiency.

### ***Summary of the Evidence***

1. *Members of New York City Council testimony:* Indian Point Unit 2 has operated over its lifetime at a 50% capacity factor, a level that can be expected to continue, and provides 3.8 billion kWh per year. The appliances which account for 58% (1935 kWh per household per year) of the typical residential power consumption (3309 kWh) in the Indian Point Unit 2 service area are refrigerators, air conditioners, and light bulbs. The witnesses' recommendation assumed that 75% of these residential appliances and 50% of commercial lighting units could be replaced over a five-year period. (Commoner/Schrader, ff. Tr. 13,951, at 1-2.) On the basis that a residential refrigerator is available with a 33% reduction in power consumption, the replacement of 75% of the refrigerators (3.15 million) could save 700 million kWh each year in energy requirements, and reduce peak power by 110 MW. (*Id.* at 3.)

In connection with air conditioners, where newer models possess an energy efficiency rating (EER) of 10 (the average unit in use in New York State has an EER of 7.75), the replacement of 75% (2.26 million) of existing air conditioners will result in a savings of 213.2 million kWh per year and a reduction of 300 MW in peak demand. The 3.067 million households in the service area use 1.868 billion kWh/year for lighting. Replacing 75% of lighting units with light bulbs that are 60% more efficient than existing bulbs will save an additional 840 million kWh. The total savings in power reduction of these appliances then will be 1.8 billion kWh per year. (*Id.* at 4-5 and Table 2.)

If additional savings of 50% in the commercial sector could be achieved through conservation measures (a figure which the witness stated could reasonably be achieved), this would amount to a reduction in energy consumed of 1.95 billion kWh/yr. Along with the savings in appliances, this could eliminate the need for 97% of Indian Point's power. Or as an alternative, if one accepts as a minimum the 31% savings in energy use that has been estimated by the New York City Energy Office, the balance (about 700 million kWh) could be achieved through installing cogeneration or obtaining additional Canadian power which

could be made available by authorization for sale to Con Ed. (*Id.* at 5-6.) For financing this proposal, an existing State program, the Home Insulation Energy Conservation Act (HIECA), which provides for loans from utilities for a variety of conservation measures, could be amended to provide for the Power Authority's participation; additionally, Con Ed should be allowed to include the conservation loans in its rate base program. It is anticipated that the payback period for refrigerators would be seven years; air conditioners, 10-12 years; and light bulbs, two months; and that a five-year replacement program could begin in two years. Assuming an embedded cost in refrigerators and air conditioners which could be recovered through resale, the total replacement program would cost \$1.6 billion; however \$996 million in power costs would be saved over the five-year period. (*Id.* at 7-10.)

The Power Authority has also operated at an average capacity of 50%, and this performance rate can be expected to continue with an output of 4.2 billion kWh/year. The witnesses recommended that power supplied by the Power Authority could be replaced by installing cost-effective cogenerators in residential buildings. Cogeneration is a technique that utilizes the heat rejected during the electricity production process. The heat produced is typically used as steam, space heat, or hot water. Economic savings from fuel savings and reduced capital requirements can be substantial. The witness used a Totem-type cogenerator as an example; its electrical output would be 15 kW, it would operate on natural gas, and running at 95% capacity to allow for maintenance, it would produce 97,200 kWh/year. If 43,200 of such devices were installed in multi-family dwellings in New York City and Westchester County, those decentralized plants, at an equipment cost of \$580 million, could replace the complete output of Indian Point Unit 3. The estimate is that they would pay for themselves in electrical savings in less than 2.5 years. (*Id.* at 11-13.)

2. *Staff testimony:* There are substantial fuel savings and related cost reductions that are technically feasible for cogeneration since efficiencies of 80-85% are attainable. Conventional generation usually attains efficiencies of 30% to 40%. Accordingly with cogeneration, fuel consumption can be reduced about 30%. A number of measures exist to evaluate a new technology like cogeneration, but the most important is the market penetration measure or that portion of the market that has actually been developed. (Buehring, *et al.*, ff. Tr. 14,130, at 74-78.)

Four technologies currently represent reasonable alternatives for cogeneration: gas (or combustion) turbines, diesel engines, extraction steam turbines, and back-pressure steam turbines. There are technical and economic tradeoffs for each of the cogenerator alternatives, and it is

not realistic to expect a favorable outcome for all of the major conflicting objectives (minimizing cost, maximizing market penetration and fuel efficiency, and meeting environmental restrictions). For example, if maximum design limits of fuel efficiency are assumed for cogeneration, then the economic market potential and penetration levels must be reduced significantly to reflect a limited number of ideal applications. Other potential problems for cogeneration include retrofit complications, including availability of space, the costs of exhaust stacks not in place, electrical wiring, heating, and cooling compatibility, and the ability to obtain the highest buy-back rates from the utilities. Current hearings under the Public Utilities Regulatory Policy Act (PURPA) regarding regulations may also reduce the number of investors available for conversions to cogeneration. (*Id.* at 79-87.)

Conservation can be accomplished through either improved energy efficiency or changes in consumer behavior. It can occur voluntarily as a result of economic incentives, such as price increases producing a price-elasticity conservation, or it can occur through government policies (tax credits or subsidies) and regulations on efficiency standards for new appliances and performance standards for newly constructed residential or commercial buildings. (*Id.* at 98-99.)

Con Ed was one of the first utilities to institute conservation programs starting in 1971. Although precise quantification is difficult, decreases in the annual average rate of demand growth from the Con Ed service area from 1973 to 1981 was  $-0.5\%$ . Average rates for electricity for Con Ed's customers doubled from 1973 to 1979 (5.2¢ to 10.5¢/kWh), and in 1979 New York City households consumed 62% less electricity than the average American household, although their energy expenditures were 33% higher. Conservation is included in the Con Ed/Power Authority long-range forecasts. The conservation covers an upgrading of appliances, installation of heat pumps, and the use of solar and wind energy for homes with electric water heaters. (*Id.* at 100-07.)

Two recent studies, one performed for Con Ed by the Energy Laboratory at Massachusetts Institute of Technology, and the other by the City Energy Office on energy consumption in New York City, recommended additional programs that would decrease energy use. These included installation of load limiting devices, building submetering, and increasing efficiencies in space heating and electrical appliances. The MIT study programs would reduce Con Ed's annual projected energy growth by 1995 from 1.0 to 0.5%. The New York City Energy Office study estimates a minimum potential of a 16% reduction of current electricity sendout. Both studies recognize that there are financial and legal problems in implementing the programs.

The Staff performed two analyses using in part the two studies above as basic guidelines. The first showed a maximum conservation case, which would lead to a 50% reduction in annual load growth and results in a reduction by year 2006 of 1300 MW in peak load. The second, a more reasonable case for conservation (50% of the conservation in the first case) would reduce the peak load by 660 MW. (*Id.* at 111-12 and Table XIII.) The case study methods and assumptions were as follows.

In an effort to quantify the impact of cogeneration and conservation with Indian Point units shut down and with Indian Point units operating (cogeneration and conservation is the same in both cases), two studies were performed: one by the Argonne National Laboratory (ANL) and the other by Entek Research, Inc. Using different models, their simulation studies examined cases where:

- the load projections forecast by the utilities.
- the loads reduced according to an estimated maximum potential for both conservation and cogeneration.
- the loads reduced by 50% of the maximum conservation and cogeneration estimates.

The ANL simulations were primarily intended to show the potential impact of a shutdown if the utility plans for new capacity are unaffected; the Entek approach examined the tradeoffs between constructing new capacity with different operating costs and the alternative of using existing capacity with high (primarily high fuel) operating costs. Both case studies used the same key assumptions: 8% inflation; a 13% discount rate; and a 50% capacity factor. The development of conservation and cogeneration was set at very high levels in order to estimate the maximum possible effects on fuel and cost requirements. The levels assumed are extremely high with respect to realistic market penetration levels.

In each category of utility load assumptions, three cases were examined: (1) Indian Point in service; (2) Indian Point out of service but with the same assumptions regarding conservation and cogeneration; and (3) Indian Point out of service but with additional amounts of conservation and cogeneration in order to examine incremental economic incentives. (*Id.* at 116-24.)

The results of the analyses showed the following: The increase in utility costs associated with the Indian Point shutdown for the reference demand level was estimated to be \$4.5 billion with Entek and \$5.0 billion using ANL; for the maximum conservation and cogeneration case, the shutdown cost was estimated to be \$3.6 billion with Entek and \$4.0 billion with ANL; for the 50% of maximum case, the shutdown cost was estimated to be \$4.1 billion using Entek and \$4.4 billion using ANL.

Two cases were also looked at to compare where Indian Point was available with various levels of conservation and cogeneration to where Indian Point was not available with higher levels of cogeneration and conservation because of increased prices. A lower level of 75% of avoided costs and an upper bound of 100% of avoided costs were selected. These results showed Indian Point shutdown costs, for all levels of conservation and cogeneration, ranging from \$3.0 billion to \$4.0 billion for Entek cases and \$3.5 billion to \$4.3 billion for ANL. These costs only represent costs to the utility and do not account for consumer investments for capital and operating expenses. It must be realized also that if Indian Point were shut down, the remaining customers of the utilities would face higher electric bills as a result of the increased conservation and the postulated cogeneration; the utility has fixed costs that are constant so that the fixed component of the average cost (measured in cents/kWh) will be higher in the case having less generation.

The Staff's conclusion was that it is unlikely that a closing of Indian Point units would provide an economic incentive large enough to increase significantly the implementation of cogeneration and conservation beyond the levels that might be expected with Indian Point in operation. The main reason is that expensive fuels, primarily oil, are used to generate marginal energy when Indian Point is operating as well as when it is shut down. (*Id.* at 127-37.)

3. *Con Ed's testimony (Freudenthal)*: Con Ed's testimony addressed the environmental consequences of natural gas-fired and oil-fired internal combustion engine cogeneration that might be used to replace all or a portion of the electric load served by Indian Point. The impact on air quality from facilities using internal combustion engines in buildings with rooftop machines is far greater than the impact from an equivalent amount of energy generated at large central generating stations. A proliferation of gas- or oil-fired engines in an area like New York City would cause nitrogen dioxide (NO<sub>2</sub>) levels to rise so that national air quality standards might be exceeded. NO<sub>2</sub> is the most toxic of the nitrogen oxides, and natural gas-fired internal combustion engines produce 11 to 20 times more NO<sub>x</sub> per kilowatt hour than oil-burning engines.<sup>127</sup> If gas-fired internal combustion engines replace space heating from onsite, oil-fired burners, there will be a reduction in SO<sub>2</sub> emissions, but these reductions will be much smaller than the increases in NO<sub>x</sub> emissions. Accordingly, there will still be a deterioration in air quality.

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<sup>127</sup> Most of the NO<sub>x</sub> emissions are NO, which then oxidizes to NO<sub>2</sub> in the atmosphere. (Freudenthal, ff. Tr. 13,673, at 3.)

In a model prepared when oil-fired generators were installed in 395 buildings in Manhattan, the dispersion analysis indicated extensive areas in New York City with substantial increases in ambient NO<sub>2</sub> concentrations. This would have violated the ambient air quality standards for NO<sub>2</sub>. If the same model had been used to test natural gas-internal combustion engine cogeneration, the NO<sub>2</sub> increases would have been 16% greater than those calculated for oil-fired diesel engines. If NO<sub>2</sub> ambient air quality standards are contravened, the Clean Air Act would impose sanctions on the New York City area, compliance with which would effectively preclude industrial and economic growth in the metropolitan area. (Freudenthal, ff. Tr. 13,673, at 1-10.)

4. *Licensees' testimony (Wagers)*: This testimony was directed at explaining why natural gas-fired cogeneration cannot be counted on to replace a large part of the capacity lost if Indian Point were shut down. The testimony covered two types of natural gas-fired cogeneration: natural gas-fired diesel cogeneration and an experimental small-scale facility called Totem (Total Energy Module). The witness stated three reasons why natural gas-fired cogeneration cannot be counted on to replace Indian Point's generation. The first is that estimates of its cogeneration potential indicate that the small load reductions that are economical would not be adequate to replace Indian Point's generation. Studies conducted for Con Ed, testimony of the New York State Department of Public Service and others before the State Public Service Commission, the State Energy Plan, and a study performed for the New York City Energy Office, reflect the potential of cogeneration as being a small portion of Indian Point's capacity. A reduction in recent estimates of the cogeneration potential has resulted from increased retrofitting expenses, higher estimates for property tax assessment, and higher operating costs. The second reason is that the potential of cogeneration will be limited by air pollution problems and natural gas supply problems which would occur if large numbers of customers converted to cogeneration (these problems were covered in other testimony). The third reason is that there is uncertainty about when even estimated potential levels of cogeneration could be reached, since the actual installations have been well below the estimated levels. Con Ed keeps records that show there were only 17 conversions during the period from 1974 to 1983; these have a cumulative peak load less than 30 MW. In 1982, the estimated potential was 72 customers with a load of 296 MW, but the actual conversion was one customer with 0.1 MW load.

With regard to the Totem model, it is capable of producing 15 kW of electricity, has an installed cost of \$10,000, and a nominal life of 10,000 hours before a major overhaul is required. It has its best application in



industrial and agricultural sectors where energy is needed day and night in both summer and winter. Because of a lack of data, and until their practicality has been demonstrated, Totems cannot be considered a proven technology. They have a number of technical drawbacks, including their inability to be completely isolated from a utility, a lack of voltage support and uncontrollable frequency. (Wagers, ff. Tr. 13,701, at 2-13.)

5. *Licensees' testimony (Stewart)*: This testimony presented the natural gas supply implications of providing an estimated 50 billion cubic feet of natural gas to fuel 1,000 MW of cogeneration capacity. This amount of gas represents 26% of the Con Ed gas purchase in 1982 for its customers and for use in power generation. There is no reasonable likelihood that such an incremental supply could or would be made available for the foreseeable future. In terms of peak day supply, this amount represents 70% of Con Ed's current 790 thousand MCF peak day capability. Con Ed is not actively promoting natural gas sales to new customers because the Company has limited access to winter peaking supplies. The cost of the winter peaking capacity for the first year, assuming its availability, could exceed \$100 million and does not include the gas supply cost, cost of installing new services, or reinforcement of distribution facilities. Current excess supplies will be gone in two to three years, and Con Ed's suppliers have not been willing to accept additional firm service requests to date. Sources of Canadian gas are also limited. (Stewart, ff. Tr. 13,715, at 1-5.)

6. *Licensees' testimony (Fitzpatrick)*: The purpose of this testimony was to provide some understanding of how conservation has been accounted for by the utilities of the NYPP in the State Energy Master Plan (SEMP) and to discuss the extent that conservation has penetrated the marketplace. The testimony also provided information on the energy impact in the Con Ed service area of certain appliances and an extrapolation of those results to Power Authority's residential customers. SEMP has made conservation the cornerstone of the State's long-term energy policy and has reported that forecasts of utilities reflected significant conservation as a result of rising prices, mandated efficiency standards, and the State's conservation programs. Con Ed's "most likely" forecast has accounted for a minimum of 67% (326 MW) of the total conservation savings available from refrigerators, residential air conditioners, residential lighting, water heater blankets, low flow showerheads, and heat pump water heaters. An extrapolation of these results to the Power Authority shows a much smaller impact — 27 MW — than Con Ed. This is because the Power Authority serves only 250,000 residential households, but more than 3 million are served by Con Ed, and virtually

all of the Power Authority's customers are master-metered, which diminishes the incentives to conserve by removing the appliance purchase decision from individual households.

There are certain impediments to both the accurate assessment and the full implementation of conservation measures. Examples of these are (1) the uncertainty of efficiency levels of existing appliances; (2) uncertainty surrounding future conservation participation rates; (3) lack of accurate information on the average annual kWh per appliance and peak demand levels; (4) uncertainty about amounts of conservation that will occur without a subsidy program; and (5) the magnitude of certain offsets to the efficiency of appliances, *e.g.*, the efficiency of refrigerators being reduced by added features like icemakers. There are also institutional and other impediments, such as (1) a significant saturation of master-metered residential buildings (20% in the Con Ed area) which can affect improvements in lighting, refrigeration, air conditioning and master heating; (2) the large number of apartments (apartments comprise 71% of Con Ed's service area) where major appliances are owned and purchased by landlords and where price is an important consideration; (3) a relatively large percentage of low-income residents in Con Ed's service territory (30% in 1977 survey). (Fitzpatrick, ff. Tr. 14,344, at 18-27.)

### ***Board Conclusions***

This issue was joined through evidence submitted by New York City Council Members, the Licensees, and the Staff. In essence, the Council's witnesses proposed a mass program of conservation as a complete substitute for Indian Point Unit 2's power, which consisted of a five-year program to replace 75% of the air conditioners, refrigerators, and light bulbs in the Con Ed service area with more energy-efficient substitutes. The program's funding of \$1.61 billion was to be provided through no-interest cost loans from the utilities for the purchase of such appliances and the funds would be repaid through increased rate charges and the resale of some existing appliances. As a replacement for Indian Point Unit 3, the witnesses recommended a program of installing 43,000 cogenerators or their equivalent in New York City multi-family apartments at a cost of \$580 million. The program would pay for itself, it was alleged, in a period of 2.5 years. A State financing program would be amended to permit Power Authority's participation in the financing arrangements for such cogenerators.

The Staff provided studies that maximized the possible estimates for cogeneration and conservation with Indian Point units out of service.

The results of the studies showed that even with those assumptions, significant cost penalties ranging from \$3.6 billion to \$5.0 billion would still be confronted.

The Licensees introduced a number of witnesses who testified on various aspects of the cogenerator and conservation alternatives to Indian Point. Testimony was received that the impact on air quality from a proliferation of gas- or oil-fired cogenerators would be adverse and national air quality standards would probably be exceeded. Evidence was received that natural gas-fired cogenerators were an unlikely replacement for Indian Point units since the actual conversions to date had been substantially less than estimated. A witness testified that there was no possibility that substantial quantities of gas would be available to replace Indian Point power as fuel for cogenerators. Finally, evidence was submitted that both Licensees had already provided an optimistic consideration of conservation in their individual submissions to the State Energy Master Plan.

The Board finds little merit in the evidence advocating cogeneration and conservation as viable alternatives to the Indian Point facilities. With regard to conservation, some of the considerations working against the feasibility of the program proposed are: many apartments in the New York area are master-metered and include units for which the owner purchases the appliances (militating against willing participation in an appliance replacement program); the degree of increased efficiency of electricity use in new appliances is not clear; large obstacles exist in the proposed funding program, particularly with respect to those vague details concerning salvage values connected to existing appliances (considered an essential element of the proposed funding program). With regard to cogeneration, the dangers of increased air pollution are high, the costs associated with providing space and mechanical and electrical adjustments are uncertain, and there are unanswered questions related to cogeneration technology. Additionally, even if the conservation or cogeneration programs were otherwise feasible, the Board fails to see benefit where the savings from conservation or cogeneration are simply offset by the cost of implementing such programs. The Board finds additional support for its judgment in the modeling work produced by the Staff, which computed a penalty payment of \$4 billion even after assuming significant contributions from cogeneration and conservation.

### *Summary*

The Board's conclusions on Question 6 and Contentions 6.1, 6.2, and 6.3 are that closing the Indian Point nuclear facilities would: (1) not

jeopardize New York State's energy requirements or reserve margins, provided the State's economic growth rate remains low and the State implements its 25-year generation and transmission plan; (2) necessitate the payment by ratepayers of a significant economic penalty totalling \$4 to \$6 billion in present-day cost; (3) produce a substantial economic loss for the communities surrounding the facilities; (4) create no major environmental impacts; (5) not reduce the economic penalty through a utilization of excess energy from the Orange and Rockland Utility, Inc.; (6) not improve the environment of children living in the vicinity of the plants; and (7) not result in significant conservation and cogeneration, which would otherwise reduce the economic penalty.

## **Z. Commission Question 7**

Commission Question 7 asks:

Does the Governor of the State of New York wish to express an official position with regard to the long-term operation of the units?

The Board, by letter dated April 23, 1982, invited former Governor Carey to express his position; and by letter dated May 2, 1983, the Board invited the views of present Governor Cuomo. Neither, however, replied.

### **III. CONCLUSION**

The Board believes the safety improvements it has recommended for Indian Point are necessary in order that the plants may operate with reasonable assurance that the public health and safety will be protected.

#### **THE ATOMIC SAFETY AND LICENSING BOARD**

**Frederick J. Shon  
ADMINISTRATIVE JUDGE**

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

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

**Bethesda, Maryland  
October 24, 1983**

[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.]

#### **DISSENTING VIEWS OF JUDGE GLEASON**

The Board's commentary and recommendations on Societal Significance of Risk Estimates are not supported by Judge Gleason for the following reasons:

1. In the conclusions on Commission Question 1, the Board states it is not suggesting by its recommendation on this matter that the minimax principle be applied by the Commission in its deliberations on Indian Point. That, however, is the net effect if low probabilities of nuclear accidents are ignored. The recommendation seems to suggest an absolute and not the adequate protection called for by the Atomic Energy Act. It

also tends to ignore an extensive body of regulation that has been enacted for the safe operation of nuclear power facilities which produce such low probabilities of accidents.

2. The Board's treatment of this issue which singles out the Indian Point facilities to the exclusion of many other sites similarly situated in effect raises again the question of considering consequences without their associated probabilities. This we have been restricted from doing by the Commission. (CLI-82-15, 16 NRC 27 (1982).)

3. This section of the Board's recommendations should have been included, *if anywhere*, in the Board's response to Commission Question 5 that deals directly with a comparison between any risk in operating Indian Point and the operating risks of other nuclear plants. By including it here in Question 1, which speaks only to the risks of Indian Point, the Board appears to be recommending a new standard exclusively for Indian Point (and three other plants, Zion, Limerick and Salem 2). Even the Task Force's comment cited by the Board addresses a comparison of Indian Point to other reactors. The Report indicates "from those (Task Force) examinations, it appears that the site (Indian Point) is about an order of magnitude more risky than a typical design." If such a standard has any validity *at all*, it of necessity should be applicable to a larger number of reactors than the few suggested by the Board. It deserves noting that the Task Force Report was issued prior to the probabilistic risk assessments made to date on 14 or 15 nuclear power facilities, including Indian Point. And it was issued prior to the implementation of the TMI lessons learned requirements of NUREG-0737. It is more than likely that the probability of a further reduction in risk discussed by the Task Force has already been accomplished.

4. As noted in our response to Question 5, the Staff concluded "there is no reason to believe that either individual or societal risks (at Indian Point) are well outside the range of risks posed by other nuclear power plants licensed to operate by the Nuclear Regulatory Commission." (Rowson/Blond, ff. Tr. 12,834, at 33.) This conclusion was based in part on the fact that there were other sites in the country with larger calculated consequences than Indian Point. (*Id.* at 31.) Even though we noted on p. 36 that the CCDF curves from NUREG/CR-2239 plotting 91 nuclear sites for consequences of a hypothetical accident indicated that Indian Point and Limerick were probably "outliers," this should not negate the Staff's conclusion that no single site or group of sites represented a unique extreme in the continuum of current sites. It should be noted that even the expert witness for Intervenor, Union of Concerned Scientists, conceded on cross-examination, that twenty-five (25)

sites listed in his testimony had the potential for severe consequences. (Sholly, Tr. 12,760.)

If the consistent method of determining risk by multiplying probabilities of accidents by consequences is to be changed, it should be changed for other operating sites where the population, although not dense as Indian Point, is still large. There are 26 nuclear facilities with populations of over 50,000 residents within a 10-mile plume exposure emergency planning zone.\* (NUREG-0715, August 1980, at 4.)

In this recommendation, the majority of the Board has raised an issue on its own initiative that is not called for by the Commission's Questions, was not examined or litigated in the present proceeding and is not supported by the record. It can be stated further that it has never been raised or considered in any other adjudicatory proceeding since the Atomic Energy Act was enacted in 1946 and amended in 1954.

### ADDITIONAL VIEWS OF THE MAJORITY

We see nothing in our recommendations which would apply the mini-max principle. Nor have we urged the Commission to "ignore" the low probabilities calculated for serious accidents. We simply note, as did the Task Force, that it may not be appropriate to consider *only* the *product* of probability and consequences. These two quantities are, in many of the most sophisticated treatments, *e.g.*, CCDF curves, kept separate, and there is a body of thought, cited by the Task Force and noted by us, which holds that the probability-consequences product should be constrained to decrease for accidents that cause large consequences. Mini-max would demand that it fall to zero. We do not. We have, in fact, not quantified such a decrease at all. And it is clear that any theory, minimax or other, which demands a zero risk for some finite accident would represent the "absolute safety" goal which the Commission has eschewed.

As to our "singling out" Indian Point, the singling out was done by the Commission when it ordered this investigative proceeding. No similar review has been undertaken for any other operating plant, and the Commission itself pointed out the singular nature of this site, when it said,

Licenses also contend that the Indian Point demography is not different from other sites. In fact, according to the Task Force report, Indian Point has the highest

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\*See Additional Views of the Majority, p. 1081.

population within 10, 30, and 50 miles of any nuclear power plant site in the United States. At 50 miles, its population is more than double any other plant site.

(CLI-81-1, 13 NRC 1, 5 (1981).)

We have, of course, dealt with the matter of evaluating societal risk under Commission Question 1 because it is quintessential to the question of the absolute magnitude of the risk posed by Indian Point. Unless one grasps the fact that the expected risk value alone may not fully define what we intuitively mean by "risk" one cannot evaluate the hazards of Indian Point in any complete sense.

The portion of Staff's testimony which our colleague cites in connection with Question 5 is, we note, at best a case of damning with faint praise. The fact that the Staff finds "no reason to believe that . . . the risks are well outside the range of risks posed by other . . . plants" is scarcely a ringing affirmation of the safety of the Indian Point plants. Taken in context with the sentences that immediately precede this statement, the recommendation seems even weaker. Those sentences read as follows:

The site is typical in individual risk characteristics and about 10 times higher than average in population, and hence in site effects on societal risks. *The net effect of these characteristics is ambiguous.* Individual risks are probably average to well below average. Societal risks are probably average to above average. (Emphasis added.)

(Rowsome/Blond, ff. Tr. 12,834, at 33.)

Our colleague points out that there are 26 nuclear facilities with populations over 50,000 residing within 10 miles of the plant(s). But with respect to Indian Point, Staff testified that the population within 10 miles of the plant totaled 247,411. (Soffer, ff. Tr. 8571, Table 1.)

Our colleague favors the "consistent method" of determining risks by multiplying consequences by probabilities, but no such standard exists to our knowledge. A comparison of CCDF curves has long been an alternate method, and something akin to CCDFs was proposed almost 20 years ago in England. We do not propose a change of method; we simply propose a broadening of view in the case of plants such as Indian Point, Zion, and Limerick. As to support in the record that probability and consequences cannot simply be multiplied to get one expected risk value, the IPPSS itself takes just such a position.

We agree, of course, that such an evaluation has not been raised in prior NRC proceedings. Indeed, *no* interpretation of probability and consequences has previously formed the basis for a licensing case, nor could it under present Commission policy. And there has never before been a proceeding like this one ordered by the Commission.



We would reiterate:

With regard to Commission Question 1 we have presented our best estimates of expected risk values, but we caution the Commission against any uncritical interpretation of them. As to Commission Question 5, we believe that the Indian Point plants are among those having the greatest potential societal consequences in a serious accident. Overall risks have not been well enough analyzed for other plants to allow the comparison of risk values on a meaningful basis.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

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

**In the Matter of**

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

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

**October 25, 1983**

In this Memorandum and Order, the Licensing Board reconsiders its decision (LBP-83-60, 18 NRC 672 (1983)) to require filings on Emergency Planning and decides that it should abandon its interest because the matter was not of sufficient safety importance to become a *sua sponte* issue.

**RULES OF PRACTICE: *SUA SPONTE* AUTHORITY**

Although a Board may make preliminary inquiries to determine whether or not to pursue an issue *sua sponte*, preliminary inquiries should not substantially burden the parties. In order to impose substantial burdens, a Board must first declare a *sua sponte* issue.

## **RULES OF PRACTICE: DEFAULTED ISSUES**

Even though the Board has declared that a party has defaulted by not filing findings on portions of an admitted issue, the Board may continue to pursue those portions of issues in order to compile a reasonably complete record. If the Board decides to pursue those portions of issues, it may permit the defaulted party to assist it by participating in questions the Board pursues.

## **TECHNICAL ISSUES DISCUSSED**

- Quality assurance (intimidation of inspectors)
- Quality assurance (pranks played on inspectors)
- Plug welds
- Downhill welding.

## **MEMORANDUM AND ORDER**

**(Reconsideration of Order of September 23, 1983)**

[The parties are prohibited from informing anyone about the *existence or content* of this Memorandum and Order prior to 12 noon Eastern Daylight Savings Time, October 25.]

The Staff of the Nuclear Regulatory Commission (staff) and Texas Utilities Generating Company, *et al.* (applicant) have moved for reconsideration of our Order of September 23, 1983<sup>1</sup> on the ground that we have committed clear errors.<sup>2</sup>

Both staff and applicant request that we discontinue our informal pursuit of the Emergency Planning contention, arguing that we either should declare a *sua sponte* issue or should abandon our interest. In this instance, we conclude that they are correct. Although Boards may, in our opinion, make inquiries designed to inform them whether or not to pursue *sua sponte* issues, this authority is of limited scope. When the Board's concern substantially burdens the parties, it must declare a *sua sponte* issue or abandon its concern.<sup>3</sup> Consequently, we requested

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<sup>1</sup> LBP-83-60, 18 NRC 672 (1983) (Challenged Order).

<sup>2</sup> Both motions were filed on October 6, 1983, pursuant to our Order authorizing such motions for "clear errors of fact or law."

<sup>3</sup> *Texas Utilities Generating Co.* (Comanche Peak Steam Electric Station, Units 1 and 2), CLI-81-36, 14 NRC 1111 (1981).

limited oral argument from the parties to provide us with a basis for deciding whether or not to declare a *sua sponte* issue. Then, at the conclusion of oral argument, we determined that the review to be conducted by the Federal Emergency Management Agency is of sufficient scope so that we will not now declare emergency planning to be a *sua sponte* issue.<sup>4</sup>

With respect to other issues, only applicant objects. In each instance we have reviewed its objections. In some cases, we recognize that we have made an error in our analysis of the record.

## I. BOARD INVOLVEMENT IN DEFAULTED ISSUES

We are not persuaded by applicant's arguments on this issue. Within the scope of an admitted contention, the Board is not just an umpire calling balls and strikes. We must assure that relevant and material evidence bearing on the admitted contention is sufficiently well developed so that we can prepare a reasoned decision resolving the issues before us.<sup>5</sup> In this case, we have sworn testimony concerning an admitted contention about quality assurance deficiencies; the Board must be satisfied that the allegations in this testimony have been adequately answered. Furthermore, in light of our conclusion that we are properly concerned about the completeness of the record, there is no reason that we are required to bar intervenor from helping us to pursue our interest.<sup>6</sup>

## II. PROTECTIVE COATINGS

In general, we do not find that applicant's arguments demonstrate clear error. Applicant merely has another view of the evidence. Our reasons for concern about the "nit-picking" meeting are expressed adequately in the challenged order.<sup>7</sup> We did, however, err in reaching a conclusion about the effect of the "nit-picking" meeting on the workers.

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<sup>4</sup> Tr. 8905-06, 8909. The Board is satisfied with FEMA's response, on Tr. 8909, concerning its review of the training of the county judge. Note that at Tr. 8905, line 7, the word "plant" should be changed to "Staff."

<sup>5</sup> See *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-443, 6 NRC 741, 751-52 (1977); *South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), ALAB-663, 14 NRC 1140, 1163 (1981). We consider this such a basic principle governing our proceedings, that we did not think it necessary to provide these citations in our previous opinion.

<sup>6</sup> Challenged Order, 18 NRC at 679-80.

<sup>7</sup> *Id.* at 681-83.

There is no evidence from which we can conclude that the "nit-picking" meeting adversely affected the performance of individual inspectors.

### III. HARASSMENT OF QUALITY ASSURANCE INSPECTORS

Applicant is correct in pointing out our clear error in including that "locking up" of inspectors among the list of "pranks." It is clear from the context of the remark that the allegation was limited to Mr. Hamilton's statement that whenever a quality assurance inspector found a deficiency, the craft person involved would request a second inspector. Thus, the inspector's time would be used inefficiently or, in the words of the witness, the inspector would be "locked up."<sup>8</sup> This was not a prank or harassment. However, this un rebutted evidence clarifies the relationship between the craft personnel and quality inspection personnel and helps to explain the context in which "pranks" should be interpreted.

Applicant also has persuaded us that there is ambiguity in NRC Exhibit 206 at VII-4 concerning the extent to which applicant's management (and the affiliated management of Brown & Root) has taken aggressive action to counteract inspector intimidation. Since this is the subject of an ongoing investigation, we rescind our previous finding and will await further testimony if we should find it necessary to draw a conclusion on this matter.<sup>9</sup>

### IV. DISMISSAL OF MR. HAMILTON

Applicant's first major point, that the Board raised the question of the motivations for firing Mr. Hamilton by itself, is patently incorrect. Applicant tells us, without record citations, that the issues that were framed and litigated did not include this question. However, the testimony of Mr. Hamilton includes allegations that others were engaged in the same conduct and were not fired and that applicant's normal procedures for firing people were not followed.<sup>10</sup>

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<sup>8</sup> CASE Exhibit 653 at 37-38.

<sup>9</sup> In an unpublished Memorandum issued today, the Board has established a procedure to verify the adequacy of the construction of Comanche Peak apart from the adequacy of the quality assurance program. The Board may accept testimony on the current state of Comanche Peak in lieu of further evidence concerning quality assurance matters.

<sup>10</sup> See Applicant's Motion for Reconsideration, October 6, 1983 at 22-31 for record citations in which these matters were discussed.

Applicant has, however, brought two factual issues more clearly into focus. Although it could have provided us with a full factual discussion in its Objections to our Proposed Decision, we believe that the importance of the matter requires us to extend applicant this additional chance to clarify our thinking.

Applicant argues that all the individuals who were dismissed for refusing to work in an allegedly unsafe area were aware that they would be subject to termination.<sup>11</sup> This is correct. It also argues that the evidence demonstrates that one of the individuals who did not “walk the rail” was never asked to do so.<sup>12</sup> This also is correct.

However, applicant incorrectly argues that the policy of firing people for refusing to do tasks was “consistently applied.” The evidence shows that one person who was available to “walk the rail” was never asked to do so. There is no explanation in the record of why this should occur. There also is testimony that one of the individuals on the night shift refused to conduct an inspection and was not fired.<sup>13</sup> Although this is weak evidence, being hearsay, it is nevertheless evidence and it was within applicant’s ability to come forward to rebut it or to provide reasons for being unable to obtain rebuttal testimony.

Applicant misapprehends our conclusions on safety. We do not find that Mr. Hamilton’s safety fears were correct. The Occupational Health and Safety Administration (OSHA) found otherwise; and other of applicant’s employees worked in the same area. However, applicant has not explained why it did not ask one of the day-shift workers to perform the work; nor has applicant explained why it did not fire one of the night-shift workers who did not perform the work. Furthermore, the description of the area makes it clear that Mr. Hamilton had *real* fears, whether or not an objective determination would find that the area was sufficiently safe.

We do not consider changes in personnel or the passage of time to be reasons to disregard Mr. Hamilton’s previous employment history in reaching a conclusion about why he was fired. The “nit-picking” meeting, the removal of the authority to fire<sup>14</sup> and applicant’s willingness to ignore complaints about “pranks” all are background

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<sup>11</sup> CASE Exhibit 653 at 8.

<sup>12</sup> CASE Exhibit 653 at 10.

<sup>13</sup> Applicant’s Motion for Reconsideration at 23 does not dispute this state of the record.

<sup>14</sup> We reject applicant’s unproven suggestion that an applicant opposed to quality assurance necessarily would rejoice over the firing of quality assurance personnel. See Applicant’s Motion for Reconsideration at 30. Reductions in force would not necessarily result from the firing of non-conscientious quality assurance people. Unless quality assurance work is completed, particularly for hold points, the pace of the craft’s work may be slowed. Furthermore, the NRC staff is alert to appropriate staffing levels, and reductions in force could invite unwanted regulatory attention.

relevant to Mr. Hamilton's dismissal. The fact that Mr. Hamilton had been assigned to a new supervisor just three days before his dismissal<sup>15</sup> also is relevant and unexplained, although we did not give this fact sufficient weight until we reviewed the record in response to the Motion for Reconsideration. Together, we consider that a preponderance of the evidence shows that Mr. Hamilton's aggressive concern for quality assurance was part of the reason he was discharged.<sup>16</sup>

## V. NEAR WHITE BLAST

Applicant has found an error in the Board's findings on this point. The testimony was that Mr. Brandt, Mr. Foote and Mr. Cummings changed procedures for quality assurance in September or October of 1981.<sup>17</sup> Consequently the challenged order was incorrect in finding that the procedures were in effect during an "extended" period of time.

However, those procedures, which apparently were defective, were in effect for about three months during the period when Mr. Hamilton worked for applicant. Applicant's reliance on CCP-30, Revision 10, does not demonstrate otherwise.

We will subsequently consider whether applicant's follow-up inspection of protective coatings provides adequate assurance concerning the safety of coatings that were installed during the period of deficiency.

## VI. WESTINGHOUSE COATINGS

Testimony of a trained quality assurance inspector concerning the appearance of paint and its inability to pass an adhesion test, is adequate to raise a *prima facie* case. There needs to be some follow-up inspection to ascertain the truth and generality of this testimony. Mr. Hamilton's failure to write an NCR on this item is not dispositive since it apparently was not within the scope of Mr. Hamilton's responsibilities. Based on the Hamilton testimony and our findings about the Atchison firing, we conclude that Mr. Hamilton thought that such an NCR would not have been welcome.

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<sup>15</sup> CASE Exhibit 653 at 8.

<sup>16</sup> That Mr. Hamilton was not instructed to fire people for identifying deficiencies (CASE Exhibit 653 at 46) does not persuade us that less direct means to the same end were not attempted. We note that Mr. Hamilton's allegations about Daniel Hash (*id.* at 20) and about the careless attitude of Richard Dendy (*id.* at 22-23) have never been answered.

<sup>17</sup> CASE Exhibit 653 at 18.

## VII. DEMEANING OF A PERSON'S CHARACTER

Applicant has objected<sup>18</sup> to language in our opinion concerning its treatment of "vague" complaints and of complaints made by persons of questionable credibility.<sup>19</sup> However, applicant incorrectly interpreted these remarks to relate to Mr. Hamilton. They do not.

In the referenced section of our opinion, we were critical of applicant for its incomplete responses. We were critical of applicant because it did not respond adequately to what it described as the "vague" allegation of Mr. Hamilton. In addition, we noted that at times applicant has demeaned the character of a witness — here we refer primarily to Mr. Stiner — and has refused to answer the allegation. This we consider incorrect.

We do not find any error in this passage of our opinion.

## VIII. PLUG WELDS

Here applicant argues, without any record citation either in the motion for reconsideration or in the applicant's Objections, that the welds in question were *cosmetic*. This undocumented allegation is inconsistent with applicant's previous position that it inspected each of the plug welds after they were completed.<sup>20</sup> It is also inconsistent with Mrs. Stiner's testimony expressing concern that there was no hold point on plug welds.<sup>21</sup> Her testimony, as a qualified welder, indicates her belief that these welds were not merely cosmetic and that they required inspection prior to the completion of the welds.

If applicant can now demonstrate, on a weld-by-weld basis, that individual "plug" welds are cosmetic or that an engineering analysis demonstrates that affected pipe supports meet code standards regardless of the strength of the welds, it may submit evidence to that effect. Otherwise, applicant may propose appropriate remedial action.

## IX. DOWNHILL WELDING

Applicant objects primarily on the ground that we did not give enough weight to Mr. Brandt's testimony. That is hardly clear error. However,

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<sup>18</sup> Footnote 21 to its motion.

<sup>19</sup> Challenged Order at 687.

<sup>20</sup> Applicant's Objections, August 27, 1983 at 47-48.

<sup>21</sup> CASE Exhibit 667 at 30.



we have read and considered applicant's arguments. We are not persuaded. We do not have sufficient evidence to conclude, by a preponderance of the evidence, that there are no improper downhill welds at Comanche Peak.

Mr. Brandt's position as Non-ASME QA/QC Supervisor gives him the responsibility of knowing whether downhill welds have been made in violation of procedures. However, Mr. Brandt is just one person supervising many. We are not persuaded of the sufficiency of his testimony without knowing the extent of his personal observations and the nature of his attempts to ascertain the accuracy of the Stiner testimony. In this regard, we reiterate our concern that Mr. Brandt is an employee of the applicant and that we are properly applying established principles of evidence in noting that he has an interest that affects the credibility of his testimony.

## **X. WELD ROD CONTROL AND UNSTATED MANAGEMENT DIRECTIVE**

There is no clear error alleged with respect to our findings on weld rod control or on an unstated management directive. We consider applicant's comments to be in the nature of a differing view of the evidence.

## **XI. MATERIAL MISSTATEMENT**

Applicant alleges that the Board made an error of fact or law concerning its findings that Applicant's FSAR contains a "material false statement" about rock overbreak. Although our use of applicant's definition of misrepresentation<sup>22</sup> to analyze the cited FSAR section does not correct our initial impression about this issue, we are persuaded that the FSAR text and accompanying figures are sufficiently thorough that there is no ground for questioning applicant's "seriousness" in pursuing its application in a thorough and honest fashion. Hence, we consider any possible misrepresentation to be a technical matter that has no influence on the license application and is therefore beyond our jurisdiction.

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<sup>22</sup> Applicant's Motion for Reconsideration at 45.

## **XII. THE "FEELING" AT THE HEARING**

Applicant argues in one instance that there was a clear feeling at the Hearing that it had won on a particular point. It states that it was apparently deprived of this point because of the change in the Board.

We do not know how to evaluate this claim. Many a time in a hearing, a judge thinks he knows the way the evidence points. Then it comes time to *deliberate* upon the facts, considering the findings of the parties. At that time, previous bets are off.

Whatever may have been the feeling at the hearing, this Board has deliberated on the facts of record and has done its best to resolve the issues before it in a fair, objective manner. We do not consider it relevant to speculate about whether the previous Board members would have agreed.

### **ORDER**

For all the foregoing reasons and based on consideration of the entire record in this matter, it is, this 25th day of October 1983,

#### **ORDERED**

That Texas Utilities Generating Company, *et al.*'s Motion for Reconsideration is denied, except to the extent that it is granted within the text of the accompanying memorandum. In particular, the Board has determined that it will not pursue the emergency planning issue.

Applicant shall: (1) conduct an inspection of a sample of Westinghouse coatings and report the result of the inspection to the Board; (2) submit further evidence concerning plug welds or shall propose an appropriate response to the Board's concerns; and (3)

submit further testimony or proposals in response to other adverse findings in our September 23, 1983 Memorandum and Order.

**FOR THE ATOMIC SAFETY AND  
LICENSING BOARD**

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

**Walter H. Jordan (by PPB)  
ADMINISTRATIVE JUDGE**

**Kenneth A. McCollom (by PPB)  
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland**

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)**

**October 28, 1983**

The Licensing Board reconsiders and affirms a prior bench ruling in which it found that the attorney-client privilege is available to protect the substance of a meeting which was attended by one attorney and officers of two corporations with certain shared interests in acquisition of an NRC operating license for the Midland plant.

**RULES OF PRACTICE: DISCOVERY; PRIVILEGE**

To claim the attorney-client privilege, it must be shown that: (1) the asserted holder of the privilege is or sought to become a client; (2) the person to whom a communication was made (a) is a member of the bar of a court, or his subordinate and (b) in connection with the communication is acting as a lawyer; (3) the communication relates to a fact of which the attorney was informed (a) by his client, (b) without the presence of strangers, (c) for the purpose of securing primarily either (i) an opinion of law or (ii) legal services or (iii) legal assistance in some legal

proceeding, and not (d) for the purpose of committing a crime or tort; and (4) the privilege has been (a) claimed and (b) not waived by the client. *United States v. United Shoe Machinery Corp.*, 89 F. Supp. 357, 358-59 (D. Mass. 1950).

**RULES OF PRACTICE: DISCOVERY; PRIVILEGE**

The attorney-client privilege was not waived by presence of third persons at a meeting between client and attorney, where the situation involved representatives of two joint clients seeking advice from the attorney of one such client about common legal problems.

**RULES OF PRACTICE: DISCOVERY; PRIVILEGE**

Protection of the attorney-client privilege was not waived as to the substance of a certain meeting by revelation of the date of the meeting, its attendees, its purpose and its broad general subject matter.

**RULES OF PRACTICE: DISCOVERY; PRIVILEGE**

The attorney-client privilege is available to protect communications made at a meeting the primary purpose of which was the receipt of legal advice, even if some commonly known factual matters were included in the discussion, or incidental non-legal advice was exchanged.

**RULES OF PRACTICE: DISCOVERY; PRIVILEGE**

The Licensing Board will not infer that advice provided by an attorney at a certain meeting with his client was of a non-legal (hence, unprivileged) nature where: (1) an affidavit by the client states that the purpose of the meeting was the receipt of legal advice; and (2) no showing is made which would provide a basis to infer that the attorney would have been or was consulted in any role other than that of legal advisor.

**RULES OF PRACTICE: DISCOVERY; PRIVILEGE**

Where legal advice is sought from an attorney in good faith by one who is or is seeking to become a client, the fact that the attorney is not subsequently retained in no way affects the privileged nature of the communications between them.

**MEMORANDUM AND ORDER**  
**(Reconsidering and Affirming Order Upholding**  
**Attorney-Client Privilege)**

This Memorandum and Order considers the "Motion to Reconsider Order Upholding Attorney-Client Privilege Protection for November 24, 1982 Consumers-Bechtel Meeting" ("Motion to Reconsider") filed by Ms. Mary Sinclair, an Intervenor in this proceeding, on August 12, 1983. The subject ruling was one which we made from the bench on July 29, 1983, in which we held that the attorney-client privilege was available to protect the substance of a meeting attended by Mr. Gerald Charnoff (an attorney associated with a Washington, D.C., law firm), Mr. James Cook (a Vice President of Consumers Power Company -- "CPC") and certain unnamed employees of the Bechtel Power Corporation. Upon reconsideration, we have determined that our prior ruling was correct and should be reaffirmed.

**I. BACKGROUND**

During the hearing session on June 29, 1983, Ms. Sinclair questioned a panel of witnesses about some handwritten notes regarding a meeting which had occurred on November 27, 1982. The notes (admitted into evidence as Sinclair Exh. 6) had been prepared by panel member Roy Wells (Executive Manager, Midland Project Quality Assurance Department), and had been obtained by Ms. Sinclair and Ms. Barbara Stamiris, another Intervenor, through discovery. At the bottom of the fourth page of the notes appeared the following, in substance:

- Bechtel/CPCo/Charnoff met Wednesday [November 24, 1982] @ GAP;
- Enlisted Nuclear Lobbyist to keep Midland separate from Zimmer;
- Can communicate with NRC thru MAC.

Ms. Sinclair asked panel member Wells if the parties at the November 27th meeting had discussed the fact that Consumers had met with a Mr. Charnoff to discuss the Government Accountability Project (GAP); Mr. Wells admitted that he had made a note to that effect (Tr. 18,574). Ms. Sinclair questioned Mr. Wells about the subject of the November 24th meeting, and he indicated that he did not know what the meeting was about, that he had only a vague recollection of the substance of the meeting, but that he thought from his point of view that the meeting

had something to do with the fact that "the name GAP and the organization was somewhat new to us" (Tr. 18,577).

Panel member James Cook revealed, upon questioning, that he had personally been present at the November 24 meeting (Tr. 18,577), but before the subject matter of the meeting could be further elicited the Consumers Power attorney raised an objection upon the ground of attorney-client privilege. The Intervenor challenged the applicability of the privilege for reasons that:

1. Mr. Charnoff did not represent Mr. Cook, nor Consumers Power Company;
2. any privilege was waived because two entities (Consumers and Bechtel) had been present at the meeting with the lawyer;
3. mention of the meeting in notes which were produced on discovery waived the privilege as to the meeting's subject matter.

Tr. 18,577-79.

We decided that questions into what went on at the November 24 meeting were barred by the attorney-client privilege (Tr. 18,614-15). Our ruling was explicitly based on the Applicant's representation that, at the time, Mr. Charnoff was in fact working for CPC (Tr. 18,609). We agreed to permit the parties to file motions for reconsideration should they desire to do so (Tr. 18,616).

On July 25, 1983, CPC's attorney Michael Miller wrote a letter to the Board. He indicated that he had reviewed the transcript portions covering the November 24 meeting with Mr. Charnoff. He corrected some incorrect statements that he himself had made to the Board in connection with that meeting, and appended a letter (dated July 14, 1983) that he had received from Mr. Charnoff in which Mr. Charnoff had described his own recollection of the meeting in question. Mr. Charnoff's letter indicated that:

1. Mr. Charnoff had attended the subject meeting;
2. Mr. Charnoff was, and has always been, retained by Bechtel (not CPC) in connection with the Midland project;
3. Mr. Cook, however, had been confused as to whether Mr. Charnoff was or would be retained by Bechtel, or CPC, or both: he had conducted himself as if Mr. Charnoff were representing CPC until some weeks later when the matter was explicitly clarified to the contrary.

Mr. Miller's letter also included several authorities for the proposition that where legal advice is sought from an attorney in good faith by one who is or is seeking to become a client, the fact that the attorney is not subsequently retained, or is paid no fee, by the potential client in no way affects the privileged nature of the communications made between

them. *Robinson v. United States*, 144 F.2d 392 (5th Cir. 1944), *aff'd*, 324 U.S. 282 (1945); *United States v. Costanzo*, 625 F.2d 465 (3d Cir. 1980); *United States v. Ostrer*, 422 F. Supp. 93 (S.D.N.Y. 1976); VIII Wigmore, Evidence § 2303 (McNaughton Rev. 1961).

At the hearing session on July 29, 1983, we considered the contents of Mr. Miller's letter. In light of the cases cited therein, and of Mr. Charnoff's statements to the effect that Mr. Cook had been the victim of a good faith misunderstanding as to Mr. Charnoff's representation of CPC, we found that a valid attorney-client relationship had arisen between Mr. Cook and Mr. Charnoff for purposes of the privilege (Tr. 19,584).

The authorities presented by Mr. Miller dealt only with the applicability of the privilege; at the time of our ruling, the issue of waiver had not been addressed by either party. (The Miller letter had been in the hands of the Intervenors for only one day prior to the July 29 hearing; they had had no chance to respond to any of the legal allegations made therein.) We agreed that we would entertain a motion to reconsider our ruling upholding the privilege, and would accept further briefing, particularly upon the waiver aspects (Tr. 19,584).

Ms. Sinclair filed her "Motion to Reconsider" on August 12, 1983. CPC's "Response" was filed on September 2, 1983. Attached thereto was an affidavit by Mr. Cook which indicated that he had met with Mr. Charnoff and certain executives of Bechtel Power Corporation on November 24, 1982, and that the purpose of the meeting had been to seek Mr. Charnoff's legal advice in connection with obtaining operating licenses for CPC's Midland plant.

## II. ISSUES PRESENTED

To claim the attorney-client privilege, it must be shown that: (1) the asserted holder of the privilege is or sought to become a client; (2) the person to whom a communication was made (a) is a member of the bar of a court, or his subordinate and (b) in connection with the communication is acting as a lawyer; (3) the communication relates to a fact of which the attorney was informed (a) by his client, (b) without the presence of strangers, (c) for the purpose of securing primarily either (i) an opinion of law or (ii) legal services or (iii) legal assistance in some legal proceeding, and not (d) for the purpose of committing a crime or tort; and (4) the privilege has been (a) claimed and (b) not waived by the client. *United States v. United Shoe Machinery Corp.*, 89 F. Supp. 357, 358-59 (D. Mass. 1950).



Our ruling that Mr. Cook's good faith mistaken belief regarding Mr. Charnoff's representation of CPC places him within the definition of "client" for purposes of point (1) of the *United Shoe Machinery* test remains unchallenged. Nor is any question raised with respect to point (2). However, Ms. Sinclair asks us, in essence, to revise our ruling because of alleged failure of the situation at the November 24 meeting to pass muster under points (3) and (4) of the test.

She would have us deny the protection of the privilege because:

1. The presence of third parties (the unnamed Bechtel personnel) at the meeting between Messrs. Charnoff and Cook served to destroy the confidential nature of the communications made there, thus waiving the attorney-client privilege.
2. The revelations already made regarding this matter —
  - (1) Mr. Wells' notes from the November 27, 1982, meeting;
  - (2) Mr. Wells' testimony at the hearing on June 28, 1983;
  - and/or (3) Mr. Charnoff's letter — were disclosures substantial enough to effect waiver of the privilege as to the entire discussion on November 24 on the subject of GAP.
3. The communications made at the meeting were not for the purpose of securing an opinion of law, legal services or advice, and hence those communications fall outside the ambit of the privilege.

### III. DISCUSSION

1. The attorney-client privilege exists to promote freedom of consultation of legal advisors by clients. VIII Wigmore, Evidence § 2291, p. 545 (McNaughton Rev. 1961). Clients must be able to engage in frank and open exchanges with their attorneys, without fear that the substance of the discussion will be revealed to third parties. The privilege assumes that the communications between client and attorney are made with the intention of confidentiality; the reason for prohibiting disclosure ceases if it becomes apparent that the client did not desire confidentiality, or if confidentiality is violated by a disclosure. One circumstance in which it is considered apparent that a communication is not a "confidential" one

is when it is made in the presence of third persons who are not agents of the attorney or the client. VIII Wigmore, Evidence § 2311, pp. 599-603. Ms. Sinclair argues that because the unnamed Bechtel personnel at the November 24 meeting were such unrelated third parties, the privilege is waived.

The general rule to the effect that the presence of third parties destroys the privilege has numerous exceptions. One such exception is the "joint defense" or "common interest" exception. The attorney-client privilege is recognized for joint conferences between two or more clients and their attorneys when communications are made by the client to his attorney or to an attorney representing another client in a matter of "common interest" (see 2 J. Weinstein, Evidence ¶ 503(b)[06] at 503-60 (1982)).

Each case cited by Ms. Sinclair for the proposition that no "common interest" exception applies here is readily distinguishable from the issue now before this Board. In one (*Magnaleasing, Inc. v. Staten Island Mall*, 76 F.R.D. 559 (S.D.N.Y. 1977)) the court used "joint defense" language, but found the attorney-client privilege was not available because the document in question was not a "communication." In the others<sup>1</sup> no reasonable excuse for the involvement of a third person in the communication, and/or basis for believing the communication would be held confidential, was shown.

We are more persuaded by a case discussed in CPC's "Response," *United States v. McPartlin*, 595 F.2d 1321 (7th Cir.), cert. denied, 444 U.S. 833 (1979). In that case, the two individuals involved did not participate in a joint defense, but in fact had raised antagonistic defenses to the criminal charges against them. Yet the particular communications the privileged nature of which was at issue concerned a matter of mutual importance — both defendants had a common interest in discrediting the testimony of a certain witness. That court found that the communications made between these two defendants and their attorney were protected by the privilege.<sup>2</sup>

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<sup>1</sup> *In re Grand Jury Subpoena Deuces Tecum Dated November 16, 1974*, 406 F. Supp. 381 (S.D.N.Y. 1975); *United States v. Cariello*, 536 F. Supp. 698 (D. N.J. 1982); *Government of the Virgin Islands v. Joseph*, 685 F.2d 857 (3d Cir. 1982); *United States v. Melvin*, 650 F.2d 641 (5th Cir. 1981).

<sup>2</sup> The *McPartlin* court relied heavily upon Proposed Rule of Evidence 503 and the Advisory Committee's notes thereto [46 F.R.D. 161, 249-51 (1969)] in reaching its broad construction of the scope of the privilege. In so doing, that court noted that although the provision of the Proposed Rule which it utilized was rejected by the Congress in favor of a more general "to be governed by the principles of common law" approach, the recommendations made by the Advisory Committee and approved by the Supreme Court "are a useful guide to the federal courts in their development of a common law of evidence." *United States v. McPartlin*, supra, 595 F.2d at 1336-37. See *Hunydee v. United States*, 355 F.2d 183 (9th Cir. 1965) for a broad application of the common interest exception made prior to publication of the Proposed Rules.

Here we have the situation of two joint clients, CPC and Bechtel, meeting with an attorney. Although there is undoubtedly the possibility of future differences of opinion or even litigation between these two entities, that is irrelevant to their reason for consulting with Mr. Charnoff — to acquire advice regarding a common legal problem. (CPC's "Response" offers Bechtel's contractual obligation to assist Consumers in obtaining licenses for the Midland plant as one such common legal interest, and the possible shared liability of both entities for intentional misstatements made by Bechtel as another.)

2. Ms. Sinclair argues that Consumers has waived the privilege by its revelation of a sufficiently detailed description of the nature and substance of the meeting. She cites three specific instances:

1. the notes of the November 27, 1982 meeting, obtained through discovery — which include a one-line statement that a meeting occurred on November 24, that the attendees were Charnoff, Consumers and Bechtel, and that the subject matter was, apparently, GAP;
2. the testimony of Mr. Wells during the June 29, 1983, hearing session — from his statements, it may be inferred that the purpose of the November 24 meeting was to educate Mr. Cook on GAP, since he was unfamiliar with that organization;
3. a statement in Mr. Charnoff's letter to Mr. Miller of July 14, 1983 — Mr. Charnoff described the subject matter of the November 24 meeting as "GAP's involvement in connection with QA related matters at Midland."

Ms. Sinclair would have us find that the above revelations state a sufficiently detailed description of the nature and substance of the meeting to waive any privilege as to that meeting.

To place Ms. Sinclair's argument in the proper light, we must go to the purpose of the rule which requires waiver of the attorney-client privilege once a portion of the substance of a communication is revealed. Wigmore says that when the conduct of the holder of a privilege "touches a certain point of disclosure, fairness requires that his privilege shall cease whether he intended that result or not. He cannot be allowed, after disclosing as much as he pleases, to withhold the remainder." VIII Wigmore, Evidence § 2327, p. 636 (McNaughton Rev. 1961). Further, "the client's offer of his own or the attorney's testimony as to a *specific communication* to the attorney is a waiver as to all other communications to the attorney on the same matter. This is so because the privilege of secret consultation is intended only as an incidental means of defense, and not as an independent means of attack. . . ." *Id.* at 638. In other words, the purpose of the rule-waiving privilege as to

the whole upon partial disclosure is to prevent the unfairness of allowing a party to reveal whatever portions of a privileged communication he believes will serve his ends, while sheltering the rest behind the protection of attorney-client privilege. See *Duplan Corp. v. Deering Milliken, Inc.*, 397 F. Supp. 1146 (D. S.C. 1974). Courts have read the scope of the waiver narrowly, to foster the free disclosure that is the goal of the attorney-client privilege, while protecting against misuse of the privilege to distort or mislead. *IBM v. Sperry Rand Corp.*, 44 F.R.D. 10, 13 (D. Del. 1968).

Ms. Sinclair has shown us no case wherein release of the general subject matter of a communication, without more, has been held sufficient to invoke waiver. It is difficult to see how such revelations as the time, place and broad general subject — without even a hint of the factual matters considered or advice exchanged — could work unfairly to create misconception in the minds of the other parties. We find that there has been no waiver of the privilege by the disclosure of the information that has been released here.

3. A further line of reasoning presented in Ms. Sinclair's motion is that the character and content of the communications exchanged at the November 24 meeting places those communications outside the privilege. She presents two theories: (1) that most of what was said at the meeting was factual matter derived from outside sources; and (2) that Mr. Charnoff was actually providing business or other non-legal advice to Mr. Cook and the Bechtel personnel.

Ms. Sinclair argues that "the particular communications which Consumers seeks to shield, whether they be from Mr. Charnoff to Mr. Cook or from Mr. Cook to Mr. Charnoff, have not been shown to be confidential. In fact, every indication on the record is that the communications are information derived from the public record and history of the Zimmer and Midland proceedings" ("Motion to Reconsider" at 7).

Virtually all consultations between attorneys and their clients involve the discussion of facts discoverable from other sources: what has been done, not done, etc., the underpinnings of most legal conflicts. It is not the facts that are privileged, it is the communication — the give-and-take exchange of facts, ideas and advice whose facilitation lies at the core of the purpose of the attorney-client privilege.<sup>3</sup> In view of Mr. Cook's affidavit, in which he indicates that the purpose of the November 24 meeting was to obtain Mr. Charnoff's legal advice, we are not prepared

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<sup>3</sup> Note the approach to the differentiation between facts and communications taken in *United States v. Arnoff*, 466 F. Supp. 855 (S.D.N.Y. 1979).

to find that the information conveyed at that meeting was nothing more than a recitation of publicly known factual matters.

Ms. Sinclair also argues that the privilege is not available for the November 24 meeting because the advice given was not legal advice, but was apparently "about political, business, or perhaps public relations' [sic] strategies to be used vis-a-vis GAP" ("Motion to Reconsider" at 10).

We agree that the attorney-client privilege is inapplicable to communications where an attorney provides non-legal advice. Indeed, we have so held in this proceeding, where we found that one of CPC's attorneys serving on a company task force was developing information of a non-legal nature. Memorandum and Order, dated April 5, 1983 (unpublished). However, there is no showing on this record, nor can we find any basis to infer, that Mr. Charnoff would have been or was consulted in any role other than that of legal advisor. Ms. Sinclair engages in speculation without foundation.

The cases cited by Ms. Sinclair on this point are inapposite: they deal mainly with applicability of the privilege to communications with patent attorneys, who courts have often found do not "act as lawyers" in the performance of certain of their typical duties. See *American Cyanamid Co. v. Hercules Power Co.*, 211 F. Supp. 85, 89-90 (D. Del. 1962); *Zenith Radio Corp. v. Radio Corp. of America*, 121 F. Supp. 792 (D. Del. 1954). Another example of a situation in which an attorney might be found to have been advising in a non-legal capacity is where the attorney is also a partner in a business deal with his putative client. See 2 J. Weinstein, Evidence § 503(a)(2)[01]. No comparable situation is present here.

We stress again that Mr. Cook's affidavit, made under oath, reveals that the purpose of the meeting was, in fact, the receipt of legal advice. Even if some non-legal considerations were exchanged, so long as the meeting was devoted primarily to legal advice, the entire contents thereof are protected by the privilege. *Barr Marine Products Co. v. Borg-Warner Corp.*, 84 F.R.D. 631, 635 (E.D. Pa. 1979); *United States v. United Shoe Machinery Corp.*, 89 F. Supp. 357, 359 (D. Mass. 1950).

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In view of the above, we hold that the protections of the attorney-client privilege are available for the meeting of November 24, 1983, and that the privilege has not been waived. Therefore, it is, this 28th day of October 1983,

ORDERED

That, upon reconsideration, the prior order of this Board upholding the attorney-client privilege in connection with the November 24, 1982 Consumers-Bechtel meeting is *affirmed*.

**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 P. Gleason, Chairman  
Dr. Jerry R. Kline  
Glenn O. Bright**

**In the Matter of**

**Docket No. STN 50-483-OL  
(ASLBP No. 81-449-01-OL)**

**UNION ELECTRIC COMPANY  
(Callaway Plant, Unit 1)**

**October 31, 1983**

In this Initial Decision the Licensing Board resolves all remaining matters in controversy in favor of Applicant, and authorizes the Director of Nuclear Reactor Regulation, upon making the requisite findings with respect to matters not resolved in either the Board's Partial Initial Decision of December 13, 1982 (LBP-82-109, 16 NRC 1826) or this Initial Decision, to issue to Applicant a license to operate Callaway Plant, Unit 1.

**EMERGENCY PLANNING: POTASSIUM IODIDE (KI)**

No specific federal regulatory requirement exists for the distribution of KI to any particular group of individuals: the matter is left to state and local officials to determine. Federal Emergency Management Agency guidelines provide that each state has a responsibility for formulating guidance to define if and when potassium iodide is to be distributed for use as a thyroid blocking agent for emergency workers, institutionalized persons, and the general public.

## **EMERGENCY PLANNING: POTASSIUM IODIDE**

It is not a governmental requirement that emergency response plans formulate protective actions for every conceivable development during a radiological release. Where the state has exercised its responsibility reasonably deciding against the distribution of KI for use by members of the public, that action meets current federal guidelines.

### **APPEARANCES**

**Thomas A. Baxter, Esq., Joseph E. Birk, Esq.,** for the Applicant.

**Robert Perlis, Richard Goddard,** for the United States Nuclear Regulatory Commission Staff.

**Spence W. Perry, Esq.,** for the Federal Emergency Management Agency.

**John Reed,** Intervenor, Kingdom City, Missouri.

**A. Scott Cauger, Esq.,** for the Missouri Public Service Commission.

## **INITIAL DECISION**

### **Opinion**

#### **I. BACKGROUND AND DISCUSSION**

This Initial Decision concerns an application filed with the U.S. Nuclear Regulatory Commission (NRC) by the Union Electric Company of St. Louis, Missouri (Applicant), for a license to operate the utility's nuclear-powered facility. The plant, Callaway, Unit 1, is located some ten (10) miles from Fulton, in Callaway County, Missouri.

On December 13, 1982, this Board issued a Partial Initial Decision resolving in favor of the Applicant quality assurance contentions which had been filed and litigated by the Joint Intervenors (Coalition for the Environment, Missourians for Safe Energy, Crawdad Alliance). The authority to issue an operating license was withheld, however, until the



Board adjudicated the outstanding matters still in controversy.<sup>1</sup> These remaining contested issues were the subject of an evidentiary hearing on September 13, 1983, and are considered and resolved in this decision.<sup>2</sup>

Witnesses for the Applicant and Staff presented written and oral testimony, but no direct evidence was submitted by the Intervenor or the other party, the Public Service Commission of Missouri. The PSC appeared as a representative of an interested state pursuant to 10 C.F.R. § 2.715(c).<sup>3</sup> Limited appearance statements were received during the hearing from interested members of the public.

The sole intervenor in the final phase of this proceeding, John Reed, essentially alleges in the two contentions litigated that the health and safety of the residents near the Callaway facility is jeopardized since (1) a radioprotective drug, potassium iodide (KI) has not been authorized for public use in local emergency response plans (Contention 6), and (2) messages in offsite plans are inadequate since they do not provide for instructions concerning thyroid blocking respiratory protection if prolonged sheltering becomes necessary (Contention 16). Such messages, in Intervenor's view, are required by NRC's emergency planning regulations.<sup>4</sup>

There is no dispute among the parties over the use or effect of KI in connection with radioactive releases from a nuclear facility. The drug operates as a blocking agent, being absorbed by the thyroid so as to prevent radioactive iodine, which is carcinogenic, from accumulating in the gland of an exposed individual. (Board Finding 3.) The controversy over KI in this proceeding concerns its use in situations where prolonged public sheltering may occur during radiological emergencies as well as whether adequate alternative means exist for providing protection against inhalation or ingestion of radionuclides.

The factual setting over the prescribed use of KI is also uncontested. The State of Missouri, relying on federal guidance as well as its own evaluation of the merits and demerits of using KI, has decided against making the drug available for the general public. Instead, the State has restricted its availability to emergency workers and those confined to

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<sup>1</sup> *Union Electric Co.* (Callaway Plant, Unit 1), LBP-82-109, 16 NRC 1826 (1982), *aff'd*, ALAB-740, 18 NRC 343 (1983).

<sup>2</sup> Most of the twenty (20) contentions formulated by Intervenor, John Reed, were disposed of by mutual agreement of the interested parties and approval by the Board. Two (2) contentions remained for litigation in the proceeding. (Board's Memoranda and Orders, June 23 and July 27, 1983.)

<sup>3</sup> The Applicant's witnesses were Kenneth V. Miller, Administrator, Missouri Bureau of Radiological Health (BRH); Roger E. Linnemann, M.D., Radiation Management Corporation; Neal G. Slaten, Union Electric Company; and Donald E. Paddleford, Westinghouse Electric Corporation. The Staff's witnesses were David M. Rohrer, I&E (NRC) and Mary M. Carroll, Community Planner (FEMA).

<sup>4</sup> Intervenor's contentions are printed in full in the Appendix.

institutions. (Board Findings 2, 4.) Federal guidance on this issue emanates from a 1982 Federal Food and Drug Administration (FDA) recommendation that low doses of KI should be considered for adults and children only when they are expected to receive a radioiodine dose to the thyroid gland of 25 rem or greater.<sup>5</sup> FEMA has endorsed FDA's guidance and both FEMA and the NRC recommend that provisions be made by state and local governments for emergency workers and institutionalized persons to receive KI for thyroid protection. Neither has recommended the administration of KI for public use. (Board Findings 4 and 5. *See also* NUREG-0654, for Protective Response Criteria, J.10.e.)

The argument in this area, however, arises from the Intervenor's interpretation of FDA's recommendation on the use of KI and his belief that prolonged periods of sheltering could become necessary. This, it is asserted, would require the drug's availability for public use in order to provide adequate protection during radiological emergencies.<sup>6</sup>

Reed's reasoning, as reflected in the hearing and his proposed findings, but summarized here, runs along the following lines:

1. The FDA has recommended that KI is safe and effective for public consumption at a level of 130 mg per day for adults where a projected radioiodine dose to the thyroid of 25 rem might be encountered.
2. Potential nuclear reactor accidents have been analyzed where large amounts of radioiodines are released in such brief periods of time that sheltering would be the only emergency option available for residents within a 10-mile plume exposure pathway emergency planning zone (plume EPZ).
3. Projected doses of radioiodine to the thyroid from such accidents would under such circumstances exceed 25 rem.
4. Unless the State makes KI available for the public within Callaway's plume EPZ, adequate protective measures will not be undertaken as required by NRC regulations and criteria in 10 C.F.R. § 50.47(b)(10) and NUREG-0654, II.J.10.e.
5. Messages in emergency offsite response plans do not provide adequate information on instructions for thyroid blocking or respiratory protection for prolonged periods of sheltering. (Intervenor's Contentions 6 and 16, and Proposed Findings at 2-6.)

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<sup>5</sup> 47 Fed. Reg. 28,158 (1982).

<sup>6</sup> The Intervenor has recognized in Proposed Findings that since emergency plans now provide that KI will be available for emergency workers, that part of his Contention is no longer viable. Therefore, no further consideration of the subject is necessary, here.

We consider first the purport of FDA's recommendations. The Federal Food and Drug Administration has a responsibility to provide guidance on the use of drugs for protection against radioactive exposures.<sup>7</sup> As we have noted, the agency issued recommendations on KI use in June 1982.<sup>8</sup> Thereafter, the Federal Radiological Preparedness Coordinating Committee<sup>9</sup> — in implementing FDA's guidance — endorsed a federal policy recommending the stockpiling and distribution of KI to emergency workers and institutionalized individuals. The policy recognizes that application of the policy resides with state and local health authorities, but states that distribution and use for the general population should be carefully evaluated against the advantages and disadvantages of such a program.<sup>10</sup>

It appears clear from the foregoing that no specific federal regulatory requirement exists for the distribution of KI to any particular group of individuals: the matter is left to state and local officials to determine. Irrespective of this, however, NRC regulations and NRC-FEMA criteria in NUREG-0654 speak to the development of a spectrum of protective actions in the plume EPZ for emergency workers and the public; these include means of controlling radiological exposures to emergency workers, and consideration of the administration or use of radioprotective drugs for emergency workers, institutionalized persons and the general population.<sup>11</sup> FEMA has provided guidance in this area by publishing an Interim Policy Guidance on Potassium Iodide (December 1982). That policy states the following: "Each state has a responsibility for formulating guidance to define if and when potassium iodide is used as a thyroid blocking agent for emergency workers, institutionalized persons and the general public."<sup>12</sup> The guidance calls for the submission of alternate plans only when states decide against the use of KI for the protection of emergency workers and institutionalized persons.

The question of KI for public use has been litigated in several other licensing proceedings, and state policies against such distribution have not been found contrary to requirements for providing adequate protective measures for emergency planning purposes.<sup>13</sup>

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<sup>7</sup> 44 C.F.R. § 351.23(f).

<sup>8</sup> 47 Fed. Reg. 28,158.

<sup>9</sup> The FRPCC consists of FEMA, NRC, EPA, HHS (including FDA and PHA), DOE, DOT, DOD, USDA, DOC and other agencies on an *ad hoc* basis where needed.

<sup>10</sup> Carroll, ff. Tr. 2366 at 4-5.

<sup>11</sup> 10 C.F.R. § 50.47(b)(10) and (11); NUREG-0654, II.J.10.e-f.

<sup>12</sup> Carroll, ff. Tr. 2366 at 2-4.

<sup>13</sup> *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), LBP-81-59, 14 NRC 1211, 1664-70 (1981), *aff'd*, ALAB-697, 16 NRC 1265 (1982); *Southern California Edison Co.* (San Onofre

(Continued)

Although no specific testimony from the State of Missouri was provided detailing the advantages and disadvantages which supported the State's decision against providing KI for public use, expert evidence was submitted by Applicant and the Staff detailing the reasons for adoption of such a policy. These covered the following: (1) In accidents where doses to the thyroid would be expected to exceed 25 rem (where KI would be necessary), residents would be evacuated and not sheltered; (2) uncertainty on whether the public would follow instructions to take KI during its effective time period (immediately before or during plume passage); (3) the unknown potential of KI having harmful side effects; (4) the possibility of the public misusing the drug through a mistaken belief in its effect against all radiation doses, not just radioiodine; and (5) the inability to provide a timely mass distribution of the drug to the public.

Intervenor Reed's efforts to counteract this evidence consisted of showing that through the FDA's authorization of the public sale of KI, the FDA had, in effect, placed a stamp of approval on the use of the drug for public consumption. The evidence indicates that KI in dose levels recommended by FDA can be purchased and that information regarding its use was included by the manufacturer. We must concur, however, in the testimony of the Applicant's medical expert witness that there is a distinct difference between permitting a drug to be safely marketed, which as we understand it is FDA's role, and the government encouraging its use as a prophylactic agent. By allowing a drug, even of a non-prescription variety, to be marketed, the government does not certify the safeness of the substance under all conditions. (*See* Linnemann, Tr. 2298, 2306.)

Turning to another aspect of Intervenor's efforts in behalf of the distribution of KI for public use, his claim, that the possibility of fast-moving accidents will necessitate prolonged sheltering, requires analysis. Reed here supports his assertion with NRC study data found in NUREG/CR-0388. He cites also an EPA document that presumably warns that the effectiveness of sheltering is limited to two hours. (EPA-520/1-75-001, 1.6.3.2.)

The unchallenged testimony submitted by Applicant's witness indicated that it was necessary generally to go to accidents beyond the design basis for offsite thyroid doses of greater than 25 rem to occur. It was estimated, however, that the probability of such so-called Class 9

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Nuclear Generating Station, Units 2 and 3), LBP-82-39, 15 NRC 1163, 1186 (1982), *aff'd*, ALAB-717, 17 NRC 346 (1983); *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), LBP-82-100, 16 NRC 1550, 1567 (1982), *aff'd*, ALAB-732, 17 NRC 1076, 1094 n.25 (1983)).

core melt accidents was less than  $5 \times 10^{-5}$  per year. With respect to the two design basis accidents where site doses in excess of 25 rem to the thyroid could be calculated, it was testified that these also have very low probabilities. In the four scenarios for fast release cited by Intervenor Reed, the frequencies are estimated to range from  $2 \times 10^{-6}$  to  $1 \times 10^{-9}$ . There was significant testimony that in the case of the great majority (over 90%) of core melt and containment failure sequences an adequate period of time would be available for evacuation. The testimony also reflected that since the publication of NUREG/CR-0388 (1978), the Callaway facility has been equipped with numerous systems and monitors to allow a prompt assessment of the plant during an accident sequence. This would prevent any time loss between a developing threat and notification to the public. (Paddleford, ff. Tr. 2262, at 5-12.) We conclude that the likelihood of an accident that would cause an exposure to the thyroid of 25 rem or more would be remote and one that could develop with sufficient speed to prevent evacuation would be even less likely to occur. (Board Findings 21-23.)

Finally, for purposes of completing our review, in addressing the possibility of a fast-developing emergency scenario, we need to evaluate Intervenor's Contention 16.<sup>14</sup> In the event that evacuation is not feasible, sheltering is the recommended protective option. (Board Findings 12-14.) However, sheltering is viewed under such circumstances as a limited protection, and evacuation could be effected after passage of the plume. (Slaten, ff. Tr. 2268, at 7.) Plume passage is estimated to cover up to a three-hour time period; the usefulness of KI would be limited to that period since the inhalation pathway is the principal route of exposure to the thyroid under such conditions. (Board Finding 16.)

During the hearing there was an examination of the effectiveness of *ad hoc* respiratory protective articles, *i.e.*, handkerchief, sheets, toilet paper, towels, etc., and the information which should be communicated to residents regarding their use during an emergency. The Applicant's witness testified that such common household items had been shown through research efforts to result in substantial respiratory protection against radioactive particulates including radioiodines and other particles and in some cases vapors. (Board Findings 17-18.) Intervenor Reed attempted to show the difficulty, particularly for children, of breathing through such articles for a prolonged period of time. The Applicant's evidence here was designed to demonstrate that sheltering in addition to *ad hoc* measures would produce protection for three modes of exposure (external radiation as the plume passes, external radiation deposited by

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<sup>14</sup> See Appendix for full text of Contention 16.

the plume, and inhalation from the plume) while KI could protect only against the inhalation mode. (Slaten, Tr. 2342-50.)

We believe it unnecessary for the Board to attempt to evaluate and render an opinion on the various degrees of protection afforded by sheltering, *ad hoc* inhalation protective measures and KI. Both witnesses for the Applicant and Intervenor Reed attempted to demonstrate the superiority of their recommended protective measures. The Applicant conceded in the end that for the release of radioiodines, the combination of all three — sheltering, *ad hoc* measures, and KI — would provide the most protection. (Slaten, Tr. 2349-50.) It is not a governmental requirement that emergency response plans formulate protective actions for every conceivable development during a radiological release. NRC regulations and criteria speak only to a range of protective actions and the establishment of guidelines for the choice of such actions combined with federal guidance.<sup>15</sup> Here, State and local emergency plans provide for sheltering, with sample messages for informing the public, which can be expanded on as circumstances develop. (Carroll, Tr. 2390-91; Slaten, ff. Tr. 2268, at 14.) FEMA testified to the adequacy of the messages and indicated that improvements would be recommended. (Carroll, ff. Tr. 2366, at 8-9.)

The State of Missouri has exercised its responsibility reasonably in deciding against the use of KI for members of the public and that action meets current federal guidelines. (Rohrer, ff. Tr. 2366, at 5; Carroll, ff. Tr. 2366, at 6.) It is the Board's judgment that the actions undertaken by the State of Missouri concerning the distribution of KI for public use and the existing messages for sheltering during an emergency meet regulatory requirements. Accordingly, we find no basis in the evidence of this proceeding to support Intervenor's contention.

### Unresolved Safety Issues

The Board has also reviewed Staff's evaluation of those unresolved safety issues (through A-49) pertinent to the Callaway plant and finds that (1) the Safety Evaluation Report satisfies the requirements set forth in *Gulf States Utilities Co.* (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760 (1977), and (2) there is reasonable assurance that operation of the Callaway plant prior to the ultimate resolution of these issues will present no undue risk to the health and safety of the public.

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<sup>15</sup> 10 C.F.R. § 50.47(b)(10); NUREG-0654, J.

## II. FINDINGS OF FACT

1. In the event of a radiological accident at Callaway, the Missouri State Bureau of Radiological Health is responsible for directing offsite operations. The responsibility includes radiation monitoring, determining the need for implementing protective actions, advising other agencies on actions to be undertaken, and determining individual radiation exposure levels and the need for decontamination. (Miller, ff. Tr. 2268, at 1.)

2. The State has decided not to administer KI to the general public but will make the drug available for emergency workers and persons for whom evacuation, by State and local emergency personnel, would not be feasible. (Miller, ff. Tr. 2268, at 2, and Attachment 1 at B2.)

3. The purpose for administering KI is to use it as a thyroid-blocking agent in a radiological emergency. When KI is used under proper conditions, radioiodine which is inhaled or ingested is prevented from accumulating in the thyroid. (Miller, ff. Tr. 2268, at 2; Linnemann, ff. Tr. 2268, at 2-4.)

4. The State policy on using KI is based on available federal guidance and the State's understanding of the advantages and disadvantages of KI distribution. (Miller, ff. Tr. 2268, at 2.)

5. The federal guidance relied on by the State for the use and administration of KI is: (1) the June 1982 recommendations of the Food and Drug Administration (FDA) which states the risks from low doses of KI for thyroid blocking in a radioactive emergency are outweighed by the risks of radioiodine-induced thyroid nodules or cancer at a projected dose to the thyroid gland of 25 rem. The FDA recommends KI doses of 130 mg per day for adults and children above one year of age and 65 mg per day for children under one year be considered for those persons likely to receive a projected radiation dose to the thyroid gland of 25 rem or greater; (2) FEMA has endorsed FDA's guidance on the administration of KI (December 1, 1982 Interim Policy Guidance on KI) and both FEMA and NRC Staffs recommend that state and local governments make KI available for onsite and offsite emergency workers and institutionalized persons within the plume EPZ where evacuation may be infeasible or difficult; (3) neither FEMA nor the NRC has recommended the administration of KI to the general public located within the EPZ; and (4) EPA has recommended, under the direction of state medical officials, the use of KI as a prophylaxis for emergency workers in areas possibly involving radioiodine contamination. (Miller, ff. Tr. 2268, at 2-4.)

6. The State Bureau of Radiological Health will provide KI for use by state and local emergency workers who may be required to enter the

EPZ when the projected dose to the thyroid is 25 rem or greater. (Miller, ff. Tr. 2268, Attachment 1 at 13-15.)

7. When the projected thyroid dose from radioiodine is expected to reach or exceed 25 rem, the State would recommend evacuation for the public well before that level is reached. (Miller, Tr. 2320.)

8. The effectiveness of KI as a prophylactic is directly related to the time at which a person is exposed to radioactive iodine and the time at which the drug is administered. If administered in a timely fashion (just prior to or just after exposure begins) KI is highly beneficial in blocking the entry of radioiodine into the thyroid gland. (Linnemann, ff. Tr. 2268, at 3-4, and Tr. 2302-05.)

9. Although there have been some reports of side effects from the use of KI, the incidence of such effects in large populations is not quantitatively known although it is likely to be quite small. (Linnemann, ff. Tr. 2268, at 4, and Tr. 2284-86.)

10. In numerous studies performed to ascertain biological effects of radioactive iodine, there is no evidence of increased leukomogenic or thyroid cancer where thyroid doses were below about 100 rem. (Linnemann, ff. Tr. 2268, at 5.)

11. The Missouri State policy on the administration of KI is a sound approach because of the low risk of thyroid abnormalities from radioiodine, the potential side effects of the drug, the possibility of the drug's misuse and problems associated with the drug's shelf life and distribution. (Linnemann, ff. Tr. 2268, at 5-6, and Tr. 2284, 2305-07. *Also see* Rohrer, ff. Tr. 2366, at 4-5.)

12. Sheltering is one of a number of protective actions for achieving the objective of emergency response plans: to provide dose reductions during a spectrum of accidents that could produce offsite doses in excess of Protective Action Guides (PAGs). (Slaten, ff. Tr. 2268, at 4-5.)

13. Protective Action Guides have been developed to reduce to manageable levels decisions that must be made to protect the public in the event of a nuclear accident. (Slaten, ff. Tr. 2268, at 4.)

14. Sheltering would be particularly appropriate when there is a low-dosage airborne release or in the event of a higher release where evacuation is not immediately possible. (Slaten, ff. Tr. 2268, at 5.)

15. The effectiveness of sheltering depends on such factors as meteorological parameters, plume dispersion, type of structure, magnitude of release and duration of cloud passage. (Slaten, ff. Tr. 2268, at 7.)

16. Since there is no inhalation pathway of significance after plume passage, the use of KI could only be beneficial during such passage; this is estimated to be from 0.5 to 3.0 hours. (Slaten, ff. Tr. 2268, at 8.)



17. *Ad hoc* respiratory protection against radioiodine has been shown to be effective through the use of common household items such as handkerchiefs, towels, sheets, and other materials as makeshift respirators. This protection would increase the inherent protection provided by a structure in sheltering. (Slaten, ff. Tr. 2268, at 8.)

18. Research into the effectiveness of *ad hoc* respiratory protection using common household items has been performed under the auspices of the Atomic Energy Commission and the NRC. These studies showed that readily available materials such as handkerchiefs could provide inhalation filtering of potentially hazardous airborne material and substantial reductions in amounts of inhaled particles and to some extent certain water-soluble gases. The research showed that a slight wetting of the material could provide protection from inhalation of iodine vapors and no significant problems to breathing were indicated. (Slaten, ff. Tr. 2268, at 9-13; Rohrer, ff. Tr. 2366, at 4.)

19. Proper instruction to families on the use of *ad hoc* respiratory protective measures is to be accomplished through pre-established messages over the Emergency Broadcast System. (Slaten, ff. Tr. 2268, at 14.)

20. Meteorological conditions which would cause a plume to move offsite rapidly would also create rapid dispersion and/or passage of the plume resulting in a reduced inhalation dose. After plume passage, evacuation could be accomplished. The need for long-term sheltering of the general population is an extremely remote possibility. (Slaten, ff. Tr. 2268, at 15.)

21. The occurrence of a thyroid dose of more than 25 rem within 10 miles of the Callaway plant is extremely unlikely. (Paddleford, ff. Tr. 2268, at 5-8.)

22. Analyses of low-probability potential core melt and containment failure sequences as well as the most likely potential accident sequences at reactors similar in design to Callaway show that most of these sequences occur over a period of several hours; this provides adequate time to enable citizens to evacuate. (Paddleford, ff. Tr. 2268, at 4 and 8-9.)

23. The Callaway plant has the capability to diagnose accidents early on. (Paddleford, Tr. 2268, at 11-12.)

24. The NRC has not found a compelling reason to recommend the distribution of KI to members of the general public since (1) studies indicate the risk of fatal carcinogens from airborne plumes is greater for the whole body dose than for the thyroid dose; accordingly, evacuation or sheltering would provide more protection for the more critical effects which would also reduce the thyroid dose; (2) KI might give the public

a false belief that they are protected from total radiation effects, rather than just having thyroids protected; a critical dose may be from external radiation or from inhalation of particulate matter and not inhaled radioiodine; (3) NRC is continuing studies on the use of other expedient measures such as dust respirators rather than thyroid blocking to protect the public; and (4) finding an effective means of distributing KI to the public so that it is available, in a timely manner, and only when needed, continues to be a problem. (Rohrer, ff. Tr. 2268, at 5.)

25. It is FEMA's position that the distribution of KI to the general public is a matter to be decided by the State. (Carroll, ff. Tr. 2268, at 2.)

26. Emergency workers and institutionalized persons are considered by FEMA to be at a different level of risk from thyroid exposure than the general public since they may remain in a contaminated area rather than being evacuated promptly. (Carroll, ff. Tr. 2268, at 3. *Also see* FEMA "Interim Policy Guidance on Potassium Iodide," (December 1, 1982).)

27. The Federal Radiological Preparedness Coordinating Committee (FRPCC), consisting of a number of federal departments and agencies, issued a proposed federal policy on distributing KI recommending its use only for emergency workers and institutionalized individuals. (Carroll, ff. Tr. 2268, at 3-5.)

28. Messages containing instructions on in-house sheltering in the Missouri response plans are adequate given the limited guidance that has been provided. However, changes for their improvement will be recommended. (Carroll, ff. Tr. 2268, at 7-9.)

### III. CONCLUSIONS OF LAW

The Board has considered all the evidence presented in the matters in controversy raised by Intervenor Reed's Contentions 6 and 16 and the proposed findings of fact and conclusions of law submitted by the parties. Those proposed findings and conclusions not adopted or addressed in this decision have been found to be without merit or unnecessary to the Board's decision. Based on a review of the entire record in this proceeding and the foregoing opinion and findings of fact, the Board enters the following conclusions of law.

This is a contested proceeding on an application for an operating license for a utilization facility. The Board has previously made findings of fact and conclusions of law on the matters put into controversy by Joint Interveners with respect to construction defects at Callaway and Applicant's quality assurance program. The Board has herein made findings of fact and conclusions of law on the issues raised by Reed Conten-

tions 6 and 16. No other matters in controversy remain before the Board. The Board has not determined that a serious safety, environmental, or common defense and security matter exists. *See* 10 C.F.R. § 2.760a. Other findings required to be made prior to the issuance of an operating license are to be made by the Director of Nuclear Reactor Regulation. (*See id.* and 10 C.F.R. § 50.57.)

Having decided all matters in controversy raised by Joint Intervenors earlier and by Reed Contentions 6 and 16 in favor of authorizing operation of the facility, the Board concludes that as to the matters decided herein, the Director of Nuclear Reactor Regulation would be authorized, upon making the requisite findings with respect to matters not resolved in either the Board's Partial Initial Decision and this Initial Decision, to issue to Applicant a license to operate Callaway Plant, Unit 1.

#### IV. ORDER

WHEREFORE, IT IS ORDERED, in accordance with 10 C.F.R. §§ 2.760(a) and 2.762, that this Initial Decision shall constitute the final action of the Commission thirty (30) days after the date of issuance hereof, unless exceptions are taken in accordance with section 2.762 or the Commission directs that the record be certified to it for final decision. Any exceptions to this Initial Decision or designated portions thereof must be filed within ten (10) days after service of the decision. A brief in support of the exceptions must be filed within thirty (30) days thereafter (forty (40) days in the case of the NRC Staff). Within thirty (30) days of the filing and service of the brief of the appellant (forty (40) days in the case of the NRC Staff), any other party may file a brief in support of, or in opposition to, the exceptions.

It is so ORDERED.

**THE ATOMIC SAFETY AND  
LICENSING BOARD**

**Glenn O. Bright  
ADMINISTRATIVE JUDGE**

**Jerry R. Kline  
ADMINISTRATIVE JUDGE**

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

Dated at Bethesda, Maryland,  
this 31st day of October 1983.

**APPENDIX**

**Reed Contention 6 reads as follows:**

**#6. PROTECTIVE ACTIONS AGAINST RADIOIODINE (DRUGS  
AND EQUIPMENT)**

A range of protective actions have not been developed for the plume exposure pathway EPZ for local emergency workers or the public which protect against direct or ingested radiation as is required by 10 C.F.R. Part 50, Section 50.47(b)(10) and NUREG-0654, II, J, which includes provisions for the use of radioprotective drugs, particularly for emergency workers and institutionalized persons whose immediate evacuation may be infeasible or very difficult. Such provisions must include quantities, storage, and means of distribution (*see* NUREG-0654, II, J, e).

A. Evacuation is considered the most protective action for members of the public in a radiological accident (SOP, pg. 8-4) but constraints and disadvantages may make it inappropriate, such as arrival of the plume in mid-evacuation, etc. Evacuation is a last resort (SOP, pg. 8-3).

B. Shelter is, therefore, the primary protective action but good protection in a dwelling is limited (EPA-520/1-75-001, 1.6.3.2):

—, shelter provided by dwellings with windows and doors closed and ventilation turned off would provide good protection from inhalation of gases and vapors for a short period (*i.e.* one hour or less) but would be — ineffective after about two hours —.

No effective course of action is proposed for sheltering after that period. Use of ad-hoc respiratory devices in lieu of other effective methods of preventing inhalation or ingestion of nuclides such as radioactive iodines for extended periods of time places health and safety in jeopardy.

- (1) Use of potassium-iodide as a protective option by residents in the plume exposure pathway EPZ is rejected in the proposed Off-site Plan, page 9-5, item I.
- (2) Potassium-iodide is not provided for optional use by local emergency workers, nor is respiratory protection that meets NRC standards for use in a radiological environment.
- (3) Local governments' proposed SOPs state that because of safety, economic and legal considerations, the decision to evacuate should be the protective action of last resort (*see* SOPs, Proc. #8, 4.3). Of the two options discussed in the SOPs, shelter and evacuation, the State has decided to evacuate rather than issue KI; however, shelter without the benefit of KI is the primary protective action to be considered in an accident involving a release of nuclides from the plant. Pre-school children, pregnant women and all females of childbearing age who are advised to stay indoors (shelter mode) without KI or respiratory protection are subject to thyroid damage or its destruction in themselves and/or the children in utero.

C. The State of Missouri has refused to provide radioprotective drugs, *i.e.* prophylactic iodine, for either emergency workers or the general public. The Bureau of Radiological Health has decided that evacuation is a more feasible logistical response for protection against radioiodine than is issue of potassium iodide (KI) (*see* State of Missouri RERP, page B11, H.).

- (1) Radioiodines contribute significant exposure modes to whole body exposures, thyroid exposure and lung exposure (*see* NUREG-0654, page 18, Table 3).
- (2) The principle inhalation dose will be from iodines and particulate material in the plume. Due to the ability of the thyroid to concentrate iodine, the thyroid dose resulting from inhalation

of radioiodines may be several times greater than the corresponding whole body external gamma dose that would be received (State RERP, Annex B, C.2).

D. Selection of two options as a range of protective actions without including suitable protective support equipment or chemical prophylaxis to enhance the effectiveness of a selected option over time renders said option to be ineffective under the definition of the two options contained in the SOP, pages 8-3, 8-4, and 8-5.

E. The U.S. Food and Drug Administration has found the use of potassium-iodide (KI) to be safe and effective as a thyroid blocking agent to prevent the uptake of radioactive iodines by the thyroid glands. Since said Federal agency has publicly rendered such judgment on the use of KI, it is felt that said KI should be made an optional defensive measure that the general public can take in a sustained shelter situation to protect against thyroid damage or loss, especially in children/infants. Public warnings on packages/bottles can advise of possible reactions to use of this drug by persons who are allergic to KI (similar to the warnings on cigarettes and patent medicines), if officials are concerned about ingestion of KI by allergenic residents of the EPZ.

F. NUREG-0654, page 63, J. *Protective Response*, e, states:

Provisions for the use of radioprotective drugs, particularly for emergency workers and institutionalized persons within the plume exposure EPZ whose immediate evacuation may be infeasible or very difficult, including quantities, storage, and means of distribution.

Such evaluation criteria is applicable to State and local governments and indicates that use of KI or similar drugs is a required criteria for a satisfactory plan (see NUREG-0654, page 5, lines 13-15):

FEMA and NRC regard all of the planning standards identified herein as essential for an adequate radiological emergency plan.

G. Common sense and reason indicates that a situation such as this is not in the best interest of providing protection for the public health and safety. If a situation precluding evacuation is possible, and shelter phases may exceed two hours (the effective limit of homes — see SOP, Procedure #8, 5.1.1) and the public is to be afforded protection from radioiodines, KI or some other thyroid protective drug or device must be made available to shelterees.

**Reed Contention 16 reads as follows:**

**#16. MESSAGES WITH INSTRUCTIONS FOR LONG-TERM SHELTERING**

State and local governments shall provide written messages intended for the public which shall include the appropriate aspects of sheltering, *ad hoc* respiratory protection, thyroid blocking or evacuation (*see* NUREG-0654, II, E.7.). Messages contained in the proposed Offsite Plan does not provide for instructions relating to thyroid blocking or respiratory protection if prolonged sheltering is necessitated.

A. *Ad hoc* respiratory protective devices (handkerchief or towel over mouth and nose, etc.) are known to be less effective than filter-type respirators whose effective lifetime under use is from 2 to 3 hours (*see* EPZ-520/1-75-001, Chapter 1, 1.6.3.4, page 1.40, lines 13 & 14) and shelter in buildings suitable for winter habitation (*see* SOP, Procedure #8, 5.1.1) will provide reasonably good protection for about two hours. Given these facts, reasonably adequate respiratory and thyroid protection is provided if shelter is restricted to two or three hours. In cases of flooding, snow and/or ice on area roads; travel in rural areas of all counties have been curtailed for days. In the event of an accident/release of nuclides, shelter must be considered necessary for as long as two to four days. In such circumstances, residents are placed in a situation wherein they cannot move out of the area and do not have protective options which insure their safety if they stay. This situation clearly places public health and safety at risk.

B. Instructions in the Offsite Plan and SOPs must be rewritten to include instructions for the provision of long-term shelter instructions which are available to residents who will be advised to take shelter versus evacuation in the event of an accident/release of nuclides at the plant.





UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

OFFICE OF INSPECTION AND ENFORCEMENT

Richard C. DeYoung, Director

In the Matter of

Docket Nos. 50-329  
50-330  
(10 C.F.R. § 2.206)

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

October 6, 1983

The Director of the Office of Inspection and Enforcement grants in part and denies in part, a petition submitted by Billie Pirner Garde of the Government Accountability Project, on behalf of the Lone Tree Council and others, requesting that the NRC take action with regard to the Midland project.

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

By letter to the Nuclear Regulatory Commission (NRC) dated June 13, 1983, Billie Pirner Garde of the Government Accountability Project, on behalf of the Lone Tree Council and others (hereinafter referred to as the petitioners), requested that, among other relief, the NRC take immediate action with regard to the Midland project. The letter was referred to the Director of the Office of Inspection and Enforcement for treatment as a request for action pursuant to 10 C.F.R. § 2.206 of the Commission's regulations.

On July 22, 1983, Edward L. Jordan, Acting Director of the Office of Inspection and Enforcement, acknowledged receipt of the petition and informed the petitioners that their request for immediate action was denied. Mr. Jordan noted that safety-related work at the Midland site

had been stopped, with the exception of certain specified activities, and that the NRC staff was closely following the current activities at the Midland site. Mr. Jordan further noted that Consumers Power Company had agreed not to proceed with implementation of a construction completion program until such a program had been reviewed by the NRC. The staff expected to be able to complete its evaluation of the request before final action was taken on that program. Consequently, Mr. Jordan concluded that "continuation of currently authorized activities at Midland should not affect the staff's ability to grant the requested relief." Letter from Edward L. Jordan, Acting Director, Office of Inspection and Enforcement to Billie Pirner Garde (July 22, 1983). The staff has now completed its evaluation of the petition, and for the reasons stated herein, the request is granted in part and denied in part.

### **Issues Raised**

Petitioners requested that the following six actions be taken by the Commission:

Modify the Construction Permit (Midland Nuclear Power Plant, Units 1 and 2) to include mandatory "hold points" on the balance-of-plant (BOP) work and incorporate the current Atomic Safety and Licensing Board (ASLB or Board) ordered "hold points" on the soils remedial work into the Midland Construction permit (sic).

Require a management audit of Consumers Power Company (CPCo) by an independent, competent management auditing firm that will determine the causes of the management failures that have resulted in the soils settlement disaster and the recently discovered Quality Assurance breakdown.

Reject the Construction Completion Plan (CCP) as currently proposed, including a rejection of Stone and Webster to conduct the third party audit of the plant. Instead a truly independent, competent, and credible third party auditor should be selected with public participation in the process.

Remove the Quality Assurance/Quality Control function from the Midland Project Quality Assurance Department (MPQAD) and replace them with an independent team of QA/QC personnel that reports simultaneously to the NRC and CPCo management.

Increase the assignment of NRC personnel to include additional technical and inspection personnel as requested by the Midland Section of the Office of Special Cases.

Require a detailed review of the soils settlement resolution as outlined in the Supplemental Safety Evaluation Report, incorporating a technical analysis of the implementation of the underpinning project at the current stage of completion.

Petition at 1. The fifth issue relates to a matter of internal Commission organization and staffing, namely the allocation of staff to inspection of facilities. The staff is expecting to augment inspection personnel available to work on Midland. However, the creation of positions within the Office of Special Cases is a matter that will be determined by the Commission budget process. For these reasons, the staff is not considering this aspect of the request in this decision.

## Background

The Consumers Power Company (CPCo or licensee) holds Construction Permits No. CPPR-81 (Unit 1) and No. CPPR-82 (Unit 2), issued by the Atomic Energy Commission in 1972, which authorized construction of the Midland Plant. The Midland nuclear plant is located in Midland, Michigan, and consists of two pressurized water reactors of Babcock and Wilcox design and related facilities for use in the commercial generation of electric power.

Since the start of construction, Midland has experienced significant construction problems attributable to deficiencies in implementation of its quality assurance (QA) program.<sup>1</sup> Following the identification of these problems, the licensee took action to identify the cause and correct each problem. Steps were also taken to upgrade the Midland QA program. Nevertheless, the licensee continued to experience problems in the implementation of its quality assurance program.

In 1980, the licensee reorganized its QA department so as to increase the involvement of high-level CPCo management in onsite QA activities. Among its other tasks, the reorganized QA department, called the Midland Project Quality Assurance Department (MPQAD), was given the responsibility for quality control (QC) of heating, ventilation and air conditioning (HVAC) work in place of the HVAC contractor, Zack Company.

In May 1981, the NRC conducted a special, in-depth team inspection of the Midland site to examine the status of implementation and effec-

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<sup>1</sup> Significant construction problems identified to date include:

- 1973 — cadweld splicing deficiencies
- 1976 — rebar omissions
- 1977 — bulge in the Unit 2 Containment Liner Plate
- 1977 — tendon sheath location errors
- 1978 — discovery of soil settlement problem
- 1980 — Zack Company heating, ventilation, and air conditioning deficiencies
- 1980 — reactor pressure vessel anchor stud failures
- 1981 — piping suspension system installation deficiencies
- 1982 — electrical cable misinstallations

Several of these deficiencies resulted in the Commission taking escalated enforcement action.

tiveness of the QA program. Based on this inspection, Region III concluded that the newly organized QA program was acceptable. *See* Inspection Reports 50-329/81-12; 50-330/81-12. The special team did, however, identify deficiencies in previous QC inspections of piping supports and restraints, and electrical cable installations.<sup>2</sup> QC functions were further reorganized by the licensee's integration of the QC organization of its architect-engineer Bechtel Power Corporation, into MPQAD in September 1982. This reorganization reflected the recommendations of the NRC staff. As part of this change, the licensee also undertook to retrain and recertify all previously certified Bechtel QC inspectors.

Nevertheless, construction difficulties continued to be identified at the Midland site. An inspection conducted during the period of October 1982 through January 1983 found significant problems with equipment in the diesel generator building. The subsequent identification of similar findings by CPCo in other portions of the plant prompted the licensee to halt the majority of the safety-related work activities in December 1982. In view of the history of QA problems at the Midland plant and the lack of effectiveness of corrective actions to implement an adequate quality assurance program, the NRC indicated to the licensee that it was necessary to develop a comprehensive program to verify the adequacy of previous construction activities and to assure the adequacy of future construction. In view of the licensee's performance history, such an effort was necessary to restore staff's confidence in CPCo's ability to properly construct the Midland plants.

Consequently, CPCo discussed with the NRC the concept of a construction completion program which would address the concerns raised by the staff. These discussions were followed by a formal submittal of the Midland Construction Completion Program (CCP).

The CCP is the licensee's program for the planning and management of the construction and quality activities necessary for its completion of the construction of the Midland facility. An important aspect of the CCP is the third-party overview, which is designed to provide additional assurance as to the effectiveness of the CCP. In response to comments from the NRC and members of the public, the CCP underwent several revisions. As revised and submitted by the licensee on August 26,

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<sup>2</sup> As a result of staff discussions about the seriousness of such findings and of similar indications of deficiencies as identified in the Systematic Assessment of Licensee Performance Report issued in April 1982, a special Midland Section in Region III was formed in July 1982. The Midland Section devoted increased attention to inspection of the Midland facility, including upgrading the QC program of the project's constructor, the Bechtel Power Corporation.

1983,<sup>4</sup> the CCP includes: (1) NRC hold points; (2) the requirement for 100% reinspection of accessible installations; (3) the integration of Bechtel's QC program with MPQAD; (4) the retraining and recertification of QC inspectors; (5) the general training of licensee and contractor personnel in quality requirements for nuclear work, requirements of the CCP, safety orientation and inspection, and work procedures; (6) the revision, as necessary, of Project Quality Control Instructions (PQCIs); (7) CCP team training; and (8) an independent third-party overview of CCP activities.

The CCP is divided into two phases. Phase 1 consists of a systematic review of the safety-related systems and areas of the plant. This review will be conducted on an area-by-area basis and will be done by teams with responsibility for particular systems. Phase 1 is intended to provide a clear identification of remaining installation work, including any necessary rework and an up-to-date inspection to verify the quality of existing work.

Phase 2 will take the results of the Phase 1 review and complete any necessary work or rework, thereby bringing the project to completion. The teams organized for Phase 1 activities will continue as the responsible organizational units to complete the work in Phase 2.

It should be noted that the CCP does not include the remedial soils program, nuclear steam supply system installation, HVAC installation, and the reinspection of pipe hangers and electrical cable. The remedial soils activities are being closely inspected under the conditions of the construction permits which implement the Atomic Safety and Licensing Board's April 30, 1982, order (LBP-82-35, 15 NRC 1060) and under a work authorization procedure. Therefore, the staff does not consider it necessary to require the remedial soils activities to be included in the CCP. Controls over the soils work have been implemented under a separate program. Similarly, reinspection of the pipe hangers and electrical cable were not included in Phase I of the CCP because that reinspection is being done under a separate commitment to the NRC. See letters from James G. Keppler, Regional Administrator, NRC Region III to James W. Cook, Consumers Power Company (August 30, September 2, 1982). Nuclear Steam Supply System installation and HVAC installation were not drawn into question by the diesel generator building inspection.

The staff has not developed facts to indicate that installation of these systems should be included in the CCP. However, these activities will

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<sup>4</sup> The Petition was apparently based upon the June 3, 1983 version of the CCP. Subsequent versions of the CCP, as described in this decision, address a number of issues raised by petitioners.

be included in the construction implementation overview to be conducted by the third-party overviewer.

The CCP is designed to address the generic applicability of the problems identified by the NRC's inspection of the diesel generator building. The objective of the CCP is to look at the plant hardware and equipment, identify existing problems, correct these problems and complete construction of the plant.

## Consideration of Issues Raised

### 1. *Modification of Midland Construction Permits*

Petitioners request that the Commission modify the Midland construction permits in two respects: (1) require "hold points" at various stages of the construction completion process; and, (2) incorporate those hold points concerning remedial soils work previously authorized by the Atomic Safety and Licensing Board panel with jurisdiction over the Midland proceeding.

The hold points are fundamental elements of the Midland CCP. As used by both the staff and petitioners, hold points refer to predetermined stages beyond which activities cannot proceed until authorized. Only when such prior work is found to be satisfactory will new work be authorized under the CCP. In this regard, the petitioners requested that three specific hold points be incorporated into the CCP to require NRC or third-party review prior to continuation of work.

Based on their review of an early version of the CCP, petitioners asserted that the Midland project had been detrimentally affected by the lack of organizational freedom for its QA staff. See Petition at 13. Accordingly, the petitioners requested that a hold point be incorporated into the CCP whereby the success of the proposed program for the retraining and recertification of QA/QC personnel would be evaluated before any actual work was authorized under Phase 1 of the CCP. *Id.* at 13, 15. Subsequent to its initial discussions with the staff concerning development of a comprehensive construction completion program,<sup>5</sup> the

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<sup>5</sup> On December 2, 1982, when CPCo first discussed a construction completion plan with the NRC staff, CPCo was informed by Region III staff that it would be necessary to incorporate NRC hold points. The staff identified four points at which it would require NRC inspectors to review completed work before the next activity could be undertaken. These hold points were identified as:

1. Review and approval of training and recertification of QC inspectors before beginning Phase 1;
2. Review and approval of CCP team training before beginning Phase 1;
3. Review and approval of the Quality Verification Program (QVP) and status assessments before beginning Phase 1;
4. Review and approval of the program for rework or systems completion work before beginning Phase 2.

licensee began preliminary work, such as team training and recertification of QC inspectors in preparation for its anticipated Phase 1 activities, quality verification program and status assessments. The NRC was informed when training and recertification of QA/QC personnel and CCP team training would begin, and conducted a review of the licensee's actions. The staff suggested that the licensee undertake additional work before proceeding with some of its training effort. Consequently, the re-training hold point requested by petitioners has already been satisfied by the staff.

The petitioners also viewed the proposed CCP as lacking in comprehensiveness. To remedy this deficiency, petitioners proposed that "either a third-party or NRC 'hold point' be contained in the reinspection Phase I activities [of the CCP] to determine the adequacy of the 'accessible systems' approach."<sup>6</sup> Petition at 13.

As described in section 3, *infra*, a third party will be conducting an extensive overview of the CCP and other construction completion activities. The fact that the third-party overviewer will also have hold point controls over the licensee should provide additional assurance that construction is proceeding in accordance with all applicable requirements. See Consumers Power Company, Construction Completion Program (August 26, 1983) at 34. The NRC and the third party will monitor the reinspection activities. The staff believes that these monitoring activities will provide the control sought by the petitioners in their request to establish a hold point during Phase 1 reinspection to determine the adequacy of the accessible systems approach.

The third hold point requested by petitioners derives from another criticism of the proposed CCP — the failure of that plan to specify inspection procedures and evaluation criteria. See Petition at 10-11. Accordingly, petitioners request a systematic and thorough review of the construction and quality work packages which will be completed as a prerequisite to initiation of new construction work under Phase 2 of the CCP. *Id.* at 11.

The CCP requires that representative construction and quality work packages be reviewed to assure that any completed work is consistent with statements made by the licensee in both its Final Safety Analysis Report and Quality Assurance Topical Report. In addition, the third-party overviewer will be using sampling techniques and reviewing selected work and quality packages prior to and during Phase II. Should the re-

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<sup>6</sup> The accessible systems approach refers to the extent of reinspection under the CCP. Inaccessible areas of the plant will be reinspected by utilizing a records review and destructive and non-destructive testing as required. See Consumers Power Company, Construction Completion Program (August 26, 1983) at 22-23.

sults of this sampling approach identify inadequate work packages, the sampling size will be increased as necessary to provide the needed assurance that work packages are adequately reviewed. Moreover, the NRC staff, in performing its inspection activities, will overview this entire process, including reviewing selected quality and work packages.

In summary, the staff believes that those hold points it has incorporated into the CCP, when viewed in the aggregate, substantially satisfy the hold points requested by petitioners. The licensee is required to adhere to these hold points as part of the CCP in conformance with the Confirmatory Order for Modification of Construction Permits (Effective Immediately).

With respect to the second aspect of the requested relief, incorporation of NRC hold points authorized by the Licensing Board's April 30, 1982, Memorandum and Order, the petitioners' request has been satisfied by previous action of the Commission. By amendment dated May 26, 1982, the hold points ordered by the Board were incorporated into the construction permits. *See* 47 Fed. Reg. 23,999 (1982). Accordingly, the construction permits already prohibit CPCo from performing the following activities without "explicit prior approval" from the staff:

- (a) any placing, compacting, excavating, or drilling soil materials around safety-related structures and systems;
- (b) physical implementation of remedial action for correction of soil-related problems under and around safety-related structures and systems, including but not limited to:
  - (i) dewatering systems
  - (ii) underpinning of service water building
  - (iii) removal and replacement of fill beneath the feedwater isolation valve pit areas, auxiliary building electrical penetration areas and control tower, and beneath the turbine building
  - (iv) placing of underpinning supports beneath any of the structures listed in (iii) above
  - (v) compaction and loading activities;
- (c) construction work in soil materials under or around safety-related structures and systems such as field installation, or rebedding, of conduits and piping.

Construction Permits No. CPPR-81 and CPPR-82, Amendment No. 3 (May 26, 1982).

## **2. Management Audit of CPCo**

The petitioners request that the NRC require a management audit of CPCo's performance on the Midland project. The staff does not believe



that a management audit is necessary at this time as a condition for going forward with the CCP. The staff expects that the CCP, with its built-in hold points and third-party overview, should provide an effective process to satisfactorily complete construction at Midland, without the previous quality assurance problems. The third-party overview together with the planned staff inspection activities should provide information to determine the adequacy of the licensee's implementation of the CCP. Nevertheless, the staff will continue to review information concerning the licensee's performance in other areas to determine whether an audit is required.

### ***3. Rejection of Construction Completion Program and Third-Party, Overview Organization***

In requesting that the Commission reject the Midland construction completion plan, petitioners based their position on the unacceptability of the Stone & Webster Engineering Corporation (S&W) to conduct the third-party overview of the CCP. Petitioners raised three objections to the selection of S&W: the failure of S&W to meet the Commission's criteria for the independence required of a third party, *see* Petition at 19; the failure of S&W to submit a minimally adequate audit proposal, *id.* at 18-19; and the lack of public participation in the selection of S&W as the third-party review organization for the Midland project. *Id.* at 19-20.

In support of its argument that S&W is not sufficiently independent to monitor implementation of the CCP, the petitioners asserted that "under both a literal and realistic reading of the Commission's primary financial criteria, . . . the third party not have any direct previous involvement with the Company." Petition at 19. In order to evaluate whether an audit organization is sufficiently independent to conduct a third-party review, the Commission generally utilizes the guidance originally set forth in a letter from Chairman Palladino to Representatives Ottinger and Dingell. The Commission's standard does not require that a proposed third-party reviewer have had no previous involvement with the utility whose program it will be reviewing. Rather, the criteria require that the audit organization, including those employees who will be participating in the third-party review, will not be reviewing specific activities in which they were previously involved. *See* Letter from Chairman Palladino to Representatives Ottinger and Dingell (Feb. 1, 1982), Attachment 1, at 1. Petitioners stated that S&W's role as the overviewer of remedial soils work at Midland prohibits that organization from serving in the same capacity for the CCP. The staff disagrees. Since the

remedial soils activities are outside the scope of the CCP, S&W will not be called upon to review its own work. Consequently, the staff does not agree that S&W's overview activities will conflict with the established independence criteria.<sup>7</sup>

The written program documents being utilized to directly control and implement the Construction Implementation Overview (CIO) program<sup>8</sup> and the applicable S&W corporate master program documents<sup>9</sup> have been reviewed by the staff. These documents are representative of the scope and depth of the S&W overview. The NRC staff also met with S&W on August 25, 1983, in Midland, Michigan in order to gain additional insight into the total S&W program. Based upon its document review and discussions with S&W at the August 25, 1983, meeting, the staff has found the S&W proposal to constitute an acceptable third-party overview program. To provide additional assurance that the third-party audit is being properly implemented, the CIO program will also be audited independently by the S&W corporate quality assurance staff. NRC inspectors will also monitor the adequacy of the CIO program.

Of particular concern to the petitioners was the number of personnel which S&W had assigned to the Midland overview. *See* Petition at 18. The number of qualified people will vary with the demand of the work activities to be overviewed. S&W's CIO staffing plan currently has nine people assigned at the Midland site and there are planned increases to 32 people as work activities progress. These numbers, however, are only

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<sup>7</sup> The petitioners questioned why TERA was disqualified from consideration as the overviewer under the CCP while S&W was not disqualified on the ground of independence. *See* Petition at 19. TERA's disqualification was based on the potential for conflict that could be raised by TERA overview under the CCP of determinations that TERA had previously made under the Independent Design and Construction Verification Program (IDCV) of the adequacy of the construction of the Auxiliary Feedwater System, the onsite emergency AC power supplies and the HVAC system for the control room. Since TERA has been approved by the NRC to perform the IDCV, the staff determined that TERA would not satisfy the Commission independence criterion for the third-party overview of the CCP. *See* letter from James G. Keppler, Regional Administrator, Region III to James W. Cook, Consumers Power Company (March 28, 1983) at 3.

<sup>8</sup> The documents written expressly for the CIO include:

1. CIO Program Document dated April 1, 1983.
2. CIO Quality Assurance Plan.
3. Third Party CIO Plan.
4. CIO Assessment Procedure, 10.01.
5. Nonconformance Identification and Reporting Procedure, 15.01.
6. A detailed attribute checklist for each CPCo Project Quality Control Instruction (PQCI).
7. A detailed checklist to review generic types of requirements (for non-PQCI activities); e.g., QA Audits and Surveillances.
8. Additional Quality Control Instruction as needed to provide adequate overview control.

<sup>9</sup> The following S&W corporate master program documents will also be utilized for the CIO, as required:

1. QA Topical Report SWSQAP 1-74A, S&W Standard Nuclear Quality Assurance Program.
2. S&W Quality Standards; e.g., for quality sampling.
3. S&W Quality Assurance Directives.

estimates and S&W has represented that it will commit whatever personnel are necessary to conduct the CIO. Furthermore, the number of personnel utilized by S&W is not subject to limitation by CPCo.

S&W has already begun to review preliminary activities of the licensee in preparation for initiation of the CCP.<sup>10</sup> This effort has identified various concerns and one nonconformance that required CPCo action to resolve. The NRC staff has reviewed the CIO activities performed to date and has found this overview, including actions taken by CPCo, to be of the quality expected of a third-party overview.

The purpose of the independent third-party overview is to provide additional assurance that the CCP is adequate and will be properly implemented. This overview requirement was necessitated by the loss of NRC staff confidence in CPCo to successfully implement a quality assurance program for the Midland project. The CIO will remain in place at the Midland site until the necessary level of confidence in the ability of the licensee to construct the Midland project has been restored to the satisfaction of the NRC staff.<sup>11</sup> Given that the third-party overview is expected to continue until NRC confidence in the Midland project is restored, petitioners' criticism that the CIO is of insufficient duration appears unfounded.

Opportunity has been provided to the public to participate in the selection of S&W as the third-party overviewer, and to comment on the CCP itself. A meeting was held on February 8, 1983, between CPCo and the staff to discuss the CCP. On August 11, 1983, the staff met with the intervenors, representatives of the Government Accountability Project (GAP) and the Lone Tree Council to discuss the CCP and the CIO. Subsequently, on August 25, 1983, the staff met with S&W to discuss the CIO. These meetings were conducted in Midland, Michigan and were open to public observation. Evening sessions to receive public comments regarding the CCP were held on February 8, and August 11, 1983. Similarly, public comments were received following the August 11 and August 25, 1983, meetings. Several additional meetings between

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<sup>10</sup> The activities being overviewed have included the following CCP and non-CCP activities:

- Program and procedure reviews.
- Review of PQCs.
- Review of MPQAD QA/QC personnel training and certification.
- Review of general training of CPCo and Bechtel personnel, including construction craftspeople.
- Review of CCP Management Reviews.
- Review of System Interaction Walkdowns.
- Review of Design Documents.

<sup>11</sup> The staff anticipates that the third-party overview will be a long-term effort.

the staff, intervenors and a representative of GAP to discuss the CCP and CIO have also been held.

The petitioners' reference in its request to "closed door" meetings appears to refer to working level meetings that have been held principally between the Midland section of the Region III staff and CPCo site personnel, and, in some cases, S&W onsite personnel. See Petition at 19. Such meetings continue to be necessary to enable the NRC staff to achieve a full understanding of the CCP, including the CIO, and to discharge its inspection duties.

For the reasons set forth above, petitioners' request to reject the selection of S&W to conduct the CIO, and to reject the CCP, is denied.<sup>12</sup>

#### **4. *Removal of the Licensee from Primary Responsibility for the Midland Quality Assurance Program***

The petitioners request that MPQAD be relieved of responsibility for the QA/QC function at the Midland plant and that an independent team of QA/QC personnel be created which would report simultaneously to the NRC staff and CPCo. In support of their request, petitioners cite much of the same history of QA/QC deficiencies that the staff summarized in the background section of this decision. See Petition at 20.

The changes that CPCo has most recently instituted through development of the CCP should improve its capability to discharge its responsibility under applicable Commission regulations, such as 10 C.F.R. § 50.34(a)(7) and Appendix B to 10 C.F.R. Part 50, which require the establishment and execution of a QA/QC program. While Criterion I of Appendix B permits a construction permit holder to delegate to other organizations the detailed execution of the QA/QC program, the history of the Midland project makes it clear that the licensee has retained too little control over the QA/QC program. CPCo seems to be proceeding in a positive direction by integrating the implementation of the QC function formerly under the control of Bechtel into the MPQAD. This consolidation of quality control and quality assurance functions should reinforce the separation between the QC function, which will be assumed by MPQAD, and the construction function, which will remain with Bechtel.

While it might be permissible under Appendix B to 10 C.F.R. Part 50 for CPCo to retain an independent organization to execute the QA/QC

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<sup>12</sup> The staff has approved S&W to conduct the CIO. See Staff Evaluation of Consumers Power Company Proposal to Use Stone and Webster Michigan, Inc. to Conduct the Third Party Construction Implementation Overview of the Midland Nuclear Plant (Sept. 29, 1983).

program, the licensee remains ultimately responsible for the establishment and execution of the program. As stated above, the staff considers the strengthening of MPQAD to be a positive step in improving CPCo's capability to assure the quality of construction of the Midland facility. In view of the relatively short existence of the MPQAD, there does not currently exist any justification for requiring CPCo to retain an outside organization to execute the QA/QC program. Therefore, this aspect of petitioners' request is denied.

Petitioners also requested that the independent QA/QC team report simultaneously to the NRC and to CPCo management. The petitioners apparently intended that the NRC would be involved in making management decisions regarding construction of the facility based upon the reports of the independent QA/QC team. There appears to be no basis for this extraordinary departure from the NRC's regulatory function. Accordingly, this aspect of the petition is denied.

##### ***5. Detailed Review of Soils Settlement Resolution***

The petitioners requested that the staff conduct a detailed review of the resolution of the soils settlement problems, including a technical analysis of the implementation of the underpinning project at the current stage of completion. Petition at 23. In its supporting discussion, the petition focused upon the questionable structural integrity of the diesel generator building.

A detailed review of the program for resolution of the soils settlement problem has previously been conducted by the NRC staff and its consultants. In 1979 the U.S. Army Corps of Engineers was contracted to assist the staff in the safety review of the Midland project in the field of geotechnical engineering. After the soils problem became known, additional assistance to the staff in specialized engineering fields (structural, mechanical, and underpinning) was obtained from the U.S. Naval Surface Weapons Center, Harstead Engineering Associates, Geotechnical Engineers, Inc., and Energy Technology Engineering Center. These consultants assisted in the review of technical studies, participated in design audits, visited the site, provided input to the Safety Evaluation Report, and provided expert testimony before the Atomic Safety and Licensing Board. Thus, the approach to the resolution of the soils settlement issue has been thoroughly studied by the staff and its consultants.

The implementation of the remedial soils activities is being closely followed as part of the NRC's inspection program. This inspection effort includes ongoing technical review of the remedial soils program and its implementation by a Region III soils specialist. Technical expertise to

evaluate implementation is also provided by the NRC's Office of Nuclear Reactor Regulation. Additionally, the NRC is utilizing Geotechnical Engineers Inc. in assessing aspects of the remedial soils and underpinning activities. In addition, the soils settlement question has been in litigation for over two years before an Atomic Safety and Licensing Board. Consequently, the relief requested with regard to the soils settlement issue has been substantially satisfied by prior action of the Commission.

Along with review of the soils settlement issue, petitioners requested that another study of the seismic design deficiencies of the Midland plant, with emphasis on the diesel generator building, be conducted. The petitioners further requested that this review would be conducted by a "non-nuclear construction consultant." See Petition at 23.

The NRC staff has initiated a task force study by consultants from Brookhaven National Laboratory (BNL) and NRC structural engineers to evaluate concerns about the structural integrity of the diesel generator building raised by a NRC Region III inspector in testimony before the Subcommittee on Energy and the Environment of the House Committee on Interior and Insular Affairs. Following their review, a report will be issued addressing the concerns raised by the inspector. Decisions on whether further actions are required will be made based upon that report. Additional details on the task force were provided to the Government Accountability Project by letter dated August 10, 1983, and in Board Notifications 83-109 and 83-142, which were transmitted to GAP on July 27 and September 22, 1983, respectively.

As to the request that a review of the diesel generator building be conducted by a "non-nuclear construction consultant," BNL has established an expert team to resolve the concerns raised by the Region III inspector. Expertise rather than the label "non-nuclear construction consultant" should be the governing criterion. The staff has reviewed the qualifications of the team members and is satisfied with their experience. The task force study currently in progress substantially satisfies this aspect of the petition.

The petition also appears to be requesting an additional review of the seismic design of structures other than the diesel generator building. Petitioners have not, however, stated any basis why additional reviews beyond those reflected in the Safety Evaluation Report and Supplements are necessary. The staff does not believe that an additional review by an outside organization of the facility's seismic design is required at this time.

## **Conclusion**

Based upon the foregoing discussion, I have granted the petition in part and denied it in part.

A copy of this decision will be filed with the Office of the Secretary of the Commission for the Commission's review in accordance with 10 C.F.R. § 2.206(c) of the Commission's regulations. This decision will become the final action of the Commission twenty-five days after date of issuance unless the Commission, on its own motion, institutes a review of the decision within that time.

**Richard C. DeYoung, Director  
Office of Inspection and  
Enforcement**

**Dated at Bethesda, Maryland,  
this 6th day of October 1983.**





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**

**Pub. L. 97-425**  
**Proposed 10 C.F.R. Part 960**

**NRC CONCURRENCE IN HIGH-LEVEL  
WASTE REPOSITORY SAFETY  
GUIDELINES UNDER THE NUCLEAR  
WASTE POLICY ACT OF 1982**

**August 24, 1983**

In response to a petition requesting the institution of a notice-and-comment rulemaking proceeding on the Commission's statutory concurrence in the Department of Energy's Guidelines for Recommendation of Sites for Nuclear Waste Repositories contained in proposed 10 C.F.R. Part 960, the Commission finds that there is no legal obligation to provide such opportunity for notice and comment on its concurrence in the guidelines. Nonetheless, the Commission decides to provide an opportunity to representatives of interested groups to present their views on the guidelines to the Commission at a public meeting.

**NUCLEAR WASTE POLICY ACT: COMMISSION ACTION  
AS RULEMAKING**

The Commission's concurrence under Section 112(a) of the Nuclear Waste Policy Act of 1982 does not constitute a rulemaking action under either the Atomic Energy Act of 1954, as amended, or the Administrative Procedure Act.

## MEMORANDUM AND ORDER

On June 21, 1983, the Yakima Indian Nation ("Yakima") petitioned the Nuclear Regulatory Commission ("NRC" or "Commission") to institute a notice-and-comment rulemaking proceeding on the Commission's statutory concurrence in the Department of Energy's ("DOE") General Guidelines for Recommendation of Sites for Nuclear Waste Repositories, 10 C.F.R. Part 960 ("Siting Guidelines"). For the reasons discussed below, the Commission has determined that its concurrence role under Section 112(a) of the Nuclear Waste Policy Act of 1982<sup>1</sup> ("NWPA") does not constitute a rulemaking action under either the Atomic Energy Act of 1954, as amended ("Atomic Energy Act") or the Administrative Procedure Act ("APA"). Accordingly, the Commission finds that there is no legal obligation to provide an opportunity for notice and comment on the NRC's concurrence or non-concurrence in DOE's Siting Guidelines. However, the Commission recognizes the high level of public interest and concern regarding DOE's Siting Guidelines and, therefore, will provide an opportunity for a limited number of representatives of various groups to address the Commission regarding DOE's Siting Guidelines.

### BACKGROUND

Section 112(a) of NWPA, 42 U.S.C. § 10,132(a), directs the Secretary of Energy ("Secretary") to issue general guidelines for the recommendation of sites for geologic high-level radioactive waste repositories following consultation with various federal agencies and states and concurrence by the NRC. On February 7, 1983, DOE issued proposed guidelines for comment. 48 Fed. Reg. 5670. Subsequently, DOE conducted five public hearings around the country. 48 Fed. Reg. 6549 (1983), *as amended*, 48 Fed. Reg. 8289 (1983). Due to the volume and nature of public comments, DOE assembled a task force which redrafted the proposed guidelines and decided to extend the comment period to July 7, 1983, even though that extension caused DOE to miss the statutory deadline for issuing final Siting Guidelines. 48 Fed. Reg. 26,441 (1983).

The NRC initiated its concurrence process soon after DOE published its proposed Siting Guidelines. *See* SECY-83-121 (March 31, 1983). On April 7, 1983, the NRC staff provided DOE with extensive comments on the proposed Siting Guidelines. DOE agreed to provide NRC with

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<sup>1</sup> 42 U.S.C. § 10,132(a).

copies of all public comments as they are submitted to DOE so that the NRC staff can review those comments independently and expeditiously. On June 20, 1983, the NRC staff provided the Commission with a summary of the comments received by DOE. SECY-83-241. DOE has also provided to NRC a draft of DOE's Responses to Public Comments dated May 27, 1983. Representatives from DOE briefed members of the NRC staff and Commission offices on June 27, 1983. On August 2, 1983, DOE provided the NRC staff with draft final guidelines for further review. Thus, the NRC has had complete access to DOE's public comment procedures on the proposed Siting Guidelines.

### YAKIMA PETITION

Although the Yakima Petition is somewhat unclear, it appears to be premised on the contention that NRC's statutory concurrence role makes the DOE Siting Guidelines into a rule jointly issued by NRC and DOE. Moreover, the Yakimas somewhat inconsistently contend that NRC concurrence is itself a rulemaking for which notice and opportunity for comment must be provided.<sup>2</sup> Finally, the Yakimas contend that the Commission must seek comments directed to NRC responsibilities to make an independent judgment on the Siting Guidelines, and that comments to DOE cannot serve that purpose. The only examples of NRC responsibility identified by the Yakima is the Commission's consideration of alternatives for the purposes of the National Environmental Policy Act of 1969 ("NEPA"). Under Section 114(f) of NWPA, 42 U.S.C. § 10,134(f), DOE will use the Siting Guidelines to identify a proposed repository site and its alternatives for the purposes of NEPA. Section 114(f) also directs the Commission to adopt DOE's Environmental Impact Statement ("EIS") to the extent practicable. The Yakimas are concerned that such an adoption of DOE's EIS by the NRC will bind the Commission's construction authorization proceeding on a repository to DOE's application of the Siting Guidelines in the same manner that Commission proceedings are bound by Commission rules.<sup>3</sup>

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<sup>2</sup> The Yakimas contend that NRC concurrence in DOE's Siting Guidelines is the same as NRC adoption of industry-developed standards as a rule. That this analogy is incorrect is clear from the differences between DOE's public procedures for issuing Siting Guidelines and an industry group's limited private procedures for adopting standards. DOE has provided hybrid notice-and-comment procedures that go beyond the statutory maximum that would be required if Section 553 of the APA were applicable; an industry group does not subject itself to even the most minimal of public participation procedures. Thus, there is no parallel between this situation and the NRC's use of rulemaking to adopt industry standards.

<sup>3</sup> The Yakimas also contend that they should have an opportunity to comment to the NRC on the consistency of DOE's Siting Guidelines with NRC's technical siting criteria in 10 C.F.R. Part 60. Since it is DOE's Siting Guidelines that are involved, it appears that such comments should be directed to DOE in

*(Continued)*

## COMMISSION DECISION

For the reasons stated below, the Commission finds that the NRC's concurrence responsibility is not rulemaking and does not require notice and opportunity for public comment. However, the Commission will give representatives of various groups an opportunity to comment on the Siting Guidelines as described below.

Section 112(a) of NWPA does not specify any procedures for Commission concurrence in DOE Siting Guidelines. A review of other statutes providing for one agency's concurrence in another agency's actions shows that such concurrence has never been considered rulemaking.<sup>4</sup> The reason that concurrence has never been considered a separate rulemaking follows directly from the purpose of public opportunity for notice and comment. Notice and comment provides interested parties an opportunity to criticize projected agency action and allows an agency to benefit from the views of others before a rule is fixed in final form. *Council of Southern Mountains, Inc. v. Donovan*, 635 F.2d 573, 580 (D.C. Cir. 1981). Where one agency is concurring in another agency's action, it is not the act of concurrence but the underlying substantive rule that is of interest to the public. Where the agency promulgating the substantive rule has provided for public notice and comment, that agency has had the benefit of the public's views in formulating a final rule. The agency with concurrence responsibility also has the benefit of those views because they are a matter of public record. Accordingly, the interpretation of concurrence responsibility as a separate rulemaking requiring another round of public notice and comment would be redundant and wasteful of limited resources.<sup>5</sup>

This analysis is applicable to the current situation. DOE has provided public participation procedures that exceed the minimum that would be required if the APA were applicable to the promulgation of Siting Guidelines. The Yakimas have not identified any issues on which it would be appropriate to comment to NRC but not DOE. Even if the Siting Guidelines were treated in the NRC's construction authorization proceeding as suggested by the Yakimas, there would be no comments to NRC that would not have already been made to DOE. It is DOE's selection criteria that will be applied to alternative sites. There is nothing

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an effort to get DOE to conform to existing NRC regulations. Once those comments have been provided to DOE, they will also automatically come before the NRC.

<sup>4</sup> These other statutes are reviewed in Appendix A.

<sup>5</sup> Even if the Siting Guidelines could be considered a jointly issued rule, it does not follow that each agency must separately seek public comment on one joint action.

more that could be said to the NRC over and above the views presented to DOE and known to the NRC that would influence the Commission's independent judgment as to whether the DOE Siting Guidelines are adequate for identifying alternative sites. For these reasons, the Commission believes that it would be unreasonable to interpret this statutory concurrence obligation differently from other such concurrence statutes to find that this concurrence would require the provision of an opportunity for public notice and comment.

Notwithstanding the lack of a legal requirement to provide an opportunity for notice and comment, in the past the Commission has found that oral presentations are sometimes helpful in crystallizing the central issues important to various interested groups. In the present case, moreover, a number of organizations and individuals have already demonstrated their interest in the subject by submitting comments to DOE on the draft guidelines. In summarizing the comments, the NRC staff divided the commenters into seven classes: (1) federal agencies; (2) state governments; (3) local governments; (4) industry; (5) public interest groups; (6) Indian tribes; and (7) individuals.

Accordingly, the Commission will hold a public meeting at which those organizations and individuals which have previously commented on the DOE Draft Siting Guidelines may present their views to the Commission concerning NRC's concurrence or non-concurrence in those guidelines, and on the guidelines themselves. The Commission strongly encourages commenters to consolidate their presentations. The opportunity to participate will also be extended to DOE. The meeting will be held at the NRC's headquarters at 1717 H Street, N.W., Washington, D.C., in approximately 30 days. The precise date and time, as well as the amount of time which will be allotted to the various classes of commenters, will be set forth in a further order, to be issued shortly by the Commission's Secretary.

It is so ORDERED.

For the Commission\*

SAMUEL J. CHILK  
Secretary of the Commission

Dated at Washington, D.C.,  
this 24th day of August 1983.

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\*Commissioner Roberts was not present and did not participate in this action.

## APPENDIX A

### Survey of Statutory Concurrence Provisions

Statutory concurrence provisions similar to that in Section 112(a) have been used for more than twenty years.<sup>1</sup> A survey of the case law for some twenty-six statutory concurrence provisions revealed no decisions which raised the issue of procedures for concurrence. Indeed, the only case in which a concurrence provision was contested involved the identity of the agency official who was required to concur, rather than the procedure to be used for concurrence.<sup>2</sup> A few of the statutory provisions surveyed are discussed below. For none of them did the concurring agency provide separate procedures for public participation on the concurrence.

Under 13 U.S.C. § 302 (1962), the Secretary of Commerce must have the concurrence of the Secretary of the Treasury in order to promulgate rules concerning the collection and publication of foreign trade statistics. In practice, this is accomplished by inclusion of a statement of concurrence in the *Federal Register* notice for proposed and final rules. The Secretary of Commerce conducts the rulemaking and receives and analyzes public comments. The Secretary of Treasury reviews the proposed or final rule and signs a statement following the rule which reads, "I concur: (signed) Secretary, Department of the Treasury." See, e.g., 47 Fed. Reg. 2122, 2124 (1982).

Under Section 501(a) of the Surface Mining Control and Reclamation Act of 1977, 30 U.S.C. § 1251, the Secretary of the Interior is to promulgate regulations governing the procedure and performance standards for surface coal mining and reclamation. The concurrence of the Administrator of the Environmental Protection Agency is required with respect to the regulations relating to air or water quality standards promulgated under the Federal Water Pollution Control Act and the Clean Air Act. On December 13, 1977, the Office of Surface Mining Reclamation and Enforcement, Department of the Interior, published its final rules under that statutory provision. The administrator of the EPA concurred in those rules by means of a letter to the Secretary of Interior. See 42 Fed.

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<sup>1</sup> See, e.g., 13 U.S.C. § 302 (1962) ("Rules, regulations and orders, or amendments thereto [concerning the collection and publication of foreign trade statistics] shall have the concurrence of the Secretary of the Treasury prior to promulgation [by the Secretary of Commerce]").

<sup>2</sup> See *Surface Mining Regulation Litigation*, 452 F. Supp. 327, 335-36 (D.D.C. 1978) (construing Section 516(a) of the Surface Mining Control and Reclamation Act of 1977, 30 U.S.C. § 1266(a), which provides that rules directed to the surface effects of underground mining "shall not be promulgated until the Secretary [of the Interior] has obtained the written concurrence of the head of the department which administers [the Federal Coal Mine Health and Safety Act of 1969]").

Reg. 62,639 (1977).<sup>3</sup> The EPA did not solicit public comments before providing its concurrence.

Under 15 U.S.C. § 4020, part of the Export Trading Company Act of 1982, the Secretary of Commerce is directed to promulgate, with the concurrence of the Attorney General, such regulations as are necessary to carry out the purposes of the Act. Under another part of that Act, 15 U.S.C. § 4017, the Secretary may issue, with the concurrence of the Attorney General, guidelines to promote greater certainty regarding the application of the antitrust laws to export trade. The issuance of those guidelines is expressly exempt from notice-and-comment rulemaking procedures under 5 U.S.C. § 553, whereas the promulgation of regulations under Section 4020 is not. The legislative history does not indicate the reasons for treating the regulations differently from the guidelines, but the dichotomy suggests that the antitrust guidelines, as opposed to general rules, were not considered an appropriate matter for public participation. Neither statutory provision makes any reference to public participation in the Attorney General's concurrence.

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<sup>3</sup> The Secretary of Agriculture and the Chief of Engineers of the Corps of Engineers provided similar letters of concurrence, as required under Sections 510(d) and 515(f), respectively, of the Surface Mining Act.

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)**

**November 8, 1983**

Upon consideration of (1) the licensee's request for partial reinstatement of its low-power license for Unit 1 (suspended in CLI-81-30, 14 NRC 950 (1981)) to allow it to load fuel and perform pre-criticality testing at that unit; (2) the licensee's request for an extension of the term of its low-power license; and (3) the intervenors' request for a separate adjudicatory hearing on both matters, the Commission decides to reinstate the license to authorize fuel loading and pre-criticality testing and deny both hearing requests. Also, the Commission announces that with regard to criticality and low-power operation, the license suspension will continue.

**MEMORANDUM AND ORDER**

This matter comes before the Commission on licensee Pacific Gas and Electric Company's ("PG&E" or "licensee") request for reinstatement.



ment of its license to load fuel and conduct pre-criticality tests at Diablo Canyon Nuclear Power Plant, Unit 1, and on Joint Intervenors' requests for adjudicatory hearings on lifting the suspension and extending the term of the original license to load fuel and conduct low-power tests.

## **1. Background**

On September 21, 1981, the Nuclear Regulatory Commission ("NRC" or "Commission") authorized issuance of Facility Operating License No. DPR-76, a license to load fuel and conduct low-power tests (at up to 5% of rated power) at the Diablo Canyon Nuclear Power Plant, Unit 1. CLI-81-22, 14 NRC 598. The NRC staff issued the license on September 22, 1981. Soon thereafter, the licensee, Pacific Gas and Electric Company reported the discovery of an error in the seismic design of the plant. Following the discovery of additional errors in seismic design, the NRC staff identified serious weaknesses in PG&E's quality assurance program. Accordingly, on November 19, 1981, the Commission suspended PG&E's license to load fuel and conduct low-power tests (low-power license) pending the satisfactory completion of an Independent Design Verification Program (IDVP). CLI-81-30, 14 NRC 950.

After a substantial effort spanning almost two years, the IDVP has been completed and the results have been submitted in a four-volume Final Report detailing the review of seismic and non-seismic design and design quality assurance, the analysis of identified errors, and corrective actions taken or proposed. The IDVP also addressed briefly several issues associated with construction quality assurance. The NRC staff's review of the IDVP Final Report as it pertains to issues relevant to fuel loading is contained in Safety Evaluation Report Supplements 18 and 19, issued in August and October 1983, respectively. On the basis of its review of the IDVP Final Report, PG&E's separate design and construction review program and the physical modifications resulting from both programs, the NRC staff has recommended reinstatement of PG&E's license to load fuel and perform pre-criticality testing at Diablo Canyon Unit 1. On October 28, 1983, the Commission convened a public meeting to discuss the staff recommendation and received the comments of NRC staff, the IDVP lead contractor, PG&E, and the Joint Intervenors in the operating license proceeding.

Meanwhile, Joint Intervenors have requested formal adjudicatory hearings (1) prior to a Commission decision whether to lift the suspension of the license to load fuel and conduct low-power tests at Diablo Canyon, and (2) on PG&E's request for an extension of the term of its low-power license until September 22, 1984. The low-power license had

originally been issued for a term of one year under the expectation that fuel loading and low-power testing would be completed well within the initial one-year period.

## **2. Hearing Requests**

### ***a. Hearing on Lifting the Suspension***

The Commission declared its policy with regard to formal adjudicatory hearings on enforcement actions in *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), CLI-80-10, 11 NRC 438 (1980). The Commission therein stated its belief that the "public health and safety is best served by concentrating inspection and enforcement resources on actual field inspections and related scientific and engineering work, as opposed to the conduct of legal proceedings." 11 NRC at 441. In accord with this policy, the order suspending PG&E's low-power license did not provide for any adjudicatory hearing prior to lifting the suspension. This limitation was within the Commission's authority. *Bellotti v. NRC*, No. 82-1932 (D.C. Cir., October 7, 1983) (amended opinion). Joint Intervenors are not entitled to a hearing as a matter of statutory right; their request for an adjudicatory hearing on the lifting of the suspension is denied.

### ***b. License Extension Hearing Request***

PG&E's low-power license was issued on September 22, 1981 with an expiration date of September 22, 1982. As noted, inclusion of this expiration date was based on the assumption that fuel loading and low-power testing would be completed well before this time. There was no safety significance or basis in the adjudicatory record for limiting the term of the low-power license to one year. However, because of the Commission's suspension of the license, PG&E has not initiated the authorized activities and the time would have expired absent PG&E's timely request for a renewal. Thus, a modification of the expiration date would merely shift in time the period during which the licensed activities are authorized, without expanding either the length of time or the substantive nature of the authorization.

In CLI-82-39 (16 NRC 1712 (1982)), the Commission responded to a similar request for hearing submitted by Joint Intervenors relating to PG&E's 1982 request for a license extension. The Commission noted that the license extension request was subsumed within the scope of the ongoing license application and initial licensing proceeding and there was no right to a separate hearing on the request. We adhere to this

principle. However, the hearing record recently has been reopened by the Appeal Board in the initial licensing proceeding on issues pertaining to design quality assurance and related IDVP conclusions.

This case is therefore similar to that which occurs when, on appeal from an initial licensing decision, it is decided that further hearings must be held to complete the adjudicatory record. In such a case the validity of the license pending the completion of the hearings and decision depends on a balancing of the equities and a consideration of possible prejudice to further action required as a result of the reopened proceeding. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-77-8, 5 NRC 503 (1977). This test is distinguishable from the more stringent test in *Virginia Petroleum Jobbers Ass'n v. Federal Power Commission*, 259 F.2d 921 (D.C. Cir. 1958) and 10 C.F.R. § 2.788 which is used in ruling on stays pending appellate review.

### (1) *Fuel Loading and Pre-Criticality Testing*

The risk to public health and safety from fuel loading and pre-criticality testing is extremely low since no self-sustaining nuclear chain reaction will take place under the terms of the license and therefore no radioactive fission products will be produced. A review of the pleadings on Joint Intervenors' two hearing requests reveals no significant safety concerns material to fuel loading and pre-criticality testing. This should not be surprising since the IDVP and related efforts focus on plant systems engineered to handle the hazards associated with radioactive fission products and, as stated above, no such fission products will be produced. While Joint Intervenors have professed concern that this limited authorization would generate momentum in the direction of further authorizations, the Commission emphasizes that this action in no way prejudices future decisions. See *Power Reactor Development Corp. v. International Union of Electrical, Radio and Machine Workers*, 367 U.S. 396 (1961). The plant itself will not be altered by fuel loading and pre-criticality testing, and no resources will be committed irrevocably to further authorizations. Safety issues material to additional authorizations will be considered by the Commission at a later date when the licensing documentation for these later stages is complete.

Since there are no significant safety issues material to fuel loading and pre-criticality testing, and there will be no prejudice to future Commission decisions, a consideration of the equities favors denial of the Joint Intervenors' request to defer the decision on the licensee's request for reinstatement and extension of the license to load fuel and conduct pre-criticality testing pending the holding of a hearing on the licensee's request. Joint Intervenors' request, therefore, is denied.

## *(2) Criticality and Low-Power Operation*

The licensee at this time has applied to the Commission only for fuel loading and pre-criticality testing. However, with regard to criticality and low-power operation, we believe that the equities in this case favor continued suspension of that part of the license. The Commission will revisit the issue of continued suspension pending completion of the reopened hearing after the licensee submits the required and remaining documentation in support of criticality and low-power operation and we have the staff's evaluation. The concern which supported the original license suspension was not purely procedural or a matter of clarifying some uncertain part of the record. Serious and substantive safety concerns relating to design quality assurance led to the license suspension. These same safety concerns are now the subject of adjudicatory hearings before the Appeal Board. The license suspension and order requiring further hearings recognizes that the adjudicatory record may not now include essential findings on design quality assurance. In the special circumstances of this case, the Commission may well choose to await the conclusion and decision in the Appeal Board hearings before reaching any decision on further lifting of the license suspension and further extending the validity of the license to authorize criticality and low-power operation.

### *c. Hearings on Additional Issues*

Joint Intervenors stated at the October 28th meeting before the Commission that the hearings before the Appeal Board satisfied their desire for additional hearings insofar as design quality assurance issues are concerned. We recognize that they seek to raise other issues as well. They have already been afforded the opportunity to raise construction quality assurance issues. On October 24, 1983 the Appeal Board denied Joint Intervenors' request to hold further hearings on this matter. Nevertheless, if there are other issues material to reinstating an extended license authorizing criticality and low-power testing which Joint Intervenors have not had a prior opportunity to raise, then the Appeal Board should conduct further proceedings as appropriate.

## **3. Decision to Lift Suspension in Part**

Upon consideration of the reports, analyses and comments referred to above, the Commission has decided to reinstate PG&E's license to authorize fuel loading and pre-criticality testing at Diablo Canyon Unit 1. The Commission has determined that the results of the IDVP provide

reasonable assurances of protection of the public health and safety insofar as these limited activities are concerned. More detailed reasons for this conclusion are set forth in NRC staff's Safety Evaluation Report Supplements 18 and 19 and the staff memorandum to the Commission, dated November 7, 1983, regarding unresolved IDVP items. Thus, the licensee is hereby authorized to conduct activities included within modes 5 and 6, as described in the Technical Specifications for Diablo Canyon.

#### **4. Additional Matters**

On October 20, 1983, Joint Intervenors requested the Commission to revoke PG&E's license or continue the suspension on the basis of (1) PG&E's asserted failure to submit to the NRC a 1977 audit report criticizing the construction quality assurance program of a construction contractor at Diablo Canyon, and (2) substantive concerns regarding the adequacy of construction quality assurance at Diablo Canyon raised by the 1977 report. The substantive concerns were placed before the Appeal Board as a supplement to Joint Intervenors' motion to reopen the record on construction quality assurance issues. On October 24, 1983, the Appeal Board denied the motion to reopen on construction quality assurance. The Appeal Board opinion setting forth the basis for its decision will issue as soon as practicable. Meanwhile, PG&E has responded to Joint Intervenors' motion before the Commission. Upon consideration of the motion and response, the Commission has decided to refer the matter to the NRC staff for consideration as a petition for enforcement action under 10 C.F.R. § 2.206. The Commission does not believe this matter has any health and safety significance for fuel loading and pre-criticality testing. Prior to authorizing criticality and low-power testing, however, the Commission expects a status report from the staff addressing these matters.

On October 31, 1983, Joint Intervenors petitioned the Commission for review of the Appeal Board's October 24, 1983 Order (unpublished) denying the motion to reopen the record regarding construction quality assurance. The Commission does not intend to rule on this petition until the issuance of the Appeal Board opinion in support of its order and the parties' substantive response thereto. The Commission does not believe that resolution of this matter is necessary at this time because of the limited health and safety significance of fuel loading and pre-criticality testing.

Also pending before the Commission is Joint Intervenors' petition for review of ALAB-728, 17 NRC 777 (1983), the Appeal Board affirmation

of issues other than quality assurance addressed in the Licensing Board's low-power decision, LBP-81-21, 14 NRC 107 (1981). Again, the Commission does not believe that resolution of this matter is necessary at this time because of the limited health and safety significance of fuel loading and pre-criticality testing.

Finally, Joint Intervenors have filed before both the Appeal Board and the Commission a motion to revive their request for a stay of the low-power license. By letter dated November 4, 1983, Joint Intervenors requested the Commission to consider the stay request concurrent with its decision on lifting the suspension. The Commission prefers instead to allow the Appeal Board to consider initially the stay request. The Commission expects the Appeal Board to rule expeditiously on Joint Intervenors' stay request.

Commissioner Gilinsky abstained from this decision. The additional views of Commissioner Asselstine are attached.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK  
Secretary of the Commission

Dated at Washington, D.C.,  
the 8th day of November 1983.

#### **ADDITIONAL VIEWS OF COMMISSIONER ASSELSTINE**

I support the Commission's order authorizing fuel loading and pre-criticality testing at Diablo Canyon Unit 1 at this time for three reasons. First, the risk to the public health and safety from fuel loading and pre-criticality testing is very low, and there do not appear to be significant unresolved safety issues material to these activities. Second, fuel loading and pre-criticality testing can be undertaken without foreclosing future options or prejudicing future Commission decisions regarding further plant reviews or modifications should such actions be necessary. Third, approval of fuel loading and pre-criticality testing, if properly restricted, does not amount to a prejudgment of the significant design quality assurance issues material to operation of the plant that are now being adjudicated in the reopened hearings before our Appeal Board. For these

reasons, I am prepared to authorize fuel loading and pre-criticality testing at Diablo Canyon Unit 1 at this time.

Although I support the Commission's order today, I would have gone farther in the treatment of a related issue. That issue is whether the Commission is prepared to consider further requests from the licensee for authorization to operate the Diablo Canyon Unit 1 reactor before our Appeal Board reaches a decision on the design quality assurance issues now being considered, and any other issues that may be admitted, in the ongoing hearings in San Luis Obispo. In my judgment, the Commission should put all parties on notice now that it is unwilling to entertain further requests from the licensee for authorization to operate Unit 1 of the Diablo Canyon plant until the Appeal Board has reached a decision in the reopened proceeding.

In my view, the special circumstances of this case demand that we await the Appeal Board's decision before allowing the Diablo Canyon plant to go critical and to operate at any power level. Although the Commission has characterized its November 19, 1981 decision to suspend the Diablo Canyon license as an enforcement action, it is important to remember that the Commission's order suspending the license came less than two months after the Commission's original decision authorizing a low-power license for the Diablo Canyon plant. The Commission's suspension order recognized the existence of significant safety issues related to the seismic design of the plant and concluded that these issues were of sufficient importance to require the immediate halt of fuel loading and any operation of the plant, even at low-power levels. Moreover, the Commission's suspension order called into question a substantial portion of the basis for the NRC's original licensing decision for the plant. As the Commission's order noted,

This new information indicates that, contrary to statements made in PG&E's operating license application, certain structures, systems, and components important to safety at the plant may not be properly designed to withstand the effects of earthquakes, and further indicates that violations of NRC's regulations in 10 C.F.R. Part 50, Appendix B have occurred. Had this information been known to the Commission on or prior to September 22, 1981, Facility License No. DPR-76 would not have been issued until the questions raised had been resolved.

CLI-81-30, 14 NRC at 951.

It is also beyond question that significant design quality assurance issues relevant and material to plant operation remain in dispute between the parties to the proceeding. The design quality assurance contentions raised by the Joint Intervenors and the Governor of California are substantial factual disputes that cover a broad range of questions regarding the scope of the design quality assurance problems at the plant and the

adequacy of the design review and corrective programs. These questions go to the very heart of the Commission's judgment on the adequacy of plant design to assure the protection of the public health and safety. As the Appeal Board decision reopening the record on these issues noted, both the licensee and the NRC staff agreed that the Joint Intervenors and the Governor of California presented sufficient new information on these design quality assurance issues to meet the test for reopening the proceeding.

In my view, the ongoing hearing before the Appeal Board is the proper forum for resolving these factual disputes between the parties. The Appeal Board's decision based upon the adjudicatory record, rather than brief presentations before the Commission, will provide the necessary basis for a Commission decision on whether to allow operation of the plant. Because a Commission decision to allow low-power operation in advance of the Appeal Board decision would foreclose options for any necessary further reviews and modifications of the plant and would prejudice further Commission decisions on the issues in the reopened hearing, I believe that the special circumstances of this case require that we await the Appeal Board's decision before considering any further lifting of the Diablo Canyon license suspension.



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. 50-361-OL**  
**50-362-OL**

**SOUTHERN CALIFORNIA EDISON**  
**COMPANY, et al.**  
**(San Onofre Nuclear Generating**  
**Station, Units 2 and 3)**

**November 18, 1983**

The Commission determines, pursuant to its immediate effectiveness review under 10 C.F.R. § 2.764(f), that the Licensing Board's resolution of the issues in LBP-83-47, 18 NRC 228 (1983) related to the applicants' compliance with 10 C.F.R. § 50.47(b)(12) regarding arrangements for medical services for members of the public, does not present the type of safety problem which would require a stay of the decision's effectiveness. The Commission, therefore, rules that the decision may go into effect.

**ORDER**

On July 16, 1982, the Commission acting pursuant to 10 C.F.R. § 2.764(f), decided that the Licensing Board's decisions resolving contested issues in favor of full-power operating licenses for San Onofre Units 2 and 3 may go into effect pending appellate review (CLI-82-14,

16 NRC 24).<sup>1</sup> In addition, the Commission decided that it would later conduct an immediate effectiveness review of any future decision on the offsite medical arrangements issue retained by the Licensing Board. Because of an apparent disagreement between the Licensing Board and the Appeal Board regarding the scope of these arrangements required by 10 C.F.R. § 50.47(b)(12),<sup>2</sup> the Commission directed certification to it of two questions bearing on the proper scope. CLI-82-27, 16 NRC 883 (1982).<sup>3</sup>

On April 4, 1983, the Commission decided the certified questions and clarified the interpretation to be given 10 C.F.R. § 50.47(b)(12). CLI-83-10, 17 NRC 528 (1983). Rather than decide the specific issues reflected in the San Onofre record, the Commission gave generic guidance on the certified questions and directed the Licensing Board to take any further action it deemed necessary to comply with its decision. After briefing by the parties and supplementation of the record pursuant to procedures agreed upon by the Board and parties, the Licensing Board issued a Memorandum and Order on August 12, 1983 (LBP-83-47, 18 NRC 228). That decision interpreted and applied the Commission's guidance in CLI-83-10, and concluded that the requirements of 10 C.F.R. § 50.47(b)(12) are fully satisfied and that no further proceedings or license conditions concerning medical services arrangements are necessary.

In accordance with CLI-82-14 and the provisions of 10 C.F.R. § 2.764(f), the Commission has reviewed the Licensing Board's August 12, 1983 decision. We have concluded that the Licensing Board's resolution of the issues related to applicants' compliance with 10 C.F.R. 50.47(b)(12) regarding arrangements for medical services for members of the public in its decision does not present the type of safety problem which would require the stay of the decision's effectiveness. Accordingly, that decision may go into effect without prejudice,

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<sup>1</sup> The Commission's decision did not authorize issuance of the requested full-power licenses until the NRC staff briefed the Commission on certain uncontested issues. The staff briefed the Commission and on July 28, 1982 the Commission authorized the staff to issue a full-power license for Unit 2 with specified conditions. This license was issued on September 7, 1982. A low-power license was issued for Unit 3 on November 15, 1982, and the staff briefed the Commission on full-power operation on September 16, 1983. This license was issued on September 16, 1983 after Commission authorization.

<sup>2</sup> The Appeal Board noted its disagreement with the position taken by the Licensing Board in LBP-82-39, 15 NRC 1163 (1982) in the course of ruling on a stay application. ALAB-680, 16 NRC 127, 136-39 (1982).

<sup>3</sup> On November 19, 1982, the Commission directed the Licensing Board not to proceed with any hearings on the medical services arrangements pending further Commission order. CLI-82-35, 16 NRC 1510 (1982).

however, to any subsequent appellate review by the Appeal Board and the Commission of the Licensing Board's resolution of these issues.<sup>4</sup>

Commissioner Roberts' separate views are attached.

It is so ORDERED.

For the Commission

(John C. Hoyle)  
for SAMUEL J. CHILK  
Secretary of the Commission

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

#### ADDITIONAL VIEWS OF COMMISSIONER ROBERTS

Because the Licensing Board and the Appeal Board in this proceeding had interpreted the requirements of 10 C.F.R. § 50.47(b)(12) differently, the Commission, with Commissioners Asselstine and Gilinsky dissenting, provided generic guidance on the interpretation of those requirements in CLI-83-10. Having provided such guidance in CLI-83-10, in this immediate effectiveness order we should have obviated disputes based on differing interpretations of that guidance by informing the Boards and the parties of the Commission majority's conclusion that the Licensing Board has correctly interpreted our generic guidance. An extensive review of the record was not necessary to reach such a conclusion. Only a reading of the Licensing Board's eight-page memorandum and order was required. I believe that in these circumstances informing the Boards and the parties of the Commission majority's conclusion regarding the Licensing Board's interpretation of our generic guidance would have been appropriate, would have eliminated the need for further expenditure of time and effort to deal with disputes about the interpretation of our guidance, and would not have violated either the

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<sup>4</sup> In ALAB-717, 17 NRC 346 (1983), the Appeal Board affirmed, subject to certain license conditions, the Licensing Board's decisions authorizing the issuance of full-power operating licenses for San Onofre, Units 2 and 3. This decision addressed all issues raised on appeal except the offsite medical arrangements issue which was retained by the Licensing Board and later became the subject of the Commission review noted above. By order dated June 21, 1983 (unpublished), the Commission declined to review ALAB-717.

letter or the spirit of our “immediate effectiveness” procedures. The Licensing Board’s application of our generic guidance to the facts in this proceeding would have remained to be dealt with by the Appeal Board in its review of the record.

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. 50-266-OLA-2**

**WISCONSIN ELECTRIC POWER  
COMPANY**

**(Point Beach Nuclear Plant,  
Unit 1)**

**November 22, 1983**

**ORDER**

Intervenor Wisconsin's Environmental Decade has petitioned for Commission review of the Appeal Board decision ALAB-719, 17 NRC 387 (1983). The time for the Commission to act on the petition, as extended, has expired and the petition is therefore deemed denied under 10 C.F.R. § 2.786(b)(5).

The dissenting views of Commissioners Asselstine and Gilinsky are attached.\*

For the Commission

SAMUEL J. CHILK  
Secretary of the Commission

Dated at Washington, D.C.,  
this 22nd day of November 1983.

### SEPARATE VIEWS OF COMMISSIONER ASSELSTINE

The Commission's decision not to review ALAB-719 is unfortunate because it allows two decisions of dubious legality to stand. The Commission's policy on the use of sanctions specifically reserves dismissal from the proceeding for the most severe cases of offensive conduct. The conduct of the intervenor in this case, Wisconsin's Environmental Decade (Decade), clearly did not meet that standard. The Licensing Board abused its discretion in dismissing Decade from the proceeding, and the Appeal Board should have reversed the Licensing Board decision. The Commission should take review to correct these errors.

A Licensing Board has broad discretion in using sanctions to manage the conduct of a proceeding. That discretion is not unlimited, however, and the Commission has provided the following guidance to the Boards on the application of sanctions:

In selecting a sanction, boards should consider the relative importance of the unmet obligation, its potential for harm to other parties or the orderly conduct of the proceeding, whether its occurrence is an isolated incident or a part of a pattern of behavior, the importance of the safety or environmental concerns raised by the party, and all of the circumstances. Boards should attempt to tailor sanctions to mitigate the harm caused by the failure of a party to fulfill its obligations and bring about improved future compliance.

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\*Although dissents from a denial of review may set forth strongly held views of a Commissioner, they are of no legal significance.

In addition, these dissents are potentially misleading. Because the Commission majority provides no "on the record" explanation of the reasons for not accepting review, the dissenter's arguments in favor of Commission review are not answered. Dissents often do not set forth reasons for denying review and therefore an incomplete record of the Commission's decisional process is provided.

*Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 454 (1981) (46 Fed. Reg. 28,533 (1981)).

After balancing all of these factors, the Board must then choose from the spectrum of sanctions available to it. Dismissal from the proceeding is limited to only the most severe cases of misconduct. *Id.*

Decade's conduct in this proceeding was willful and merited some sanction. However, it did not, as the Licensing Board concluded, merit the ultimate sanction of dismissal. In affirming the Licensing Board decision, the Appeal Board reasoned that since there was no other conveniently available sanction listed in the Commission's policy statement, and since Decade's conduct was willful, the Licensing Board had no choice but to dismiss Decade from the proceeding. This reasoning is fallacious, and such an approach to the imposition of sanctions is clearly not in accord with the Commission's policy statement or Commission precedent. See *Commonwealth Edison Co.* (Byron Nuclear Power Station, Units 1 and 2), ALAB-678, 15 NRC 1400 (1982); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-488, 8 NRC 187 (1978); CLI-81-8, 13 NRC at 454 (46 Fed. Reg. 28,533), *supra*.

A balancing of the factors in the Commission's policy statement demonstrates clearly that dismissal was inappropriate and constituted an abuse of discretion by the Licensing Board. Attendance at the Special Prehearing Conference was an important obligation not lightly to be ignored by Decade, and Decade's failure to appear at the scheduled conference hindered the orderly conduct of the proceeding. However, the Licensing Board's analysis of the potential for harm to the other parties is questionable. The only party seriously harmed by Decade's failure to appear was Decade. The fact that there was no one representing Decade to support its contentions can hardly be considered harmful to the NRC staff or the licensee. Any potential harm from being unable to negotiate with Decade — for example, to narrow contentions — is minor at best.

With regard to the third factor, Decade's failure to appear was not a part of a pattern of misconduct. Although the Licensing Board noted one other instance in which Decade had failed to appear in an NRC proceeding, the Board concluded that Decade's nonappearance at the Special Prehearing Conference "was not a part of a pattern of disregard for this Board or the Commission." LBP-82-108, 16 NRC 1811, 1815 (1982). The Licensing Board also found Decade to be "a cooperative party that has not engaged in objectionable tactics." *Id.*

In weighing the fourth factor in the policy statement, the importance of the safety or environmental concerns raised by the party, both the Licensing Board and the Appeal Board found that there was no basis for Decade's contentions. Both Boards concluded, therefore, that there was

no safety or environmental significance to Decade's concerns and weighed that factor against Decade. However, both Boards then proceeded to ask the staff and licensee to supplement the record on issues which were in substance the same as those raised in Decade's contentions 3(a) and 3(b). Since the Boards thought the substance of contentions 3(a) and 3(b) required further inquiry, the Boards in effect supplied a basis for those contentions, and the contentions should have been admitted. Thus, the Boards acknowledged that the points raised by Decade were worth pursuing. Yet, they denied Decade the opportunity to participate because its points were not well founded. Clearly, the Boards should have weighed this factor in favor of the intervenor. Furthermore, the alternative ground cited by the Boards for dismissal — the absence of well-founded contentions — is, by the same token, insufficient.

Finally, in examining the totality of the circumstances, I believe that we must consider the conduct of the Licensing Board itself. The Board refused to hold the conference at a time which would accommodate Decade's last minute scheduling problem even though all of the other parties agreed to a scheduling change. The only apparent reason for the Board's refusal was its desire to put the conference off until the next morning when everyone would be "fresh of mind" after a good night's rest. While Decade's representative might have better explained the scheduling problem to the Board, the Board's handling of the situation and unwillingness to meet for a few hours after dinner was not a model of reasonable behavior and clearly contributed to Decade's failure to appear. Tr. 1881-83. The blame cannot, therefore, rest solely on Decade.

Under all the circumstances, dismissal of Decade was an abuse of discretion, and was clearly a departure from Commission precedent. See *Byron* and *Seabrook*, *supra*. In both the *Byron* and *Seabrook* cases, the conduct of the sanctioned parties was egregious, and much more obstructive than Decade's. Yet, they were not dismissed from the proceeding.

A further departure from precedent is the Licensing Board's *sua sponte* dismissal of Decade from the proceeding. No board has, *sua sponte*, and without notice or opportunity for argument, dismissed a party from a Commission proceeding, except in cases where the intervenor has failed to appear at several hearings or failed to file several papers so as to suggest that the intervenor had abandoned its contentions.

For the foregoing reasons, I believe that the Licensing Board and Appeal Board decisions misapplied the Commission's policy statement, incorrectly dismissed the contentions, and departed significantly from Commission precedent. The Commission should not permit these decisions to stand.



**SEPARATE VIEWS OF COMMISSIONER GILINSKY**

**I agree with the views of Commissioner Asselstine.**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

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

**In the Matter of**

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

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

**November 29, 1983**

The Commission dismisses for mootness its grant of review of ALAB-714, 17 NRC 86 (1983), and vacates ALAB-714 and all underlying Licensing Board orders and decisions ordering the staff to disclose the identities of individuals interviewed in the course of a particular investigation.

**ORDER**

This Order concludes the Commission's review of the Atomic Safety and Licensing Appeal Board's ("Appeal Board") decision in ALAB-714, 17 NRC 86 (1983). The Appeal Board's decision had left standing an Atomic Safety and Licensing Board ("Licensing Board") order (LBP-82-87, 16 NRC 1195) requiring the NRC staff to disclose the identities of individuals interviewed in the course of an investigation into the discharge of Charles A. Atchison as a Quality Control Inspector

for the Comanche Peak Steam Electric Station. On June 30, 1983 the Commission took review of ALAB-714 in view of the exceptional policy importance of informant confidentiality in the Commission's regulatory activities. CLI-83-18, 17 NRC 1037 (1983). However, the Commission deferred specifying the issues for review on the ground that they could be defined more appropriately either after the conclusion of a pending generic review of informant confidentiality issues or the occurrence of circumstances warranting different Commission action. The Commission also asked the Licensing Board to advise the Commission whether further proceedings would involve the identification of NRC staff interviewees.

On July 6, 1983, the Licensing Board informed the Commission that it would not pursue any questions concerning the identities of the people interviewed for the preparation of Staff Exhibit 199 regarding the discharge of Mr. Atchison. On the same day, the Licensing Board accorded collateral estoppel effect to a decision by the Secretary of Labor who found that Mr. Atchison had been discharged for reporting a quality assurance deficiency. LBP-83-34, 18 NRC 36 (1983). These Licensing Board actions moot the staff's appeal of ALAB-714. The circumstances leading to Mr. Atchison's discharge are no longer at issue, and the Licensing Board has no intention of inquiring into the identities of the staff's interviewees.

In view of these developments, the controversy is no longer a "live" one and the Commission has now determined to dismiss the grant of review. Moreover, because the issue raised by ALAB-714 will not be reviewed by the Commission, ALAB-714 and all Licensing Board orders and decisions ordering or authorizing the staff to disclose the identities of interviewees are vacated. See cases cited in *Tennessee Valley Authority* (Browns Ferry Nuclear Plant, Units 1, 2 and 3), CLI-82-26, 16 NRC 880, 881 (1982).

It is so ORDERED.

For the Commission

(John C. Hoyle)  
for SAMUEL J. CHILK  
Secretary of the Commission

Dated at Washington, D.C.,  
this 29th day of November 1983.



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)**

**November 15, 1983**

The Appeal Board vacates the Licensing Board's grant of a late-filed petition to intervene and remands the matter to the Licensing Board for the purpose of requiring a further showing on the extent to which intervention by the petitioner may reasonably be expected to assist in developing a sound record.

**RULES OF PRACTICE: NONTIMELY INTERVENTION  
PETITIONS**

The five factors governing the acceptance of a late-filed intervention petition are as follows:

- (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.

10 C.F.R. 2.714(a)(1).

### **RULES OF PRACTICE: NONTIMELY INTERVENTION PETITIONS (LICENSING BOARD DISCRETION)**

The licensing boards have broad discretion in determining whether to grant an untimely intervention petition. *Nuclear Fuel Services, Inc.* (West Valley Reprocessing Plant), CLI-75-4, 1 NRC 273, 275 (1975).

### **RULES OF PRACTICE: INTERVENTION PETITION (BURDEN ON APPEAL)**

One who seeks to overturn a licensing board's grant of a late petition to intervene has a substantial burden on appeal. It is not enough for that party to establish simply that the licensing board might justifiably have concluded that the totality of the circumstances bearing upon the five lateness factors tipped the scales in favor of denial of the petition. In order to decree that outcome, the appeal board must be persuaded that a reasonable mind could reach no other result.

### **RULES OF PRACTICE: RESPONSIBILITIES OF COUNSEL**

A lawyer citing legal authority to an adjudicatory board in support of a position, with knowledge of other applicable authority adverse to that position, has a clear professional obligation to inform the board of the existence of such adverse authority. See Rule 3.3(a)(3) of the ABA Model Rules of Professional Conduct (1983).

### **RULES OF PRACTICE: NONTIMELY INTERVENTION PETITIONS (RELATION TO 2.206 PETITION)**

A petition under 10 C.F.R. 2.206 is not an adequate substitute for participation in an adjudicatory proceeding concerned with the grant or denial *ab initio* of an application for an operating license.

### **RULES OF PRACTICE: NONTIMELY INTERVENTION PETITIONS**

A late petitioner for intervention should set forth in the petition, with as much particularity as possible, the precise issues it plans to cover, its

prospective witnesses and a summary of their proposed testimony. *Mississippi Power & Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725, 1730 (1982), *citing Summer*, ALAB-642, 13 NRC 881, 894 (1981), *aff'd sub nom. Fairfield United Action v. NRC*, 679 F.2d 261 (D.C. Cir. 1982); *Detroit Edison Co.* (Greenwood Energy Center, Units 2 and 3), ALAB-476, 7 NRC 759, 764 (1978).

#### **RULES OF PRACTICE: NONTIMELY INTERVENTION PETITIONS**

The question under the fifth factor of 10 C.F.R. 2.714(a) is whether, by filing late, the petitioner has occasioned a potential for delay in the completion of the proceeding that would not have been present had the filing been timely. *Cf. Long Island Lighting Co.* (Jamesport Nuclear Power Station, Units 1 and 2), ALAB-292, 2 NRC 631, 650 n.25 (1975).

#### **RULES OF PRACTICE: NONTIMELY INTERVENTION PETITIONS**

Although the ability to contribute to the development of a sound record is important in the determination of all late petitions, it assumes greater importance in cases in which the grant or denial of the petition will also decide whether there is to be any adjudicatory hearing. *See Tennessee Valley Authority* (Watts Bar Nuclear Plant, Units 1 and 2), ALAB-413, 5 NRC 1418, 1422 (1977).

#### **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

We are once again confronted with a challenge to Licensing Board action on a tardy petition for leave to intervene in a licensing proceeding. See *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-743, 18 NRC 387, 413-14 (1983) (Appendix). Here, the late petitioner is the Coalition for Safe Power (Coalition). On February 22, 1983, it sought intervention in this operating license proceeding involving the WPPSS Nuclear Project No. 3.<sup>1</sup> This was some four months after the October 15, 1982 deadline prescribed in the notice of opportunity for hearing published in the *Federal Register*.<sup>2</sup>

In an unpublished April 21, 1983 memorandum and order, the Licensing Board determined both (1) that the Coalition possessed the requisite standing to intervene; and (2) that the five factors governing the acceptance of a belated petition did not, on balance, call for the denial of intervention in this instance.<sup>3</sup> Subsequently, in an unpublished September 27, 1983 memorandum and order, the Board passed upon the Coalition's proposed contentions and admitted several of them to the proceeding.

The applicant appeals from this result under 10 C.F.R. 2.714a.<sup>4</sup> The appeal is confined to the claim that the petition should have been denied because of its untimeliness.<sup>5</sup> In response, both the Coalition and the NRC staff maintain that the Licensing Board did not abuse its discretion in granting the petition despite its lateness. Those parties thus urge affirmance.

For the reasons set forth below, we vacate the grant of the petition and remand the matter to the Licensing 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

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<sup>1</sup> Although the Coalition's petition was dated February 18, the accompanying certificate of service reflects that it was actually filed four days thereafter.

<sup>2</sup> See 47 Fed. Reg. 40,736, 40,737 (1982). No intervention petitions were filed by that deadline and none but the Coalition's has been untimely submitted.

<sup>3</sup> Those five factors, set forth in 10 C.F.R. 2.714(a)(1), are as follows:

- (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.

<sup>4</sup> The applicant is the Washington Public Power Supply System. It filed the operating license application on behalf of itself and the other co-owners of the nuclear facility.

<sup>5</sup> As above noted, the Licensing Board addressed this matter in its April 21 memorandum and order. Nonetheless, the applicant was obliged to await (as it did) the Board's September 27 ruling on the Coalition's proposed contentions before taking its appeal. See *Cincinnati Gas and Electric Co.* (William H. Zimmer Nuclear Power Station), ALAB-595, 11 NRC 860, 863-66 (1980).



assist in developing a sound record.”<sup>6</sup> Should that showing be found satisfactory by the Licensing Board, the grant of the petition is then to be reinstated.

## I.

The Commission long ago referred to the “broad discretion” conferred by Section 2.714(a) upon licensing boards in the fulfillment of their responsibility to decide whether a particular intervention petition should be rejected because of untimeliness. *Nuclear Fuel Services, Inc.* (West Valley Reprocessing Plant), CLI-75-4, 1 NRC 273, 275 (1975). Accordingly, as we recently had occasion to observe, “neither this Board nor the Commission has been readily disposed to substitute its judgment for that of the Licensing Board insofar as the outcome of the balancing of the Section 2.714(a) [lateness] factors is concerned.” *Shoreham, ALAB-743, supra*, 18 NRC at 395-96 (footnote omitted).

It follows that the applicant has a substantial burden on this appeal. It is not enough for it to establish simply that the Licensing Board might justifiably have concluded that the totality of the circumstances bearing upon the five lateness factors tipped the scales in favor of denial of the petition. In order to decree that outcome, we must be persuaded that a reasonable mind could reach no other result.

It is within this framework that we now turn to the Licensing Board’s analysis of the lateness factors and the applicant’s attack upon that analysis.

## II.

A. In its petition, the Coalition asserted that “[a] combination of reasons” explained the four-month tardiness: (1) the publication in the *Federal Register* of the notice of opportunity for hearing<sup>7</sup> had been overlooked because, at the time, the Coalition was otherwise engaged in a discrete NRC licensing proceeding; (2) the Coalition had expected that the notice would also be published in a Portland, Oregon, newspaper (but it was not); (3) the Coalition had cause to assume that one of its members (a Mr. Duree) would be informed by the NRC of both the docketing of the operating license application and the opportunity for a hearing on it (but he was not); (4) after belatedly learning of the notice

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<sup>6</sup> This is the third of the Section 2.714(a) lateness factors. See note 3, *supra*.

<sup>7</sup> See note 2, *supra*.

of opportunity for hearing, the Coalition waited another two months to file the intervention petition because news reports had indicated that the facility would be terminated "due to financial problems."<sup>8</sup>

The Licensing Board found this explanation unsatisfactory and hence determined that the first lateness factor — the existence of good cause for failure to file on time — weighed against granting the petition.<sup>9</sup> The applicant, of course, does not dispute that determination. It maintains, however, that the Licensing Board did not attach sufficient significance to the fact that the Coalition "intentionally" had delayed filing the petition for another two months after the notice of opportunity for hearing came to its attention.<sup>10</sup> Additionally, it complains<sup>11</sup> of the Licensing Board's observation that, although the absence of "good cause for the late filing \* \* \* placed a heavier burden on [the] Coalition with respect to the other factors," the "fact that the lateness in making the filing is measured in months rather than years reduced the level of the burden [the Coalition] had to meet."<sup>12</sup>

We disagree with the applicant on both counts. True enough, the Coalition should have filed the intervention petition promptly upon its discovery that the deadline established in the *Federal Register* notice had already arrived. But the applicant's repeated characterization of the failure to have done so as "willful"<sup>13</sup> cannot serve to obscure the fact that an honest error of judgment is all that reasonably can be laid at the Coalition's doorstep. As the applicant can scarcely dispute, even today the future progress of this project is far from certain.<sup>14</sup> Although the Coalition inappropriately relied upon erroneous news reports of impending project termination (at the very least it should have sought verification of the accuracy of those reports), there is nothing before us to suggest that the reliance was in the teeth of contrary information and, thus, in bad faith. In the circumstances, we see no reason why the Coalition's mistake should have enhanced its burden on the other lateness factors.<sup>15</sup>

Similarly, we find no fault with the significance attached by the Licensing Board to the extent of the Coalition's tardiness. Manifestly, as the

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<sup>8</sup> Intervention petition at 5-6.

<sup>9</sup> April 21 memorandum and order at 10. In this connection, the Licensing Board pointed out, *inter alia*, that the notice of opportunity for hearing had been published not only in the *Federal Register* but, as well, in three newspapers in the State of Washington (where the facility is located). The Board further noted that one of those newspapers is published in the very community where Mr. Duree resides.

<sup>10</sup> Applicant's Br. (Oct. 12, 1983) at 7-9.

<sup>11</sup> *Id.* at 9-10.

<sup>12</sup> April 21 memorandum and order at 16.

<sup>13</sup> Applicant's Br. at 9, 12, 13, 14.

<sup>14</sup> We discuss this matter further in a later portion of this opinion, pp. 1178-79, *infra*.

<sup>15</sup> Nor do we believe that the Coalition's prior involvement in NRC licensing proceedings (including those pertinent to this applicant's facilities) increases the gravity of the judgmental error. We therefore reject the applicant's insistence (Br. at 10-12) to the contrary.

Licensing Board itself recognized, even a four-month *unjustified* delay in seeking intervention is not to be ignored. See *Shoreham*, ALAB-743, *supra*, 18 NRC at 398-99. But it does not follow that, for the purpose of determining how compelling a showing must be made on the other Section 2.714(a) factors, a delay of that length must be equated with one extending over a period of years. In the final analysis, as *Shoreham* also explains, whether measured in months or years the true importance of the tardiness will generally hinge upon the posture of the proceeding at the time the petition surfaces. This is assuredly the case here.<sup>16</sup>

The short of the matter is that we concur fully in the Licensing Board's treatment of the first (good cause) lateness factor. In common with that Board, we conclude that the petition was inexcusably late and that that consideration increased (but not exceptionally so) the showing that the Coalition was required to make on the other factors.<sup>17</sup>

B. We consider the second and fourth lateness factors together. The Licensing Board found both of these factors to weigh in favor of a grant of the petition. The applicant maintains, however, that each points in the other direction.

Because the Coalition is the only petitioner for intervention in this proceeding, should its petition be denied there will be no adjudicatory consideration of the operating license application.<sup>18</sup> Thus, there would not appear to be any "existing" party to whom the Coalition might look for representation of its interest (the fourth factor). Nor is it immediately obvious what other means for the protection of its interest might be available to the Coalition (the second factor).

We are told by the applicant, however, that it was the Coalition's burden to demonstrate that the NRC staff cannot (or will not) represent its interest and that that burden was not met.<sup>19</sup> In this connection, our at-

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<sup>16</sup> See pp. 1178-80, *infra*.

<sup>17</sup> One additional observation is in order. A certain amount of hyperbole is, of course, an inevitable ingredient of advocacy. But when carried to an extreme, it does not assist the advocate's case; if anything, it deserves it. In this instance, we found most unhelpful a number of patent extravagancies in the applicant's argument on the first factor. For example, there is absolutely no basis in the record for the claim that the Coalition's "conduct reflects an attitude of total disregard for NRC practice and procedure." Applicant's Br. at 13. Nor was it fair commentary to suggest that, "simply because" the Coalition was only four months late, the Licensing Board "minimized" its burden on the other four factors and "sent a clear message to anyone contemplating intervention before the NRC that the failure to file a timely intervention petition carries with it virtually no penalty." *Id.* at 13, 14. As is clear from its April 21 memorandum and order read as a whole, the Board did neither.

<sup>18</sup> It is only in the construction permit proceeding that an adjudicatory hearing is held in the absence of any intervenors. See Section 189 of the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2239.

<sup>19</sup> Applicant's Br. at 34-36. Any such representation necessarily would have to be undertaken in the course of the staff's review of the operating license application, a review mandated irrespective of whether there is an adjudicatory hearing on the application. *South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), ALAB-642, 13 NRC 881, 895 (1981), *aff'd sub nom. Fairfield United Action v. NRC*, 679 F.2d 261 (D.C. Cir. 1982).

attention is directed to the Licensing Board's decision in *Consolidated Edison Co. of New York* (Indian Point, Unit No. 2), LBP-82-1, 15 NRC 37, 41 (1982). Further, according to the applicant, the Licensing Board erred in concluding that the Coalition could not adequately protect its interest through a request under 10 C.F.R. 2.206 that the Director of Nuclear Reactor Regulation institute a show cause proceeding.<sup>20</sup> In this regard, the applicant points to *Washington Public Power Supply System* (WPPSS Nuclear Project Nos. 1 & 2), CLI-82-29, 16 NRC 1221, 1228-29 (1982) and *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-707, 16 NRC 1760, 1766-69 (1982).

1. In placing heavy reliance on *Indian Point*, LBP-82-1, *supra*, for the proposition that, absent a showing to the contrary, it is to be presumed that the staff will adequately represent the Coalition's interest, the applicant failed to refer to four other Licensing Board decisions cutting against its position. See *Cincinnati Gas and Electric Co.* (William H. Zimmer Nuclear Station), LBP-79-22, 10 NRC 213, 215 (1979); *Florida Power and Light Co.* (Turkey Point Nuclear Generating Station, Units 3 and 4), LBP-79-21, 10 NRC 183, 194-95 (1979); *Wisconsin Public Service Corp.* (Kewaunee Nuclear Power Plant), LBP-78-24, 8 NRC 78, 84 (1978); *South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), LBP-78-6, 7 NRC 209, 213 (1978). In each of those cases, the Licensing Board granted either a tardy intervention petition or late-filed contentions in circumstances where a different outcome would have precluded any hearing on the issues sought to be raised. In the course of reaching that result, each Board explicitly determined that, because it was not to be assumed that the petitioner's interest would be adequately represented by the staff, the fourth factor favored the grant of intervention.<sup>21</sup>

In three of those cases, the staff explicitly declined to endorse the notion that its ability to represent adequately a private party's interest can be presumed.<sup>22</sup> But that does not affect their pertinence here. Before

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<sup>20</sup> Applicant's Br. at 15-18.

<sup>21</sup> If aware of these decisions, applicant's counsel had a clear professional obligation to inform us of their existence. See Rule 3.3(a)(3) of the ABA Model Rules of Professional Conduct (1983), replacing ABA Model Code of Professional Responsibility, EC 7-23, DR 7-106(B)(1) (1982). We will therefore assume that the decisions somehow escaped their attention. But, inasmuch as counsel seemingly encountered little difficulty in locating the decision in *Indian Point* (in which proceeding their firm was not involved), it is difficult to understand why a reasonable research effort would not likewise have uncovered the other four decisions on the particular point.

<sup>22</sup> In *Turkey Point*, the staff "noted that [the petitioner] failed to explain why his interest, as well as that of the general public, will not be effectively served by the NRC, which has the statutory responsibility for ensuring the public health and safety and protection of the environment. Nevertheless, [the staff] recognized that there is room for the advancement of individualized interests in these proceedings, and concluded that the fourth factor weighs in favor of [p]etitioner." 10 NRC at 194.

(Continued)

the Board below, the staff acknowledged that "there may not be any other \* \* \* party \* \* \* which might afford protection to [the Coalition's] interest."<sup>23</sup> Before us, the staff was even more direct on the matter: "It is not at all clear that the [s]taff can represent the private interests of the Coalition."<sup>24</sup>

If the staff is not prepared to say that it will represent the particular interest of the Coalition (as opposed to the general public interest), we see no reason why the Licensing Board should have assumed such representation. It need be added only that, had the staff remained silent on the subject, our assessment on the fourth factor would have been no different. The annals of NRC adjudications reflect that the position taken by staff on a specific safety or environmental issue (in the fulfillment of its role as the protector of the general public interest) often is at odds with the views espoused by an intervenor seeking to vindicate either its personal interest or its independent perception respecting where the public interest lies. Indeed, it was doubtless in recognition of the potential for such divergence that the Congress elected to provide hearing rights to private citizens and organizations in Section 189 of the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2239.<sup>25</sup>

2. We are similarly unconvinced that the Section 2.206 remedy is an adequate substitute for participation in an adjudicatory proceeding concerned with the grant or denial *ab initio* of an application for an operating

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<sup>23</sup> In *Kewaunee*, the Licensing Board took note of the applicant's argument that the "petitioners have produced no factual basis to support the conclusion that their interests are not adequately represented by" the staff. The Board went on to observe that the staff had stated that the Board "should not assume that it will represent the petitioners' concerns." 8 NRC at 84.

In *Summer*, the applicant argued that the representation factor weighed against grant of the late petition because the staff "always has the obligation of protecting the public health and safety whether a hearing is held or not." In response, the Board pointed out that the staff had conceded that the factor weighed in the petitioner's favor "presumably with full knowledge that [p]etitioner's individualized interests may better be advanced by him." 7 NRC at 213.

<sup>23</sup> Staff Response to Untimely Petition to Intervene filed by the Coalition for Safe Power (Mar. 14, 1983), at 13.

<sup>24</sup> Staff Br. (Oct. 27, 1983) at 19 n.68.

<sup>25</sup> The fourth factor could be read, of course, as referring to the representation of the petitioner's interest by existing parties to an adjudicatory proceeding. So read, the fourth factor would always be in the petitioner's favor in circumstances where, as here, the denial of its petition would leave no proceeding and thus no parties to it.

As the applicant correctly notes, the same is likely true if, although qualifying as an "existing party" despite the lack of an adjudicatory proceeding, the staff nonetheless is not regarded as a representative of the interest of the petitioner. All this means, however, is that, in cases where there are no other intervenors, the fourth factor may always favor a grant of a late intervention petition. That consideration does not disturb us inasmuch as it is compelled by the terms of the regulation. Moreover, if the applicant's thesis were accepted, the probable result would be that in *all* cases the fourth factor would weigh in favor of denial of the petition. This is because it would be virtually impossible for a late petitioner to ascertain, in advance of filing its petition, precisely what conclusions the staff review will reach on any particular safety or environmental issue. Without such knowledge, the petitioner could scarcely fulfill the burden (that the applicant would impose upon it) of establishing affirmatively that the staff review will not adequately represent it on those issues affecting its interest.

license. Among other things, all that Section 2.206 allows is a request of the Director of Nuclear Reactor Regulation that he institute a show cause proceeding looking to the possible modification, suspension or revocation of a license or the taking of "such other action as may be proper." If the request is denied, the Commission may on its own motion review the Director's decision to determine if he abused his discretion. The requester may not, however, file a petition or other request for review. 10 C.F.R. 2.206(c).

On the face of it, this procedure can hardly be equated with the ability to litigate issues in an adjudicatory setting, accompanied by a right of appeal to this Board and an entitlement to petition for Commission review if dissatisfied with the appellate result. And neither the Commission's decision in *WPPSS 1 & 2*, CLI-82-29, *supra*, nor our decision in *Fermi*, ALAB-707, *supra*, suggests otherwise.

In *WPPSS 1 & 2*, the Commission was not faced with a late intervention petition and thus was not called upon to consider the Section 2.714(a) factors. Instead, the issue at hand was the proper scope of a proceeding on an application for the extension of a construction permit. The Commission's discussion of the Section 2.206 procedure was in the context of determining the remedy available to one who desires to put its health, safety and environmental concerns before the agency in advance of the commencement of the operating license proceeding.

For its part, *Fermi* did involve a late intervention petition (filed by a Michigan county). But we did not there hold that the availability of the Section 2.206 remedy meant that the second factor disfavored intervention. To the contrary, we explicitly found in the County's favor "the lack of availability of other means to protect its interest (factor two) — the fact that absent admission to this licensing proceeding it is not assured of an adjudicatory hearing on the claims it seeks to raise." 16 NRC at 1767 (footnote omitted). Nonetheless, because on balance other factors "point[ed] decisively against the grant of the County's petition," we concluded that the Licensing Board denial of it "was plainly not an abuse of discretion." *Ibid*. This left the question as to what was to be done with the "potentially significant issues" that had been raised by the County. Our answer was a referral of the petition to the Director of Nuclear Reactor Regulation with the request that he treat it as a Section 2.206 petition. *Id.* at 1767-69. In short, the availability of the Section 2.206 remedy was not invoked by us in connection with our appraisal of the second lateness factor but, rather, only following a determination that, all five factors considered, the Licensing Board had not erred in

declining to allow the County to intervene belatedly in the adjudicatory proceeding.<sup>26</sup>

C. The Licensing Board found that the Coalition had made a "sufficient" (albeit not the "strongest" possible) showing that "its participation may reasonably be expected to assist in developing a sound record" and that therefore the third lateness factor weighs in its favor.<sup>27</sup> We agree with the applicant that this finding is of very dubious validity. The Board was told simply that:

The Coalition has previously participated in several NRC proceedings: presenting witnesses in the Trojan Spent Fuel Pool Licensing Amendment case and conducting extensive cross examination in the Trojan Control Building Licensing Amendment which led to additional technical specifications to be imposed by the Staff. The Coalition has, at present, a former WPPSS quality assurance worker who has agreed to participate in this proceeding. The Coalition is also in the process of working with other intervenors in the region to identify other expert witnesses in the areas of radiation, health physics, geology, seismology, hydrology, engineering, fisheries and nuclear safety.<sup>28</sup>

Under our prior decisions, this was manifestly inadequate.<sup>29</sup>

Almost a year ago, we observed that, because of the importance of the third factor, "[w]hen a petitioner addresses this criterion it should set out with as much particularity as possible the precise issues it plans to cover, identify its prospective witnesses, and summarize their proposed testimony." *Mississippi Power & Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-704, 16 NRC 1725, 1730 (1982), citing *Summer*, ALAB-642, *supra*, 13 NRC at 894; *Detroit Edison Co.* (Greenwood Energy Center, Units 2 and 3), ALAB-476, 7 NRC 759, 764 (1978). In our very recent opinion in *Shoreham*, ALAB-743, *supra*, we took note of that observation in the course of ruling that the tardy petitioner there (an organization) had failed to sustain its burden on the factor. 18 NRC at 399-400.

*Shoreham* also addressed the significance of the fact that some of the petitioner's members had participated many years earlier in the construc-

<sup>26</sup> Needless to say, if the availability of the Section 2.206 remedy had the significance attributed to it by the applicant here, the second factor would lose all possible meaning. Under the applicant's theory, that remedy is at the disposal of every late petitioner.

<sup>27</sup> April 21 memorandum and order at 12-14.

<sup>28</sup> Intervention petition at 7-8.

<sup>29</sup> In its appellate brief (at 7-8), the Coalition endeavors to expand upon what was put before the Licensing Board. Because, however, appeals must be considered and decided on the basis of the Licensing Board record, we normally do not consider assertions of fact not presented below. See *Puerto Rico Electric Power Authority* (North Coast Nuclear Plant, Unit 1), ALAB-648, 14 NRC 34, 36 (1981). For this reason, we have not passed upon the Coalition's new representations but leave them for Licensing Board evaluation (should they be reasserted before that Board on the remand).

tion permit proceeding for the same facility. We concluded that little weight should attach to that consideration because (1) there was nothing before us that would permit the conclusion that the participation in the construction permit proceeding made a substantial contribution to the development of the record; and (2) the issues that the petitioner proposed to litigate in the operating license proceeding bore no resemblance to any issue that might have confronted the Licensing Board in the construction permit proceeding. *Id.* at 400-01.

We need not undertake to examine the now closed records in the two *Trojan* licensing proceedings cited by the Coalition. Even were such an examination to reflect that the Coalition made a significant contribution to the development of those records, the question would remain whether a similar contribution is likely in this case. In common with the *Shoreham* petitioner, the Coalition has not claimed, let alone demonstrated, that the issues it proposes to litigate here bear any relationship to those presented in the *Trojan* cases.<sup>30</sup> Absent such a demonstration, it was incumbent upon the Coalition to explain why an inference favorable to it on the third factor nevertheless could be drawn from the fact of past involvement in our proceedings. This, too, was not attempted below.

D. Moving on to the fifth lateness factor, we find ourselves in agreement with the Licensing Board's conclusion that it weighs against the Coalition but not significantly so.<sup>31</sup> Obviously, a grant of intervention will broaden the issues because, to repeat, there would be no hearing at all if the petition were denied. It is not equally apparent, however, that, had the petition been filed by the October 15, 1982 deadline, the Coalition's issues would or could have been heard and decided more expeditiously than is now possible. On the contrary, the facts before us strongly suggest that the lateness of the petition has not *of itself* delayed the progress of the proceeding.

On this score, applicant's counsel advised the Licensing Board by July 12, 1983 letter of "an immediate construction delay of WNP-3 until an assured source of funding for continued construction can be obtained." Attached to that communication was an undated confirmatory letter sent by an official of the applicant to the Director of Nuclear Reactor Regulation. The Director was advised that the applicant would "attempt to preserve [construction] capability for a reasonably efficient restart during the next 3 to 9 months by retaining the key class 1 contractors"

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<sup>30</sup> That no such relationship can be assumed is clear from the nature of the questions posed and decided in the two *Trojan* proceedings. See *Portland General Electric Co. (Trojan Nuclear Plant)*, ALAB-524, 9 NRC 65, and ALAB-534, 9 NRC 287 (1979) (control building); *id.*, ALAB-531, 9 NRC 263 (1979) (spent fuel pool capacity expansion).

<sup>31</sup> April 21 memorandum and order at 16.



and that it would "continue to seek to remove the impediments preventing further financing of WNP-3 in order to resume project construction activities."

Approximately one month later, at the special prehearing conference convened to consider the Coalition's proposed contentions, applicant's counsel provided the Licensing Board with a further oral report on the status of construction. According to counsel:

On July 8th a one-year wind-down construction was commenced. The project is in the process, in the early process of coming down from construction. The projected outside limits of the construction deferral is three years. The Supply System is hopeful and optimistic that a financial plan can be organized in the near future such that the delay period will be much shorter than three years. The plant is 75 percent complete, they were constructing at a rate of two percent a month when they stopped construction. The Supply System's intention is to restart construction at the earliest possible time, and to complete the project at the earliest possible time.<sup>32</sup>

Given these developments, it should come as no surprise that the staff seemingly is attaching a low degree of priority to the safety and environmental review of the operating license application for this facility. In that connection we take official notice of the content of the September 1983 Regulatory Licensing Status Summary Report (NUREG-0580, Vol. 12, No. 9). It appears at page 2-31 of that document that, as of September 30, 1983, the contemplated dates of issuance of the staff's final environmental statement and safety evaluation report were April 6 and August 9, 1984, respectively.

It follows that, even if the Coalition had filed its petition on time, it is doubtful at best that the adjudicatory hearing would have commenced any earlier than the latter part of 1984. In any event, it is a virtual certainty that the final curtain would not — indeed could not — have fallen on the proceeding in advance of the public availability of the safety evaluation report.

All in all, the situation at bar does not differ materially from that in *Greenwood*, ALAB-476, *supra*. That decision involved an intervention petition that had been filed in a construction permit proceeding more than two and one-half years after the prescribed deadline. Notwithstanding the extreme — and unjustified — tardiness, we held that the delay factor did not loom large. This was because the applicant had suspended "the engineering and licensing effort" in connection with the project in light of a then inability to finance construction. 7 NRC at 762.

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<sup>32</sup> Tr. 56-57.

To be sure, in view of that action, the *Greenwood* applicant had acquiesced in a suspension of the licensing proceeding. But that consideration does not provide a crucial distinction. It matters not whether the consequence of an applicant's cessation of work on a nuclear project is an agreed upon, and indefinite, formal halt to the proceeding (as in *Greenwood*) or, instead, simply a more leisurely staff pre-hearing review process (as here). In either circumstance, the pivotal question is whether an additional consequence of the cessation of work on the project is that the late petition is not apt to be a contributor to delay in the progress and completion of a hearing on the license application. In this case, as in *Greenwood*, that question requires an affirmative answer.

Finally, the applicant stresses that, if the Coalition were denied intervention, the adjudicatory proceeding would now be at an end. (Br. at 37.) We regard that happenstance to be irrelevant. For purposes of the fifth factor, the question is whether, by filing late, the Coalition has occasioned a potential for delay in the completion of the proceeding *that would not have been present had the filing been timely*. Cf. *Long Island Lighting Co.* (Jamesport Nuclear Power Station, Units 1 and 2), ALAB-292, 2 NRC 631, 650 n.25 (1975).<sup>33</sup>

### III.

In sum, we concur in the Licensing Board's appraisal of four of the five lateness factors. In most instances, such a broad area of agreement would lead to an affirmance of the result below — particularly given the prevailing "abuse of discretion" appellate review standard. Here, however, we have concluded that a different course is warranted.

As seen, our disagreement with the Licensing Board pertains to the sufficiency of the Coalition's showing on the third factor — its ability to contribute to the development of a sound record. Although that factor is important in the determination of all late petitions, we think it assumes yet greater importance in cases, such as that at bar, in which the grant or denial of the petition will also decide whether there is to be any adjudicatory hearing. See *Tennessee Valley Authority* (Watts Bar Nuclear Plant, Units 1 and 2), ALAB-413, 5 NRC 1418, 1422 (1977). Stated

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<sup>33</sup> In this connection, there is no merit to the applicant's reliance upon *Grand Gulf*, ALAB-704, *supra*. There, the intervention petition had been filed almost four years late and more than a month after the issuance of a low power operating license for the Grand Gulf facility. It was in this context that we stated that "it is manifest to us that the grant of an intervention petition *at this very late hour, after the Director of Nuclear Reactor Regulation has issued a low power operating license in an uncontested proceeding, will perforce broaden the now non-existent adjudicatory issues and delay conclusion of the proceeding.*" 16 NRC at 1730 (emphasis supplied). As just seen, the situation in the case at bar is markedly different.

otherwise, there appears to us to be no reason to allow an inexcusably belated intervention petition to trigger a hearing unless there is cause to believe that the petitioner not only proposes to raise at least one substantial safety or environmental issue but, as well, is equipped to make a worthwhile contribution on it.

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.<sup>34</sup> 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. In either event, any further appeal to us must rest on a clear demonstration of an unmistakable abuse of discretion on the Licensing Board's part.

In exercising its discretion, the Licensing Board will, of course, apply the guidance provided in *Grand Gulf*, ALAB-704, *supra*; *Shoreham*, ALAB-743, *supra*; and this opinion. To the extent that the Coalition continues to rely on its participation in other NRC licensing proceedings, the Board should wish to satisfy itself that enough information has been provided to enable the drawing of an informed inference that the Coalition can and will make a valuable contribution in this proceeding. Insofar as the discharge of its *Grand Gulf* obligation is concerned (*see* p. 1177, *supra*), the Coalition should both (1) identify specifically at least one witness it intends to present; and (2) 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.

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The Licensing Board's April 21, 1983 memorandum and order is *vacated* insofar as it addressed the third Section 2.714(a) factor and ultimately concluded that the Coalition's intervention petition should not

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<sup>34</sup> A similar opportunity was not provided to the late petitioner in *Shoreham*. But the circumstances of that case were entirely different. We need not now catalog the differences because (although not recorded in ALAB-743) the *Shoreham* petitioner's counsel expressly stated at oral argument that her client was prepared to rest on the third factor showing that had been made to the Licensing Board and did not wish an opportunity to bolster that showing were we to hold (as we later did) that it was insufficient.

be denied because of its untimeliness. The cause is *remanded* for further proceedings consistent with this opinion.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

**Opinion of Mr. Edles, concurring:**

I join in the Board's opinion but offer two brief observations. First, I agree that on remand the Coalition should provide sufficient detail respecting any affirmative case it plans to present. This will permit the Licensing Board to make a reasoned decision as to the likely value of the petitioner's participation. But I do not read our opinion as imposing an absolute requirement that every late intervenor must put forth an affirmative case.

Our cases clearly recognize that cross-examination can be an especially valuable tool in the development of a full record and that an intervenor may even establish its entire case through its use. *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1096 n.30 (1983). And we have at least suggested that the ability to cross-examine effectively is a relevant consideration when considering a petition to intervene late. *See Summer*, ALAB-642, *supra*, 13 NRC at 892-93.<sup>1</sup> Despite the general language in our *Grand Gulf* opinion and the majority opinion in *Shoreham* about the need to identify witnesses and summarize their proposed testimony, we were not called upon in either of these cases (or in this case) to consider an argument regarding the role of cross-examination as an element of the factor three evaluation.<sup>2</sup> Although I suspect it will be easier to satisfy a licensing

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<sup>1</sup> In the *Summer* case, the prospective intervenor fell short of demonstrating that it could contribute to the record sufficiently, whether by way of witnesses or in combination with an ability to cross-examine.

<sup>2</sup> In the *Shoreham* case, the petitioner did not seriously argue that its ability to cross-examine was critical to its presentation. Although I noted in my dissenting opinion that the ability to ask questions on cross-examination was a matter to be evaluated in determining whether the petitioner could make a useful contribution to the record (*see* 18 NRC at 407), the majority plainly (and quite reasonably, given the petitioner's presentation) focused on the petitioner's ability to contribute to the record through the presentation of testimony and the introduction of affirmative evidence (*id.* at 399-402).

board where a late intervenor plans to put forth an affirmative case (the Coalition, for example, has already indicated its intention to present at least one witness), we do not rule out the possibility that some future late intervenor may be able to prevail on factor three by reliance on cross-examination, either alone or in combination with an affirmative presentation.

Second, I agree that a petitioner's track record in other proceedings may be considered in evaluating whether it is likely to contribute effectively in a later case. I also agree that, in this case, the Coalition has thus far failed to make a satisfactory connection between its past participation and the likelihood that it will participate constructively in this proceeding. But our opinion today should not be read as foreclosing reliance on a track record where the issues on which a petitioner participated successfully in the past have no resemblance to the issues to be confronted in the new case.

Obviously a demonstration of ability to participate constructively will be easier where the issues are identical or, at least, similar. Such demonstration of similarity of the issues may even be required in some factual settings. There may be cases, however, in which a prospective participant possesses generalized knowledge on scientific and environmental issues and asks us to consider its participation on other issues in other cases as an illustration of its ability to marshal its resources, recruit any expertise it may need, and participate effectively on matters of interest to it.

A balancing of the five factors is, in the final analysis, a highly judgmental appraisal in which the adequacy of a presentation on any of the factors will depend on the specific facts of each case. We are not attempting to circumscribe in advance the Licensing Board's ability to rely on *any* information that could genuinely assist in that appraisal.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

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

**In the Matter of**

**Docket Nos. 50-443-OL**  
**50-444-OL**

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

**November 16, 1983**

The Appeal Board affirms an order by a Licensing Board judge denying a party's motion for recusal of the judge for bias or the appearance of partiality.

**RULES OF PRACTICE: MOTION FOR RECUSAL (OR  
DISQUALIFICATION)**

A motion seeking recusal of a member of the Commission or one of its adjudicatory boards is to be determined by the individual rather than by the Commission or the full board. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-80-6, 11 NRC 411 (1980); *Houston Lighting & Power Co.* (South Texas Project, Units 1 and 2), ALAB-672, 15 NRC 677, 683 (1982), *rev'd on other grounds*, CLI-82-9, 15 NRC 1363 (1982).

## **RULES OF PRACTICE: MOTION FOR RECUSAL (OR DISQUALIFICATION)**

Disqualifying bias or prejudice in administrative proceedings, as in the federal courts, must generally be extrajudicial. *Houston Lighting and Power Co.* (South Texas Project, Units 1 & 2), CLI-82-9, *supra*, at 1365.

## **RULES OF PRACTICE: MOTION FOR RECUSAL (OR DISQUALIFICATION)**

There may be an exception to the general rule that disqualifying bias must be extrajudicial where judicial conduct demonstrates “pervasive bias and prejudice.” Pervasive bias and prejudice, however, involves more than “stares, glares and scowls” or “occasional outbursts toward counsel during a long trial” or intemperate and impatient remarks by the judge. *Id.* at 1366.

## **RULES OF PRACTICE: MOTION FOR RECUSAL (OR DISQUALIFICATION)**

A disqualification or recusal motion must also be based on an invasion of the movant’s own rights. One cannot seek the disqualification or recusal of a judge to protect the interests of another party. *Puget Sound Power and Light Co.* (Skagit Nuclear Power Project, Units 1 and 2), ALAB-556, 10 NRC 30, 32-33 (1979). A party requesting disqualification or recusal may attempt to establish by reference to a judge’s overall conduct that a pervasive climate of prejudice exists in which a fair hearing cannot be obtained by the movant.

## **APPEARANCES**

**Robert A. Backus**, Manchester, New Hampshire, for the intervenor, Seacoast Anti-Pollution League.

**Thomas G. Dignan, Jr.**, and **R.K. Gad III**, Boston, Massachusetts, for the applicants, Public Service Company of New Hampshire, *et al.*

**Roy P. Lessy** and **William F. Patterson, Jr.**, for the Nuclear Regulatory Commission staff.

## MEMORANDUM AND ORDER

On October 7, 1983, intervenor Seacoast Anti-Pollution League (SAPL) filed a motion under 10 C.F.R. § 2.704(c) calling upon Administrative Judge Helen F. Hoyt to recuse herself from serving as Chairman of the Licensing Board in this operating license proceeding.<sup>1</sup> At the same time, SAPL asked the Licensing Board to stay further proceedings pending review and appellate disposition of the recusal motion. The gist of SAPL's allegations is that the Licensing Board Chairman, through a series of actions and remarks, has demonstrated hostility toward SAPL and the other intervenors. SAPL maintains that such hostility is a manifestation of bias. SAPL further contends that Judge Hoyt's conduct establishes the appearance of partiality, independently warranting her recusal.

The applicants and the NRC staff filed answers to SAPL's motion. They claim, to begin with, that recusal or disqualification is not justified under Commission precedent because the allegations of bias stem entirely from the judge's conduct during the course of the proceedings rather than from an extrajudicial source. They contend, moreover, that Judge Hoyt's conduct in the context of a hotly contested proceeding represents essentially a need to assert administrative authority over the proceedings. The applicants assert, in this regard, that Judge Hoyt's actions were proper and fully consistent with the need to maintain order and preserve the dignity of the proceeding while the staff claims that the Board's actions followed the management techniques specified by the Commission in its *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (1981).

On October 21, 1983, the Licensing Board denied SAPL's request to stay further proceedings. On November 2, 1983, Judge Hoyt issued an order denying SAPL's motion that she step down. As mandated by 10 C.F.R. § 2.704(c), Judge Hoyt referred the motion to us for review. Consistent with our standard practice in matters of this kind, we embarked

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<sup>1</sup> SAPL properly directed its motion to Judge Hoyt rather than the Licensing Board. A motion seeking recusal of a member of the Commission or one of its adjudicatory boards is to be determined by the individual rather than by the Commission or the full board. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-80-6, 11 NRC 411 (1980); *Houston Lighting & Power Co.* (South Texas Project, Units 1 and 2), ALAB-672, 15 NRC 677, 683 (1982), *rev'd on other grounds*, CLI-82-9, 15 NRC 1363 (1982). A copy of Judge Hoyt's decision is attached as an appendix to this opinion.



immediately upon a review of the documents filed below. After reviewing those documents, we affirm Judge Hoyt's decision.<sup>2</sup>

## General Principles

The Commission recently had occasion to examine the standard to be applied in our proceedings when the disqualification or recusal of a presiding judge is requested. In *Houston Lighting and Power Co.* (South Texas Project, Units 1 & 2), CLI-82-9, 15 NRC 1363, 1365 (1982), the Commission stated:

In the federal courts, disqualifying bias or prejudice of a trial judge must generally be extra-judicial. As the Supreme Court has held, "the alleged bias and prejudice to be disqualifying must stem from an extrajudicial source and result in an opinion on the merits on some basis other than what the judge has learned from his participation in the case." . . . The same standard applies to presiding officers in administrative proceedings. . . . Indeed, the Commission has expressly adopted this rule, holding that "Preliminary assessments, made on the record, during the course of an adjudicatory proceeding — based solely upon application of the decision-maker's judgment to material properly before him in the proceeding — do not compel disqualification as a matter of law . . ." [citations omitted].

The Commission nonetheless suggested that there may be an exception to this general rule where judicial conduct demonstrates "pervasive bias and prejudice." *Id.* at 1366. To constitute such pervasive bias and prejudice, however, a judge's conduct must be more than "stares, glares and scowls" or "occasional outbursts toward counsel during a long trial." *Id.* See also *Hamm v. Members of Board of Regents of State of Florida*, 708 F.2d 647, 651 (11th Cir. 1983) (friction between the court and counsel, including intemperate and impatient remarks by the judge in a proceeding of short duration, does not constitute pervasive bias), *reh'g denied*, 715 F.2d 580 (11th Cir. 1983).

A disqualification or recusal motion must also be based on an invasion of the movant's own rights. One cannot seek the disqualification or recusal of a judge to protect the interests of another party. *Puget Sound Power and Light Co.* (Skagit Nuclear Power Project, Units 1 and 2), ALAB-556, 10 NRC 30, 32-33 (1979). A party requesting disqualification or recusal, however, may attempt to establish by reference to a judge's overall conduct that a pervasive climate of prejudice exists in which a fair hearing cannot be obtained by the movant. Similarly, it may

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<sup>2</sup> On October 28, 1983, intervenor Attorney General Francis X. Bellotti of the Commonwealth of Massachusetts also filed a motion for disqualification and recusal that was received by Judge Hoyt on October 31. Judge Hoyt's decision notes that she intends to rule separately on that motion, and we shall review her decision separately as well.

attempt to demonstrate a pattern of bias toward a class of participants of which it is a member (*e.g.*, all intervenors).

### The Instant Case

SAPL does not assert that any of the underlying allegations of bias emanate from extrajudicial sources. All of the examples of alleged hostility to SAPL and other intervenors involve rulings, conduct or remarks by the Licensing Board Chairman in response to matters that arose during the administrative proceedings in this case. This being so, we must agree with Judge Hoyt and the opposing parties that no basis for disqualification has been established under the general rule applied in Commission proceedings.<sup>3</sup> Indeed, SAPL concedes as much when it suggests that the Commission's *South Texas* decision is erroneous, that the Commission should now abandon its precedent and "adopt a higher standard of judicial conduct than those required by the courts," and that it wishes to preserve this issue for appeal.<sup>4</sup> As SAPL recognizes, any change in the governing standard for recusal or disqualification rests with the Commission, not this board.

SAPL claims, nonetheless, that the instant proceeding "is indeed an extreme case, where the evidence of bias and hostility is not occasional, but common and persistent."<sup>5</sup> Presumably, therefore, SAPL believes that disqualification or recusal is required under the exception to the general rule referred to by the Commission in its *South Texas* opinion. We disagree.

We have carefully canvassed the materials submitted by SAPL in connection with its motion. (No useful purpose would be served, however, by reciting the various events that make up the allegations of bias.) We are additionally familiar with the context of the litigation by virtue of our earlier rulings on requests by SAPL and other intervenors for directed certification of various Licensing Board rulings. See ALAB-731, 17 NRC 1073 (1983); ALAB-734, 18 NRC 11 (1983); and ALAB-737, 18 NRC 168 (1983) (two motions). The record plainly reveals a series of disputes between the intervenors and the Licensing Board Chairman, carried on at times in a framework of confrontation rather than deliberative discussion, and punctuated by sarcasm and angry words. It is clear

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<sup>3</sup> In reaching her decision, Judge Hoyt did not attempt to separate SAPL's charges of bias toward it from that directed toward other parties. We follow the same approach. In our view, SAPL has included allegations of bias toward other intervenors in an effort to portray a climate of hostility rather than to speak on behalf of other parties.

<sup>4</sup> SAPL's Motion for Disqualification of Judge Hoyt (Oct. 7, 1983) at 2, 8.

<sup>5</sup> *Id.* at 2.

that this proceeding is one in which the tension level is high. But we cannot conclude on the basis of the information before us that any of the events discussed by SAPL, independently or collectively, rise to the level of demonstrating a preconceived opinion on the merits or a showing of pervasive bias or prejudice by the Licensing Board Chairman.

The November 2, 1983 order of Judge Hoyt is *affirmed*.

It is so ORDERED.

#### FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

#### Opinion of Mr. Rosenthal, concurring:

I join fully in the foregoing opinion. Given the Commission's *South Texas* decision, there is scant room for doubt that none of the averments in the SAPL motion provides a legally sufficient basis for requiring Judge Hoyt to step aside. Nonetheless, I cannot leave the motion without expressing my concern respecting the setting in which it was presented to us.

This proceeding involves significant health and safety issues having undeniable implications in terms of not merely the individual interests of the applicants and intervenors, but the broader public interest as well. As thus scarcely necessitates elaboration, from beginning to end the proceeding should have as its focus the development of a full evidentiary record on those issues, which in turn will allow the Licensing Board (and reviewing appellate tribunals) to make an informed appraisal of the competing claims of the parties. To this point, however, much of the focus regrettably has been elsewhere.

As even a casual examination of what has transpired below to date makes apparent, there has been constant and unseemly verbal — and to a lesser extent written — warfare on matters having little to do with anything of true substance. I need not freight this opinion with a recitation of illustrative examples. It is enough to note that the majority of the actors on the scene — representatives of parties as well as the Licensing Board itself — have indulged in their fair share of the untoward commentary.

It is of no present moment whether any specific instance of incivility was provoked by what had been said or done by someone else. Rather, all that is now of importance is that the bickering and personalized attacks come to an immediate halt. Even in a hotly contested proceeding, there is no reason why legitimate disagreement on a particular matter must or should ripen into a confrontation of such dimensions that it can be productive only of ill will and suspicion. This proceeding deserves recognition of that fact by all concerned.

## APPENDIX

### UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

### ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judge:

Helen F. Hoyt

In the Matter of

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

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

November 2, 1983

## ORDER

### I. INTRODUCTION

On October 7, 1983, the Seabrook Anti-Pollution League (SAPL) filed a Motion with the Licensing Board requesting that Judge Hoyt disqualify herself from the Seabrook licensing proceeding pursuant to 10 C.F.R. § 2.704(c). The Motion alleges that this Judge's conduct towards

counsel for the Intervenor and representatives of interested municipalities during the Seabrook evidentiary hearings shows bias and prejudice against these parties, in violation of the standards of conduct set forth in 28 U.S.C. § 455(a) and the Commission's decision in *Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), CLI-82-9, 15 NRC 1363 (1982). Appended to the Motion are affidavits and portions of the hearing transcript which purport to document instances of bias on the part of this Judge.

Applicants filed an Answer to SAPL's motion on October 24, 1983, refuting SAPL's interpretation of the incidents cited and arguing that this Judge's conduct was motivated by the necessity of preserving order during the proceeding and not by prejudice against the Intervenor's case. Staff filed its Response on October 31, 1983. Like Applicants, the Staff opposed SAPL's Motion for Recusal and gave its interpretation of each instance of alleged bias. Staff includes an extended discussion of the proper legal standard to apply in cases of recusal.

## II. THE LEGAL STANDARDS FOR DISQUALIFICATION OF A LICENSING BOARD JUDGE

The Commission has recently set forth the standards for disqualification of a Licensing Board member in *Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), CLI-82-9, 15 NRC 1363 (1982). The Commission applied the current federal court standards which require that, to be disqualifying, the bias or prejudice must derive from an extra-judicial source and result in an opinion on the merits of an issue in the case based on something other than what the judge has learned from his participation. *United States v. Grinnell Corp.*, 384 U.S. 563, 583 (1966). This standard has previously been applied to presiding officers in administrative proceedings. *Duffield v. Charleston Area Medical Center, Inc.*, 503 F.2d 512 (4th Cir. 1974).

28 U.S.C. § 455(a) requires a federal judge to "disqualify himself in any proceeding in which his impartiality might reasonably be questioned." As the Commission noted in its *South Texas* opinion, the objective standard set forth in this statute does not alter the requirement that the conduct leading to disqualification be limited to extra-judicial conduct. 15 NRC at 1367, citing *In Re IBM Corp.*, 618 F.2d 923, 929 (2d Cir. 1980); *Johnson v. Trueblood*, 629 F.2d 287, 291-92 (3d Cir. 1980); *Phillips v. Joint Legislative Committee on Performance and Expenditure Review of the State of Mississippi*, 637 F.2d 1014, 1020 (5th Cir. 1981). Thus, statements or conduct based solely on perceptions formed

during a proceeding may not form a basis for disqualification on the ground of prejudice. *South Texas*, 15 NRC at 1366. *IBM, supra*, at 928.

### III. SAPL'S MOTION

#### a) Standing

SAPL's Motion for Disqualification claims prejudice not only against counsel for SAPL, but against counsel for the Commonwealth of Massachusetts, New England Coalition on Nuclear Pollution (NECNP) and the New Hampshire Attorney General's Office, and representatives of interested municipalities. Counsel for the Commonwealth of Massachusetts and NECNP filed affidavits which accompanied the motion. No named Intervenor joined in SAPL's motion for disqualification.\* Under NRC procedure, a party has no standing to move for disqualification of a judge based on an invasion of the rights of another party. *Puget Sound Power and Light Co.* (Skagit Nuclear Power Project, Units 1 and 2), ALAB-556, 10 NRC 30, 32-33 (1979). Thus, only those portions of the instant motion which address this Judge's conduct toward SAPL need be considered under NRC practice.

Although SAPL has no standing to raise charges of bias against any other party, there is no need in this instance to dismiss the concerns raised on a procedural technicality. It is in the best interest of all to address SAPL's charges on the merits.

#### b) The Judge's Authority to Regulate the Proceedings

Under the Commission's Rules of Practice, the presiding officer has the duty to conduct a fair and impartial hearing according to law, to take appropriate action to avoid delay, and to maintain order. 10 C.F.R. § 2.714. That presiding officer has all powers necessary to achieve those ends, including the power to regulate the course of the hearing and the conduct of the participants. 10 C.F.R. § 2.714(e). Where it is necessary to the orderly conduct of a proceeding, the presiding officer may reprimand, censure or suspend from participation in a proceeding any party or representative of a party who refuses to comply with the Board's directions, or who is guilty of disorderly, disruptive or contemptuous conduct. 10 C.F.R. § 2.713(c)(1).

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\*It is noted that on October 31, 1983, immediately prior to the issuance of this Order I received Attorney General Francis X. Bellotti's Motion for Disqualification and Recusal of Judge Helen F. Hoyt and Motion for Reconsideration of Judge Hoyt's Ruling on Motion for Summary Disposition and Motion for Rehearing. MassAG's motions will be treated in a separate Order.

A judge must have the discretion to exercise these powers in order to facilitate the efficient reception of relevant evidence in a manner consistent with fundamental fairness to all parties. A judge is given broad latitude to assert these powers when he perceives the conduct of any party to be disruptive of the orderly presentation of evidence.

This Judge's conduct in this proceeding has been consistent with these goals. In its *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (1981), the Commission has specified that it expects judges to actively manage their hearings and to impose sanctions where parties fail to fulfill their obligations. To sit silently in the background of a proceeding while the parties place anything they wish on the record is to default on one's duty to implement this Commission's policy. As the Staff points out in its brief, what SAPL sees as bias is no more than carrying out one's obligation to "run a tight ship," as the Commission expressly desires.

The Seabrook proceeding is a complex and tendentious case. As can be discerned from the tenor of the briefs, the tone of this proceeding has at times been acrimonious. A judge must take pains in such a situation that a record is developed which specifically addresses the contentions at issue, and is not replete with extraneous accusations and speeches.

This Judge has no bias in favor of or against any party or any party's substantive position on the merits of any issue. The Licensing Board's admission of many contentions into this proceeding reflects its determination to give a full and fair hearing to the Intervenors' legitimate concerns. Indeed, SAPL's brief does not point to any instance where this Judge's conduct in supervising the proceeding reflects a predetermination of the merits of the case for the simple reason that there has not yet been a judgment formulated on any issue before the Board. SAPL seems, rather, to be under the mistaken impression that a judge has no right to regulate the speech of the parties. This contradicts the plain intent of 10 C.F.R. §§ 2.713(c)(1) and 2.714. What SAPL misinterprets as bias is nothing more than an exercise of these powers.

SAPL also makes the argument (which it notes but does not rely on) that bias was demonstrated because "Judge Hoyt's rulings with respect to evidentiary and other matters in the hearings conducted on emergency planning to date have been in favor of Applicants and Staff respectively." (SAPL Motion at 23.) It is well-settled that the appearance of bias under 28 U.S.C. § 455(a) cannot be shown by adverse rulings made on the merits. *In re IBM*, 618 F.2d at 929. As Judge Mulligan stated in that case: "A trial judge must be free to make rulings on the merits without the apprehension that if he makes a disproportionate

number in favor of one litigant, he may have created the impression of bias. Judicial independence cannot be subservient to a statistical study of the calls he made during the contest." *Id.*

In denying this motion, I am not without knowledge of what a judge is and what one must do in the execution of the office. For anyone not occupying the position, it must be difficult to identify with the sense of responsibility carried by a judge in decision-making. It is, indeed, power but it is something else — it is public responsibility given to a few and it cannot be shared. Its power must be protected, its independence assured, its dignity defended and its integrity demanded.

For the reasons cited in this Order, SAPL's Motion for Disqualification of Judge Hoyt is *denied*.

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

Helen F. Hoyt  
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,  
this 2nd day of November 1983.



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

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

**In the Matter of**

**Docket Nos. 50-443-OL**  
**50-444-OL**

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

**November 28, 1983**

The Appeal Board affirms the decision by a Licensing Board judge denying a second motion for recusal or disqualification of the judge in this operating license proceeding.

**RULES OF PRACTICE: MOTION FOR RECUSAL (OR  
DISQUALIFICATION)**

The standard for disqualification, enunciated by the Commission in *Houston Lighting and Power Co.* (South Texas Project, Units 1 & 2), CLI-82-9, 15 NRC 1363 (1982), is that a disqualifying bias must ordinarily stem from an extrajudicial source, rather than a judge's conduct during the course of a proceeding.

**RULES OF PRACTICE: MOTION FOR RECUSAL (OR DISQUALIFICATION)**

Section 2.704(c) of 10 C.F.R. requires a licensing board judge who denies a motion for disqualification of the judge to refer the motion to the Commission or Appeal Board.

**RULES OF PRACTICE: MOTION FOR RECUSAL (OR DISQUALIFICATION)**

Motions for disqualification or recusal must be filed in a timely fashion — *i.e.*, once the information giving rise to such a claim is available to the movant. *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-101, 6 AEC 60, 63 (1973); *Marcus v. Director, Office of Workers' Compensation Programs*, 548 F.2d 1044, 1051 (D.C. Cir. 1976). *See also Puget Sound Power and Light Co.* (Skagit Nuclear Power Project, Units 1 and 2), ALAB-556, 10 NRC 30, 32 n.6 (1979).

**RULES OF PRACTICE: MOTION FOR RECUSAL (OR DISQUALIFICATION)**

To demonstrate bias flowing from extrajudicial sources, a party must identify a personal connection, relationship or extrajudicial incident which accounts for the alleged personal animus of the judge. *In re IBM Corp.*, 618 F.2d 923, 928 (2d Cir. 1980).

**RULES OF PRACTICE: MOTION FOR RECUSAL (OR DISQUALIFICATION)**

Rulings, conduct, or remarks in response to matters that arise during administrative proceedings are not extrajudicial. ALAB-748, 18 NRC 1188 (1983).

**APPEARANCES**

**Margaret A. Zaleski**, Boston, Massachusetts, for Attorney General Francis X. Bellotti of the Commonwealth of Massachusetts.

**Thomas G. Dignan, Jr.**, and **R.K. Gad III**, Boston, Massachusetts, for the applicants, Public Service Company of New Hampshire, *et al.*

**Roy P. Lessy** and **William F. Patterson, Jr.**, for the Nuclear Regulatory Commission staff.

## MEMORANDUM AND ORDER

On October 28, 1983, Attorney General Francis X. Bellotti of the Commonwealth of Massachusetts filed, pursuant to 10 C.F.R. § 2.704(c), a motion calling for the recusal or disqualification of Administrative Judge Helen F. Hoyt as Chairman of the Licensing Board in this operating license proceeding.

This is the second time that a party to the proceeding has asked that Judge Hoyt step down. On October 7, the Seacoast Anti-Pollution League (SAPL) filed a motion that was denied by Judge Hoyt in an order issued on November 2. We recently affirmed that order in ALAB-748, 18 NRC 1184 (1983). Our opinion relied on the standard for disqualification enunciated by the Commission in *Houston Lighting and Power Co.* (South Texas Project, Units 1 & 2), CLI-82-9, 15 NRC 1363 (1982) — *i.e.*, that a disqualifying bias must ordinarily stem from an extrajudicial source, rather than a judge's conduct during the course of a proceeding. We observed that all of the underlying allegations of bias presented by SAPL emanated from rulings, conduct, or remarks by Judge Hoyt in connection with matters that arose during the course of the proceeding. We recognized that there may be a limited exception to the general rule that bias must stem from an extrajudicial source where such bias is pervasive but found that none of the events relied on to portray Judge Hoyt's supposed bias actually demonstrated a preconceived opinion on the merits or a showing of pervasive bias or prejudice.

Attorney General Bellotti claims that Judge Hoyt has exhibited such personal animosity and bias toward counsel for the Commonwealth and other intervenors and town representatives that a fair proceeding is impossible.<sup>1</sup> In response, the NRC staff and the applicants argue, as a preliminary matter, that the recusal request is untimely. In addition, they assert that, as with the SAPL claim, all of the examples of alleged bias and hostility involve rulings, conduct, or remarks during the course of the proceeding that are thus not extrajudicial. Neither the staff nor the applicants believe that anything that has taken place thus far rises to the level of pervasive bias against the Attorney General, so as to justify invocation of the exception to the general rule that bias must stem from an extrajudicial source. In the staff's judgment, "the record reveals that Judge Hoyt was implementing the Commission's *Statement of Policy on*

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<sup>1</sup> Attorney General Bellotti's motion was accompanied by an affidavit, as was the earlier SAPL motion. 10 C.F.R. § 2.704(c). Such affidavit is required even if the motion is grounded wholly upon matters of public record. See *Detroit Edison Co.* (Greenwood Energy Center, Units 2 and 3), ALAB-225, 8 AEC 379, 380 (1974).

*Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (1981), while attempting to preside over a complex, hotly-contested proceeding.”<sup>2</sup>

Judge Hoyt denied the Attorney General’s motion in an order issued on November 22, 1983.<sup>3</sup> As required by 10 C.F.R. § 2.704(c), she referred the motion to us and, in accordance with our standard practice, we have promptly reviewed her decision on the basis of the existing record and the filings submitted to her by the parties. We affirm.

1. The applicants and the staff assert that the Attorney General’s motion was not timely filed. Judge Hoyt declined to rest her decision on that ground and we similarly rest our determination on a review of the substance of the Attorney General’s claims. But we pause briefly en route to our review of the merits to note our concern that the motion was not filed with any apparent sense of urgency.

Motions for disqualification or recusal must be filed in a timely fashion. The courts have construed the timeliness requirement to mean that motions must be submitted “as soon as practicable after a party has reasonable cause to believe that grounds for disqualification exist.”<sup>4</sup> We have likewise held that a claim of bias must be raised “once the information giving rise to such a claim is available to . . . [the movant].”<sup>5</sup> To be sure, the most common illustration of a lack of timeliness is where a party files its motion after rendition of an unfavorable decision on the merits by the allegedly biased official.<sup>6</sup> But any delay in filing a motion for disqualification or recusal necessarily casts a cloud over the proceedings and increases the likelihood of delay in the ultimate completion of the case in the event recusal or disqualification is warranted and a new decisional officer must be appointed. Thus, we insist that all requests for disqualification or recusal be filed promptly.<sup>7</sup>

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<sup>2</sup> Response of the NRC Staff in Opposition to Massachusetts’ Attorney General’s Motion to Disqualify Judge Hoyt (November 17, 1983) at 4.

<sup>3</sup> As part of his motion, the Attorney General asked the Licensing Board to reconsider its ruling with respect to the Applicants’ Twenty-First Motion for Summary Disposition regarding Contentions NECNP III.12 and 13, and to rehear the contentions. He seeks reconsideration and rehearing of these contentions because he believes that the Licensing Board’s earlier rulings were influenced by Judge Hoyt’s alleged bias. Attorney General Francis X. Bellotti’s Motion for Disqualification and Recusal of Judge Helen H. Hoyt and Motion for Reconsideration of Judge’s Hoyt’s Ruling on Motion for Summary Disposition and Motion for Rehearing (October 28, 1983) at 1-3 and Memorandum in Support of the Motion at 1-2, 41-43. Judge Hoyt properly addressed only the recusal request. The companion requests for reconsideration and rehearing require action by the entire Board and are pending. (A copy of Judge Hoyt’s decision is attached as Appendix A to this opinion.)

<sup>4</sup> *Marcus v. Director, Office of Workers’ Compensation Programs*, 548 F.2d 1044, 1051 (D.C. Cir. 1976).

<sup>5</sup> *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-101, 6 AEC 60, 63 (1973).

<sup>6</sup> See, e.g., *Gibson v. FTC*, 682 F.2d 554, 564 (5th Cir. 1982), cert. denied, 103 S. Ct. 1521 (1983), and cases cited there; *Commonwealth Edison Co.* (Zion Station, Units 1 and 2), ALAB-226, 8 AEC 381, 384-86 (1974), and cases cited there.

<sup>7</sup> See, e.g., *Puget Sound Power and Light Co.* (Skagit Nuclear Power Project, Units 1 and 2), ALAB-556, 10 NRC 30, 32 n.6 (1979) (motion filed more than six weeks after the Board order on which it was predicated, and after a hearing had already commenced, held untimely).

All the events that constitute the bases for the claim of bias took place during the round of evidentiary hearings that ended on August 31, 1983.<sup>8</sup> Yet the motion for disqualification was not filed until October 28 — almost two months later, and three weeks after the motion filed by intervenor Seacoast Anti-Pollution League. During that two-month period, the Board was called upon to rule on various procedural requests. Given that a grant of the motion to recuse or disqualify would call these rulings into question and, more importantly, necessitate the appointment of a new Licensing Board Chairman, the Attorney General had an obligation to move more quickly.

The Attorney General offers but a limited explanation for the failure to file promptly. He states that

[a]n additional reason for filing this Motion is the Answer filed by the Applicants in response to SAPL's Motion for Disqualification of Judge Hoyt. That Answer . . . asserts that SAPL may not raise, in the first instance, examples of bias and prejudice against the Commonwealth. That situation is cured by the filing of this Motion.<sup>9</sup>

We find that justification inadequate. Beyond that, the Attorney General characterizes the purported need to respond to the applicants' answer as merely "an additional reason" for filing. Nowhere does he explain why he waited nearly two months to raise what are plainly his basic concerns over Judge Hoyt's continued participation in this case.

2. The Attorney General claims that bias "has pervaded the entire proceeding. . . ."<sup>10</sup> He offers seven specific illustrations in an effort to demonstrate such bias.<sup>11</sup> Most of them are the same ones earlier reviewed in connection with the SAPL motion.<sup>12</sup> All are associated with Judge Hoyt's conduct of the proceeding. This being so, we find, as we

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<sup>8</sup> Among the incidents relied on by the Attorney General is the expulsion of Mr. Guy Chichester, representative of the Town of Rye, on August 26. The expulsion was confirmed in a Licensing Board order issued on September 8, 1983 (unpublished).

<sup>9</sup> Attorney General Bellotti's Motion, *supra*, at 3.

<sup>10</sup> *Id.* at 2.

<sup>11</sup> *Id.*

<sup>12</sup> In this connection, the staff argues that the Attorney General may not assert claims of bias on behalf of another party. Judge Hoyt also indicates that the Attorney General has no standing to seek disqualification based on an invasion of the rights of another party, citing *Skagit*, *supra*, note 7, although she elected to consider all allegations in reaching her decision. We reiterate two points that we made in our earlier opinion in this case. First, a party requesting disqualification or recusal may attempt to establish by reference to a judge's overall conduct that a pervasive climate of prejudice exists in which a fair hearing cannot be obtained by the party complaining. Second, a complaining party may attempt to demonstrate a pattern of bias toward a class of participants of which it is a member. ALAB-748, *supra*, 18 NRC at 1187-88.

did in connection with the earlier SAPL motion, that no basis for disqualification has been established under the general rule announced by the Commission in its *South Texas* opinion.<sup>13</sup>

The Attorney General contends, alternatively, that Judge Hoyt's conduct either is extrajudicial because it is "unnecessary and inappropriate to the judicial process," or exhibits hostility, bias and prejudice sufficient to constitute pervasive bias which need not be extrajudicial to be disqualifying.<sup>14</sup> We reject both assertions.

First, matters cannot be considered extrajudicial even if they are, as the movant charges, "unnecessary" or "inappropriate." Matters are extrajudicial when they do not relate to the judge's official duties in the case. To demonstrate bias flowing from extrajudicial sources, a party must "identify . . . [a] personal connection, relationship or extrajudicial incident which accounts for the alleged personal animus of the . . . judge."<sup>15</sup> The fact that a judge's actions are, for example, erroneous, superfluous, or even improvident, does not, without more, demonstrate bias of an extrajudicial origin. As we noted in ALAB-748, rulings, conduct, or remarks in response to matters that arise during administrative proceedings are not extrajudicial.<sup>16</sup>

Second, we cannot conclude that the incidents referred to by the Attorney General, whether considered separately or in combination, demonstrate pervasive bias or prejudice by the Licensing Board Chairman. Without attempting to address the merits of any of the allegations, we note that three of the seven examples of alleged bias involve adverse rulings by the Licensing Board Chairman. Three other examples involve supposed violations of administrative procedure and thus also constitute essentially charges of legal error. The remaining example involves allegedly intemperate remarks directed at counsel or representatives. These matters simply do not reflect pervasive bias warranting recusal or disqualification.<sup>17</sup>

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<sup>13</sup> Much of the memorandum filed in support of the Attorney General's motion is taken up with an argument that the standard for review established by the Commission in the *South Texas* case is too narrow. Memorandum in Support of Attorney General Bellotti's Motion, *supra*, at 2-15. Any request for a change in that standard must be addressed to the Commission.

<sup>14</sup> *Id.* at 15-16.

<sup>15</sup> *In re IBM Corp.*, 618 F.2d 923, 928 (2d Cir. 1980).

<sup>16</sup> 18 NRC at 1188. The court in the *IBM* case noted that in-court conduct and rulings may in some circumstances be relevant to establish extrajudicial prejudice. *In re International Business Machines Corp.*, *supra*, 618 F.2d at 928 n.6. It is sufficient to note here that the Attorney General does not attempt to demonstrate that the Licensing Board Chairman's conduct during the administrative proceedings is motivated by personal prejudice that stems from an extrajudicial source.

<sup>17</sup> *Id.* at 929-32; ALAB-748, *supra*, 18 NRC at 1187, 1189.

The November 22, 1983 order of Judge Hoyt is *affirmed*.  
It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

APPENDIX A

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judge:

Helen F. Hoyt

In the Matter of

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

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

November 22, 1983

ORDER

I.

On October 28, 1983, Francis X. Bellotti, Attorney General for the Commonwealth of Massachusetts (MassAG) filed (1) Attorney General

Francis X. Bellotti's Motion for Disqualification and Recusal of Judge Helen F. Hoyt and Motion for Reconsideration of Judge Hoyt's Ruling on Motion for Summary Disposition and Motion for Rehearing, and (2) Memorandum in support of the three motions.

The recusal motion alleges that this Judge exhibited personal animosity and bias toward the Commonwealth's counsel and town representatives and that a "full and fair proceeding is impossible." Appended to the Memorandum in support is the Affidavit of Jo Ann Shotwell.<sup>1</sup>

Applicants filed an Answer to Massachusetts' Attorney General's Motion to Disqualify Judge Helen F. Hoyt on November 8, 1983, opposing MassAG's Motion. Applicants argue that MassAG's motion is, in part, a response to Applicants' response to SAPL's motion for recusal of this Judge. The latter motion was denied on November 2, 1983 and the denial affirmed by the Appeal Board in *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-748, 18 NRC 1184 (1983).

On November 17, 1983, NRC Staff filed its Opposition to MassAG Motion to Disqualify Judge Hoyt. The Staff argued that MassAG's motion is based on many of the matters already adjudicated in SAPL's motion. Staff also discussed, in detail, each of the alleged instances of bias to the extent that they had not been considered in the ruling on SAPL's motion.

Although MassAG has no standing to move disqualification of a judge based on an invasion of the rights of another party (*Puget Sound Power and Light Co.* (Skagit Nuclear Power Project, Units 1 and 2), ALAB-556, 10 NRC 30, 32-33 (1979)), it is in the best interest of all to address all MassAG's charges and not to stand on a procedural technicality.

## II. THE LEGAL STANDARDS FOR DISQUALIFICATION OF A LICENSING BOARD JUDGE

The legal standards have been set forth by this Judge in the ruling of November 2, 1983 on SAPL's motion and are adopted and restated herein.

The Commission has recently set forth the standards for disqualification of a Licensing Board member in *Houston Lighting and Power Co.* (South Texas Project, Units 1

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<sup>1</sup> This Order will address only the Motion for Recusal. Motion for Reconsideration of the Board's ruling on summary disposition and the Motion for a Rehearing require action by the Board, and thus are not proper subjects for this Order.



and 2), CLI-82-9, 15 NRC 1363 (1982). The Commission applied the current federal court standards which require that, to be disqualifying, the bias or prejudice must derive from an extra-judicial source and result in an opinion on the merits of an issue in the case based on something other than what the judge has learned from his participation. *United States v. Grinnell Corp.*, 384 U.S. 563, 583 (1966). This standard has previously been applied to presiding officers in administrative proceedings. *Duffield v. Charleston Area Medical Center, Inc.*, 503 F.2d 512 (4th Cir. 1974).

28 U.S.C. § 455(a) requires a federal judge to "disqualify himself in any proceeding in which his impartiality might reasonably be questioned." As the Commission noted in its *South Texas* opinion, the objective standard set forth in this statute does not alter the requirement that the conduct leading to disqualification be limited to extra-judicial conduct. 15 NRC at 1367, citing *In Re IBM Corp.*, 618 F.2d 923, 929 (2d. Cir. 1980); *Johnson v. Trueblood*, 629 F.2d 287, 291-92 (3rd Cir. 1980); *Phillips v. Joint Legislative Committee on Performance and Expenditure Review of the State of Mississippi*, 637 F.2d 1014, 1020 (5th Cir. 1981). Thus, statements or conduct based solely on perceptions formed during a proceeding may not form a basis for disqualification on the ground of prejudice. *South Texas*, 15 NRC at 1366. *IBM, supra*, at 928.

### III. MASSAG'S MOTION

MassAG's brief fails to establish how either the Commonwealth or the Towns admitted under 2.715(c) were prejudiced or biased by the actions of this Judge in conducting the proceedings. Each of the various acts complained of were part of this Judge's action in presiding over the hearing. The rules of this Commission are clear that the presiding officer has all powers necessary to regulate the course of the hearing and the conduct of the participants. 10 C.F.R. § 2.718(e).

The telephone communication to the Chairman of the Selectmen of Rye, N.H. by this Judge on August 29, 1983 is not technically an *ex parte* communication. In order for a communication to violate this Commission's rule against *ex parte* communications, the communication must concern a "substantive matter." *Puerto Rico Water Resources Authority* (North Coast Nuclear Plant, Unit 1), ALAB-313, 3 NRC 94, 96 (1976). The communication complained of did not involve a "substantive matter at issue in the proceeding." 10 C.F.R. § 2.780(a)(2). It dealt rather with a procedural matter. The action was made necessary by the exigencies created by conducting a hearing far away from one's administrative base of operations. It was and, indeed, is imperative that a presiding officer take those actions which, although extraordinary, will ensure basic fairness to all.

The reasons set forth herein form the basis for *denial* of MassAG's motion for disqualification and recusal of this Judge.

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

Helen F. Hoyt  
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,  
this 22nd day of November 1983.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

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

**In the Matter of**

**Docket No. STN 50-483-OL**

**UNION ELECTRIC COMPANY**  
**(Callaway Plant, Unit 1)**

**November 29, 1983**

Treating a petition for reconsideration of an Appeal Board decision as a motion to reopen the record, the Appeal Board denies the motion for failure to satisfactorily demonstrate that the supporting information is likely to lead to a different result in the case.

**RULES OF PRACTICE: REOPENING OF RECORD**

To justify a reopening of the record, a petitioner must satisfy a tripartite test as follows:

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

*Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-738, 18 NRC 177, 180 (1983), quoting *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-598, 11 NRC 876, 879 (1980).

## **RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES**

Parties in an appellate proceeding are obligated to submit to the Appeal Board new information that is relevant and material to the matters being adjudicated. *Tennessee Valley Authority* (Browns Ferry Nuclear Plant, Units 1, 2 and 3), ALAB-677, 15 NRC 1387, 1394 (1982).

## **RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES**

If a party has doubts about whether to disclose information to the Appeal Board, it should do so because the ultimate decision with regard to materiality is for the decisionmaker, not the parties. *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-691, 16 NRC 897, 914 (1982).

## **OPERATING LICENSES: RESPONSIBILITY OF BOARDS; STAFF**

The responsibility for the examination of safety issues is divided between the Commission's adjudicatory boards and its staff. Generally speaking, at the operating license stage the role of the boards is limited to resolving contested matters properly placed in issue in a case. *Consolidated Edison Co. of New York* (Indian Point, Units 1, 2 and 3), ALAB-319, 3 NRC 188, 189-90 (1976). The staff must make decisions on a wide range of safety matters not placed in litigation, and has a further responsibility to superintend the safety of individual applicants and licensees on an ongoing basis.

## **RULES OF PRACTICE: SHOW-CAUSE PROCEEDING**

A party that wishes to raise health, safety or environmental issues but is unable to do so in a pending adjudication may file a request with the Director of Nuclear Reactor Regulation under 10 C.F.R. 2.206 asking the Director to institute a show-cause proceeding to address those issues. *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-707, 16 NRC 1760, 1767 (1982).

## **APPEARANCES**

**Kenneth M. Chackes**, St. Louis, Missouri, for the joint intervenors Coalition for the Environment, St. Louis Region; Missourians for Safe Energy; and the Crawdad Alliance.

Thomas A. Baxter and Richard E. Galen, Washington, D.C., for the applicant Union Electric Company.

David A. Repka and Robert G. Perlis for the Nuclear Regulatory Commission staff.

## MEMORANDUM AND ORDER

### I.

In an opinion issued on September 14, 1983, we affirmed a Licensing Board decision that found that there had been no general breakdown in quality assurance procedures at the Callaway plant, that various identified construction defects had been remedied, and that there was reasonable assurance that the facility could be operated safely.<sup>1</sup> On September 23, 1983, the Intervenor<sup>2</sup> filed what they denominated a petition for reconsideration of our decision. In actuality, however, it is more akin to a motion to reopen the record and should be so treated. Intervenor<sup>3</sup> do not point to any error per se in the decision. Rather, their request that we reconsider the result is predicated on "new evidence regarding the adequacy of Applicant's quality assurance program . . . ." The "new evidence" is an Integrated Design Inspection Program (IDIP) report prepared by the NRC Office of Inspection and Enforcement (I&E). This report summarizes the results of an inspection of the Callaway plant conducted by I&E personnel in November and December, 1982, as part of a generic program to measure certain quality assurance objectives.<sup>4</sup>

To justify a reopening of the record, a petitioner must satisfy a tripartite test as follows:

- (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?<sup>5</sup>

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<sup>1</sup> ALAB-740, 18 NRC 343, *aff'g* LBP-82-109, 16 NRC 1826 (1982).

<sup>2</sup> Coalition for the Environment, St. Louis Region; Missourians for Safe Energy; and the Crawdad Alliance.

<sup>3</sup> Petition for Reconsideration (September 23, 1983) at 1.

<sup>4</sup> At our request, answers to the petition were filed by the applicant and the NRC staff. We asked specifically that the applicant and the staff address, in addition to the merits of Intervenor's claims, the question of whether either of them was under an obligation to call the inspection report to our attention at the time of issuance. Order of September 27, 1983 at 2 (unpublished).

<sup>5</sup> *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-738, 18 NRC 177, 180 (1983), quoting from *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-598, 11 NRC 876, 879 (1980).

In our judgment, the Intervenors have not satisfied the third element of the test for reopening. The petition is therefore denied. We discuss each of the elements separately.

## II.

### A. Timeliness

The Intervenors represent that “[t]he subject report came to . . . [their] attention too late to allow for analysis and submission to the Appeal Board prior to its decision . . . .”<sup>6</sup> The I&E report was dated April 4, 1983. Although the staff suggests that it was mailed to the local Public Document Room on that date,<sup>7</sup> the letter transmitting the report to the applicant states that it “will be placed in the NRC Public Document Room unless you notify this office, by telephone, within 15 days of the date of this letter and submit written application to withhold information contained herein within 30 days of the date of this letter.”<sup>8</sup> The report was thereafter placed in the central Public Document Room in Washington on May 9, 1983. It was thus available for public inspection more than a month before oral argument on the Intervenors’ appeal, and some four months before the filing of the Intervenors’ petition for reconsideration. In any event, the applicant responded to the report by letter dated June 15, 1983. That letter was acknowledged by C.E. Norelius of the NRC Region III in a letter dated July 21. A service list attached to Mr. Norelius’ letter indicates that a copy of the July 21 acknowledgement, along with a copy of the applicant’s June 15 communication, was mailed to Ms. Kay Drey, who was one of the participants for the Intervenors in this case.<sup>9</sup> The Intervenors thus appear to have received actual notice of the report at least two months before they filed their petition.

It may be that the Intervenors did not obtain a copy of the report in sufficient time to review it for presentation to us in advance of the June 22 oral argument or the September 14 issuance of our decision. Parties requesting a reopening of the record, however, have an obligation to give us ample information so that we can determine whether the request is timely. The petition before us does not do so. It merely sets forth the

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<sup>6</sup> Petition for Reconsideration at 1.

<sup>7</sup> Staff Response to Intervenors’ Petition for Reconsideration (October 12, 1983) at 2 n.2.

<sup>8</sup> See Applicant’s Response to Joint Intervenors’ Petition for Reconsideration (October 12, 1983), Exhibit A, letter of Richard C. DeYoung, Director, Office of Inspection and Enforcement to Union Electric Company (April 4, 1983).

<sup>9</sup> See Applicant’s Response, Exhibit C.

petitioners' opinion that they lacked sufficient time to review the report. Nonetheless, because we find that the petition does not satisfy the third element of the tripartite test for reopening the record, we need not reach the question of timeliness in this case.

## **B. Significance of the Issue**

The petition and the underlying I&E report relate to the issue of quality assurance. Both the staff and the applicant appear to recognize that some quality assurance matters may well be significant. Although we do not suggest that all quality assurance matters will be of sufficient safety significance to justify reopening, we assume for present purposes that the petition meets the second prong of the tripartite test for reopening.

## **C. Likelihood of a Different Result**

The third element of the test for reopening the record — whether the new information could have led to a different result — is the most important. The Intervenors make essentially two arguments in this regard. First, they claim that the I&E report reveals a number of deficiencies that now call into question the general conclusion that there has been no pervasive breakdown in quality assurance at the Callaway plant. Second, they contend that certain of these alleged deficiencies support their argument that the applicant has specifically failed to prove the safety of the structural steel embedded plates and the SA-312 piping used at Callaway. We find that the Intervenors have not satisfied the requirement that the information submitted in support of their motion be likely to lead to a different result in the case.

### ***1. Alleged Pervasive Breakdown***

We do not believe that the report undermines the ultimate conclusion reached in ALAB-740 and LBP-82-109 that the applicant's construction quality assurance program provides reasonable assurance of safety. To begin with, the report focuses on the design process and the quality of design activities, rather than on the *construction* quality assurance issues that were litigated below by the Intervenors. As a result, there is no direct connection between the report and the matters before the Licens-

ing Board and us.<sup>10</sup> Nevertheless, the report does explore various approaches and undertakings by the applicant, such as its procedures, recordkeeping, training, and inspection, which might have been conducted in a similar fashion at the construction stage. If so, the findings and conclusions in the report might provide a useful and additional insight into the construction quality assurance process.<sup>11</sup>

Assuming for present purposes that the report bears on our earlier conclusion, we are unable to find that it warrants a change in that conclusion. The Intervenor observes that the report contains "29 negative findings, 12 unresolved items and 9 observations for licensee consideration regarding the design process and activities for the auxiliary feedwater system."<sup>12</sup> Such information must be evaluated in the context of the report's overall conclusions. As a threshold matter, I&E states that

we found many design actions that were being well executed . . . They are not flagged and numbered in the text nor listed at the front of this report since follow-up is not required . . .<sup>13</sup>

I&E summarizes its conclusions as follows:

Although the inspection sampled a very small part of the design effort, the team did review hundreds of specific items. The most significant deficiencies are summarized as follows:

- (1) There was a lack of formal control over Bechtel's use of plant design newsletters. Thus, these newsletters, which described acceptable modeling and stress analysis techniques, were not being applied uniformly to project design work (Section 3.1.2).

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<sup>10</sup> The Intervenor do not request that the record be reopened to consider design quality assurance issues. If they did, they would be required to satisfy both the criteria for reopening the record and the standards for admitting late-filed contentions. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-82-39, 16 NRC 1712, 1714-15 (1982).

<sup>11</sup> For this reason, we believe that the decision by the staff and the applicant not to apprise us of the report was a close one. Both the staff and an applicant are obligated to submit new information that is relevant and material to the matters being adjudicated. *Tennessee Valley Authority* (Browns Ferry Nuclear Plant, Units 1, 2 and 3), ALAB-677, 15 NRC 1387, 1394 (1982). As we observed in *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-691, 16 NRC 897, 914 (1982) "if a party has doubts about whether to disclose information, it should do so. . . This is because the ultimate decision with regard to materiality is for the decisionmaker, not the parties." After reviewing the contents of the report, we find ourselves in agreement with the staff and the applicant that the new information would not have affected the outcome of the case.

<sup>12</sup> Petition for Reconsideration at 1-2. "Negative findings" include such items as procedure violations, errors and inconsistencies. Some followup action by the licensee is required for NRC staff evaluation. "Unresolved items" are questions for which the inspection team did not develop enough information to reach a conclusion. Some licensee response regarding these items must be presented for NRC staff evaluation. "Observations" reflect items that the staff considered appropriate to call to the applicant's attention but for which there is no regulatory requirement. See Report of Integrated Design Inspection 50-483/82-22 of Callaway Plant, Unit 1 (April 4, 1983) at 1-1 to 1-2 ("I&E Report"), attached to Petition for Reconsideration.

<sup>13</sup> *Id.*



- (2) The auxiliary feedwater pump turbine exhaust pipe was not classified as Seismic Category I and safety grade throughout its entire length. No justification available. This represented incomplete detailed analysis to support pump operability requirements. A similar classification was identified in two other systems (Section 2.4).
- (3) The ability of motor controllers to withstand fault currents had not been considered or assured. This represented an instance of improper detailed design (Section 5.2).
- (4) The team identified needs for improvement in control of the design process at Bechtel in certain areas such as those related to high energy line break analyses (Section 2.4), guidance for two design groups (Sections 3.1.4 and 3.2.4), interface definitions (Section 4.4) and baseplate design (Section 4.5).
- (5) Three instances were identified where specific FSAR commitments were not met, one of which involved the turbine exhaust pipe discussed above (Sections 2.3; 2.4, and 6.2).

Prompt attention is needed for the resolution of these specific deficiencies and others identified in the following sections. However, the team concludes that these items are not indicative of any pervasive breakdown in the design process.

With the exception of the matters identified in the findings and an instance of delay in resolving a design issue (Observation 4-1), the team considered the general project management to be a strength. Several utilities' staffs were involved in the development of design criteria and guidance. Effective follow-up and project management assistance were provided by NPI. Bechtel utilized a competent project organization to execute the detailed design work. Interfaces, including those with Westinghouse, were generally well controlled as evidenced by the consistency of design documents. Nearly all the detailed design information reviewed was adequate and consistent, indicating a controlled design process.<sup>14</sup>

The letter transmitting the report to the applicant reiterates that no pervasive breakdown in the design process was identified. And, as we discuss later, we have reviewed each of the specific matters called to our attention by the Intervenors and find that they are readily explained and pose no safety threat. In our judgment, the I&E Report, considered in its entirety, is broadly supportive of the Licensing Board's determination (which we affirmed) that, despite specific deficiencies that were addressed and resolved, there is no pervasive pattern of quality assurance breakdown at the Callaway plant.

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<sup>14</sup> *Id.* at 1-4 to 1-5.

## 2. *Specific Allegations*

We do not find that the information contained in the I&E Report calls into question the safety of either the embedded plates or the SA-312 piping used at Callaway.

### a. *Embedded Steel Plates*

The Intervenors point to findings in the I&E Report that allegedly support their claim that the "Applicant has failed to prove the safety of the several hundred structural steel plates that were embedded in concrete before welding defects were discovered."<sup>15</sup> They further contend that the plates are inadequate to support the loads imposed on them. They make five arguments to support their claim. We discuss each in turn.

First, the Intervenors claim that Unresolved Item 3-1, which notes a possible "non-conservatism" in the calculation of loads due to seismic anchor movements, undermines the finding that the embeds installed before certain welding defects were discovered are safe. Our review of the report indicates that the "non-conservatism," if it exists, deals only with the computer program used to calculate the loads on pipes and pipe supports, not loads on the embedded steel plates themselves. As pointed out in the applicant's response, a separate analysis is used to determine the load on the plates.<sup>16</sup> Any "non-conservatism" would not affect that separate analysis. Moreover, on their appeal, and even in the Petition for Reconsideration, the Intervenors expressed concern essentially with the safety of the *manually-welded* embedded plates installed *before* the June 1977 discovery of the defects.<sup>17</sup> While the loads imposed on the piping are a part of the overall load imposed on the embedded plates, it appears that even the pipe anchors that may be subject to the "non-conservatism" are attached to embeds that are *machine-welded* and were installed *after* June 1977, when the welding defects in the embeds were first discovered.<sup>18</sup> In sum, we do not believe that any supposed "non-conservatism" in the calculation of loads due to seismic anchor movements calls into question the safety of the manually-welded embeds.

Second, the Intervenors allege that I&E found "that the loads imposed by the floors of the auxiliary building, which in some cases are supported

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<sup>15</sup> Petition for Reconsideration at 2.

<sup>16</sup> See Applicant's Response at 10, and Exhibit D, Affidavit of Eugene W. Thomas (October 11, 1983) at 2.

<sup>17</sup> See ALAB-740, *supra*, 18 NRC at 351-56.

<sup>18</sup> See Applicant's Response at 10, and Exhibit D, Affidavit of Eugene W. Thomas (October 11, 1983) at 2.

by embedded plates installed before the discovery of defects, were calculated incorrectly during the original design of the plant such that the as-built loads 'exceeded the original [seismic] spectra that had been used in design, by significant amounts in some cases.'<sup>19</sup> They point further to an alleged "failure of Applicant and Bechtel to communicate the increased loads to all of the engineering discipline groups to allow them to evaluate the effects of the greater loads upon their systems and components."<sup>20</sup>

The I&E Report notes that

Bechtel had calculated revised floor response spectra using actual as-built conditions for the auxiliary building. Some of the revised spectra exceeded the original spectra that had been used in design, by significant amounts in some cases . . . Revised spectra had not yet been sent to the other discipline groups, such as mechanical and electric, to evaluate the effects of the greater seismic loads upon systems and components. . . .<sup>21</sup>

As we interpreted the report, it did not conclude that the original seismic response spectra were calculated incorrectly. Moreover, we recognized that there was no necessary safety significance to the difference between the design spectra and the actual spectra. Nonetheless, we were concerned that there had been no definitive assessment regarding the safety significance, if any, of the differences between the spectra used in the original design and the revised spectra. And we were troubled that, as of the date of the I&E inspection, the relevant discipline groups had not been apprised of the design spectra recalculation. As a result, we issued an order requiring the applicant and the NRC staff to report to us as to what has been done since the I&E inspection with respect to determining if the loads imposed by the revised spectra exceed the design loads, and the safety implications, if any. We also invited the Intervenor to comment on the reports.<sup>22</sup> Responses by the applicant and the staff were filed on November 4, 1983, and by the Intervenor on November 15.

The responses filed by the staff and the applicant, with accompanying affidavits, indicate that since the I&E inspection Bechtel has initiated a review to determine the effects on design of the revised floor response

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<sup>19</sup> Petition for Reconsideration at 2.

<sup>20</sup> *Id.* at 3-4.

<sup>21</sup> I&E Report at 4-9. Intervenor's argument regarding the omission from the final report of a statement of concern by an NRC inspector contained in an earlier draft report carries no weight. Drafts are always subject to change during the evolution to a final product and we must assume that I&E was able to resolve its concern during preparation of the final report.

<sup>22</sup> Order of October 20, 1983 (unpublished).

spectra. That review is approximately half finished and no design deficiencies have been uncovered. Importantly, the review is complete as it relates to all of the manually-welded embeds, and Bechtel advises that there are no load increases on any of these plates as a result of the "as-built" floor response spectrum curves. The applicant and the staff claim that there is no safety significance to the embeds resulting from the change in response spectra.<sup>23</sup>

The Intervenor's contend, however, that nothing in the submissions by the applicant or the staff permit independent verification of Bechtel's determination that the changes in design spectra have no safety significance. The Intervenor's urge us to require additional information and appoint an independent expert, if necessary, to determine the safety of the manually welded embeds.<sup>24</sup>

We are satisfied that there is no current basis for reopening the record or deferring decision. The I&E Report does not itself call into question the safety of the embeds. Bechtel's representations, coupled with the staff's judgment that Bechtel's program should ensure adequate resolution of the matter, resolve the concerns that prompted our October 20 order. The Bechtel review will be completed by the end of the year, at which time the staff will evaluate its results.<sup>25</sup> The staff shall make a copy of its final report available to the Intervenor's promptly upon its completion. In the circumstances, we see no reason to retain jurisdiction over this phase of the proceeding; rather, we leave to the staff resolution of any matters that may arise in the future. See *Duquesne Light Co.* (Beaver Valley Power Station, Unit 1), ALAB-408, 5 NRC 1383, 1386 (1977).<sup>26</sup>

Third, the Intervenor's refer to Unresolved Item No. 4-2, which found that the field inspection "indicated that the load transfer path used in the design calculations did not reflect actual conditions."<sup>27</sup> Specifically, design calculations assumed that a pipe stanchion would be "centered over and connected to two embedded plates which would share the

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<sup>23</sup> Applicant's Response to the Appeal Board's Memorandum and Order of October 20, 1983, at 3, and Affidavit of Eugene W. Thomas (November 3, 1983) at 6-7. NRC staff Response to Appeal Board Memorandum and Order of October 20, 1983 at 4.

<sup>24</sup> Joint Intervenor's Comments Regarding Responses to Appeal Board's Memorandum and Order of October 20, 1983 (November 15, 1983) at 1.

<sup>25</sup> NRC Staff Response to Appeal Board Memorandum and Order of October 20, 1983, and Affidavit of Dennis P. Allison (November 4, 1983) at 3.

<sup>26</sup> In this connection, we do not endorse the Intervenor's suggestion that our disposition of this issue constitutes a delegation of responsibility to Bechtel. On the information before us, we are satisfied that the embeds are safe and that nothing in the I&E Report suggests the contrary. We are also confident that the staff can pursue any safety concerns that might arise as part of its ongoing inspection responsibilities.

<sup>27</sup> I&E Report at 4-16.

load.” In fact, the stanchion had been mislocated. The mislocation resulted in the load being placed on a single embed only. I&E notes that Bechtel personnel subsequently revised their calculation to reflect the as-built condition and found that the load carrying capacity in the single plate was adequate (a finding with which I&E does not appear to disagree). I&E concludes that further evaluations should be conducted to determine if similar instances of disagreements between design and as-built conditions exist elsewhere. In this regard, we note that the applicant’s response indicates that such review will be conducted on all other remaining anchors and necessary modifications will be made to ensure that the civil design requirements are met.<sup>28</sup> Thus, I&E’s concerns appear to have been satisfied.

Fourth, the Intervenor’s claim that the report supports their argument that the embedded plates were improperly selected. They point to I&E’s observation that “no specific design calculations existed for embedded plates to document the basis for their selection and placement on design drawings designating the type of plate for use at a given location,”<sup>29</sup> and it seems clear that the inspection uncovered inadequacies in paperwork. I&E was nonetheless able to conclude that “a controlled process for these selections had been in effect.”<sup>30</sup> Furthermore, I&E noted that “[o]nly one instance was identified where there was a question of why the original designer had selected a particular type of plate.”<sup>31</sup> I&E assumed that the selection was “a judgment call” because “it was unlikely that the refined analysis which was performed during our inspection was in fact performed originally to support the selection.”<sup>32</sup> I&E pointed out that “the more refined analysis did support the original design, validating the judgment . . . made by the original designer.”<sup>33</sup> I&E’s overall conclusions regarding the selection process were as follows:

In summary, there existed excellent evidence of the interface action between the plant design groups . . . and the Civil Group on the examples reviewed. There appeared to be good coordination of the necessary information from one group to another . . . Overall, there was evidence that when an interface problem was identified, management had taken corrective action and the inspector was able to see how the coordination process had improved although the written procedures might not in every case reflect the actual functioning process as a requirement . . .<sup>34</sup>

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<sup>28</sup> See Applicant’s Response, Exhibit B.

<sup>29</sup> See I&E Report at 4-17.

<sup>30</sup> *Id.*

<sup>31</sup> I&E Report at 4-18.

<sup>32</sup> *Id.*

<sup>33</sup> *Id.*

<sup>34</sup> *Id.* at 4-17 to 4-18.

In our view, the I&E Report does not support the Intervenor's claim that the embedded plates were improperly selected.

Finally, the Intervenor's claim that the I&E Report reminds the applicant of various construction alternatives identified during plant design that may be employed where "legitimate question exists as to the safety of the embedded plates. . . ."<sup>35</sup> The Intervenor's appear to suggest that such alternatives should now be used at Callaway. The I&E Report found, however, that the design assumptions were valid and that the analyses had been conducted in accordance with appropriate procedures. The Licensing Board found, moreover, and we agreed, that the safety of the embedded plates had not been genuinely called into question (a conclusion with which the Intervenor's obviously disagree). Thus, there is no reason now to employ the various design options noted in the I&E Report.

*b. SA-312 Piping*

The Intervenor's point to an allegedly "improper calculation of pressure within piping."<sup>36</sup> The I&E Report does, indeed, discuss an improper calculation. However, as noted in the affidavit submitted by the applicant, the piping in question is not SA-312 pipe which was the subject of the Intervenor's argument on appeal, but rather SA-106 GR. B piping.<sup>37</sup> Perhaps more important, the I&E Report itself found no similar or systematic errors elsewhere and concluded that these small underpressure predictions had no effect on the safety of the design.<sup>38</sup> As a result, we conclude that the Intervenor's have failed to demonstrate that this finding by I&E is material to the issues we considered in ALAB-740.

### III.

The responsibility for the examination of safety issues is divided between the Commission's adjudicatory boards and its staff. Generally speaking, at the operating license stage the role of the boards is limited to resolving contested matters properly placed in issue in a case. *Consolidated Edison Co. of New York* (Indian Point, Units 1, 2 and 3), ALAB-319, 3 NRC 188, 189-90 (1976). The staff must make decisions

<sup>35</sup> *Id.* at 4-11.

<sup>36</sup> Petition for Reconsideration at 4. See I&E Report at 2-5.

<sup>37</sup> See Applicant's Response, Exhibit E, Affidavit of John D. Hurd, (October 11, 1983).

<sup>38</sup> I&E Report at 2-5 to 2-6.

on a wide range of safety matters not placed in litigation, and has a further responsibility to superintend the safety of individual applicants and licensees on an ongoing basis. The I&E inspection that resulted in the report brought to our attention by the Intervenors was undertaken in the exercise of these more general responsibilities.

We have reviewed the report and the Intervenors' arguments in connection with it and are satisfied that nothing warrants a reopening of the record to examine the matters litigated in this case. We have not attempted to evaluate the merits of the various findings, unresolved items or observations included in the report. Such matters are left to resolution by the staff.<sup>39</sup>

The petition for reconsideration is *denied*.

It is so ORDERED.

#### FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

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<sup>39</sup> This does not mean, however, that the Intervenors are foreclosed from raising these matters at all. A party that wishes to raise health, safety or environmental issues but is unable to do so in a pending adjudication may file a request with the Director of Nuclear Reactor Regulation under 10 C.F.R. § 2.206 asking the Director to institute a proceeding to address those issues. *Detroit Edison Co. (Enrico Fermi Atomic Power Plant, Unit 2)*, ALAB-707, 16 NRC 1760, 1767 (1982).

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

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

**In the Matter of**

**Docket No. STN 50-483-OL**

**UNION ELECTRIC COMPANY**  
**(Callaway Plant, Unit 1)**

**December 9, 1983**

The Appeal Board supplements its previous memorandum denying the intervenors' reopening motion (ALAB-750, 18 NRC 1205), in response to a letter from the applicant suggesting possible misunderstanding by the Appeal Board of an affidavit submitted earlier by the applicant in connection with its motion.

**MEMORANDUM**

In ALAB-740, we affirmed a Licensing Board decision dealing with various quality assurance matters raised in this operating license proceeding.<sup>1</sup> In the course of our appellate review, we rejected the claim of the Joint Intervenors that certain manually welded embedded plates were unsafe. Thereafter, in ALAB-750, we denied a petition filed by the Joint Intervenors seeking essentially to reopen the record to take into account an Integrated Design Inspection Program (IDIP) report prepared

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<sup>1</sup> 18 NRC 343 (1983), *aff'g* LBP-82-109, 16 NRC 1826 (1982).



by the NRC Office of Inspection and Enforcement.<sup>2</sup> In deciding not to reopen the record, we addressed, among other things, the reference in the report to an alleged "non-conservatism" in a computer program used to calculate loads due to seismic anchor movements. On that score, we concluded that the non-conservatism would not affect the analysis of the loads on the manually welded embedded plates that were the subject of litigation in this proceeding because that analysis was undertaken separately. We also observed that the pipe anchors that might be subject to the purported non-conservatism were not attached to the manually welded plates. Thus, we determined that there was no present basis for altering the ultimate conclusion reached in ALAB-740.

Our decision on these points rested in part on our reading of an affidavit submitted by the applicant in connection with its opposition to a reopening.<sup>3</sup> In a letter dated December 6, 1983, applicant's counsel advises us that we may have misread that affidavit.

First, although the affidavit indicated that the computer program and the analysis of the loads on the embeds are separate, we are told that that was not meant to suggest that they were unrelated. Because the loads due to seismic anchor movements are combined with other loads to provide a total load definition for the pipe restraints, a non-conservatism in the computer program, if it exists, might also affect the analysis performed to determine the total load on the embedded plates. The applicant argues, however, that its methodology does not involve a non-conservatism, and indicates that its documentation for such conclusion will soon be submitted to the NRC staff (with copies to us and the parties).

As for our observation that the pipe anchors possibly subject to the purported non-conservatism were not attached to the manually welded plates, the applicant informs us that we were in error. This is so because the reference in the affidavit was limited to the six pipe anchors that are the subject of Unresolved Item 4-2 listed in the report. (We assumed that the same was also true of the pipe anchors referred to in Unresolved Item 3-1, which was the focus of the Joint Intervenors' petition.) We have been further advised, however, that the embedded plates referred to in Unresolved Item 3-1 are not used for pipe supports and thus are not, in any event, directly related to the Joint Intervenors' concerns.

We appreciate the applicant's bringing these matters to our attention. We are also satisfied, however, that nothing in the applicant's submis-

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<sup>2</sup> 18 NRC 1205 (1983).

<sup>3</sup> Applicant's Response to Joint Intervenors' Petition for Reconsideration (Oct. 12, 1983), Exhibit D (Affidavit of Eugene W. Thomas) at 3.

sion requires a change in the ultimate result reached in ALAB-750. Because the staff has the matter under review, a final resolution of the question of the purported non-conservatism has not been reached. Thus, it is possible that new information bearing upon the safety of the manually welded embeds will be forthcoming. But, particularly given the staff's monitoring on an ongoing basis of the construction and operation of individual nuclear facilities, the potential for new developments affecting litigated issues always exists. Litigation must nevertheless at some point come to an end. In the instant case, the applicant has indicated its intent to provide a copy of its upcoming comments to the Joint Intervenor and we have already directed the staff to make available to the Joint Intervenor a copy of its final report promptly upon its completion.<sup>4</sup> Any new developments can be brought to the attention of either the Commission (if it still has jurisdiction over this proceeding at the time) or the Director of Nuclear Reactor Regulation. *See generally Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-551, 9 NRC 704, 707 (1979); *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-530, 9 NRC 261, 262 (1979); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-513, 8 NRC 694, 695-96 (1978).

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

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<sup>4</sup> See ALAB-750, *supra*, 18 NRC at 1214.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

James A. Laurenson, Chairman  
Dr. Jerry R. Kline  
Mr. Frederick J. Shon

In the Matter of

Docket No. 50-322-OL-3  
(Emergency Planning Proceeding)

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

November 1, 1983

Licensing Board sustains FEMA's claim of "executive privilege" protection from compelled production of certain documents created by that agency, while granting motion to compel as to certain factual portions of the documents.

**RULES OF PRACTICE: DISCOVERY; ASSERTION OF PRIVILEGE**

Claim for protection of "executive privilege" for certain Federal Emergency Management Agency (FEMA) documents was not properly invoked where it: (1) was not asserted by the head of the agency; (2) did not specifically describe the documents sought to be withheld; (3) did not state precise reasons for preserving confidentiality as to the specific documents; and (4) was not accompanied by the documents themselves, under seal, for possible *in camera* inspection by the Board. *United States v. Capital Service, Inc.*, 89 F.R.D. 578 (E.D. Wis. 1981).

However, FEMA was given a fifteen-day extension of time to properly assert the privilege.

## **RULES OF PRACTICE: DISCOVERY; EXECUTIVE PRIVILEGE**

Regardless of whether certain documents created by FEMA for internal use can be characterized as "policy formulation," where the documents consist of advisory opinions, recommendations or deliberations in the agency's decision-making process they are entitled to "executive privilege" protection from compelled production pursuant to discovery request.

## **RULES OF PRACTICE: DISCOVERY; EXECUTIVE PRIVILEGE**

Where Federal Emergency Management Agency (FEMA) claims protection of "executive privilege" for certain of its documents because their disclosure would have a "chilling effect" on the Agency's decision-making process, the available privilege is a qualified one subject to balancing of FEMA's need for the privilege against the requesting party's need for the documents. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-82-82, 16 NRC 1144 (1982).

# **MEMORANDUM AND ORDER RULING ON SUFFOLK COUNTY MOTION TO COMPEL FEMA TO PRODUCE DOCUMENTS**

## **I. PROCEDURAL HISTORY**

On September 19, 1983, Suffolk County (the County) filed a "Motion to Compel Discovery from FEMA (Federal Emergency Management Agency)." Some matters raised in that motion have been settled by the parties. However, as relevant here, the County requested discovery of the following: (1) all drafts of the Memorandum dated June 23, 1983 from Richard W. Krimm, Assistant Associate Director of FEMA to Edward L. Jordan of the NRC; (2) all drafts of a letter dated August 29, 1983 from Jeffrey S. Bragg, Executive Deputy Director of FEMA to William J. Dircks, Executive Director of Operations of NRC; and (3) written instructions from Gary D. Johnson, Executive Officer of FEMA

to Fred Sharrocks, Senior Program Manager at FEMA regarding preparation of a draft FEMA response to the July 22, 1983 letter from William J. Dircks of the NRC.

On September 21, 1983, FEMA filed a response to the County's motion wherein FEMA asserted that the above-listed documents were not subject to discovery because of "executive privilege." FEMA cited no authority in support of its position.

On September 26, 1983, we held a Discovery Conference in Washington, D.C. Efforts to settle this discovery dispute between the County and FEMA were unavailing. The Board notified FEMA that it had not properly invoked the claim of "executive privilege." However, FEMA was given a period of fifteen days to perfect the claim of privilege by completing the following: (1) the claim must be asserted by the head of the agency, *i.e.*, Louis O. Giuffrida, Director; (2) the claim must specifically describe and designate the documents sought to be withheld; (3) the claim must state the precise reasons for preserving the confidentiality of the documents; and (4) the documents for which executive privilege was claimed must be submitted under seal for the Board's *in camera* review if that became necessary. The Board invited the parties' attention to *United States v. Capitol Service, Inc.*, 89 F.R.D. 578 (E.D. Wis. 1981). The Board also informed NRC Staff that its terse concurrence with FEMA's position was "wholly insufficient." (Tr. 590). All parties were given a period of one week to respond to FEMA's claim of privilege. (Tr. 602).

On October 12, 1983, FEMA submitted another response to the County's motion to compel discovery. Of the three disputed items listed in the County's September 19, 1983 motion, FEMA asserted the claim of executive privilege as to items 1 and 2. FEMA did not address item 3. In addition to items 1 and 2, FEMA also asserted a claim of executive privilege for the following documents:

- A. Those sections of a Briefing Paper on Shoreham prepared by the staff of Region II for Frank P. Petrone, Regional Director detailing his staff's identification of issues and recommendations.
- B. Memorandum for Richard W. Krimm from Gary Johnson, Executive Officer in the Office of Natural and Technological Hazards dated June 7, 1983 concerning the response of FEMA to the NRC request of June 1, 1983.
- C. Draft letter, never mailed, prepared for signature of Louis O. Giuffrida by the staff of the office of Natural and Technological Hazards in anticipation of a request by NRC for a FEMA review of the LILCO Transition Plan.
- D. Portions of Status Report on Shoreham Nuclear Power Plant dealing with opinions of staff.

- E. Analysis of a hypothetical question concerning LILCO, New York State and Suffolk County response to an accident at the Shoreham Nuclear Power Station.

The FEMA claim of privilege was made by its Director, Louis O. Giuffrida. His affidavit states that he personally examined the documents in controversy and concluded that their production would be contrary to the public interest. He asserted that the seven categories of documents "consist of intra-departmental memoranda and communications containing opinions, recommendations and deliberations pertaining to decisions" subsequently made by FEMA. He went on to say that the disclosure of these documents "will have a chilling effect on the ability of this agency to receive in written format the comments, concerns and opinions of our staff." Affidavit of Louis O. Giuffrida at 3.

On October 19, 1983, Suffolk County filed a Supplemental Response in support of its motion to compel production of the documents. The County first claims that the Affidavit of Director Giuffrida is defective because it is unsigned. The County also asserts that FEMA failed to comply with the criteria listed by the Board at the Discovery Conference. Finally, the County asserts that the doctrine of "executive privilege" is not available to FEMA because that agency is not engaged in policy formation. The County claims that FEMA "is engaged only in rendering its factual findings." Suffolk County Supplemental Response at 10. Thus, the County's argument goes, "executive privilege" may only be asserted in connection with policy formulation and since FEMA formulates no policy in connection with the documents in controversy here, it is not entitled to claim privilege.

In spite of the Board's prior characterization of the NRC Staff position on this issue as "wholly inadequate," NRC Staff elected not to respond to FEMA's claim of executive privilege.

## II. ISSUES

Whether discovery of the documents in question is precluded by the doctrine of "executive privilege" and whether FEMA properly invoked "executive privilege" in this matter.

## III. APPLICABLE LAW

The scope of discovery in NRC proceedings is quite broad. The pertinent rule is as follows:

Parties may obtain discovery regarding any matter, *not* privileged; which is relevant to the subject matter involved in the proceeding . . . . It is not ground for objection that the information sought will be inadmissible at the hearing if the information sought appears reasonably calculated to lead to the discovery of admissible evidence.

10 C.F.R. § 2.740(b)(1). (Emphasis supplied.)

Although not cited by any party to this dispute, the prior Licensing Board in the instant matter was called upon to decide whether the County could prevent disclosure of some of its documents because of "executive privilege." In *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-82-82, 16 NRC 1144 (1982), the County opposed LILCO's discovery requests for emergency planning documents because of, *inter alia*, executive privilege of the County. The Licensing Board summarized the applicable law concerning "executive privilege" as follows:

The executive privilege is a qualified privilege, and does not attach to purely factual communications, or to severable factual portions of communications, the disclosure of which would not compromise military or state secrets. *EPA v. Mink*, 410 U.S., at 87-88; *Smith, supra*, 403 F. Supp., at 1015. Furthermore, even communications which fall within the protection of the privilege may be disclosed upon an appropriate showing of need. *United States v. Leggett & Platt, Inc.*, 542 F.2d 655, 658-659 (6th Cir. 1976), *cert. denied*, 430 U.S. 945 (1977). *See also Smith*, 403 F. Supp., at 1015-1016. In determining the need of a litigant seeking the production of documents covered by the executive privilege, an objective balancing test is employed, weighing the importance of the documents to the party seeking their production and the availability elsewhere of the information contained in the documents against the government interest in secrecy. *Leggett & Platt, supra*, 542 F.2d, at 658-659.

*Id.* at 1164-65. It is clear that executive privilege in connection with state secrets or military secrets, the disclosure of which would threaten national security, is a matter of absolute privilege. *See Kinoy v. Mitchell*, 67 F.R.D. 1 (S.D.N.Y. 1975). However, since the only claim of executive privilege asserted by FEMA here is that disclosure of the documents would be harmful to the decision-making process of the agency, we agree with the statement of the prior licensing board in *Shoreham* that this is a "qualified privilege."

As pertinent here, "executive privilege" has been described by several other names: deliberative process of government privilege, governmental functions privilege, and intra-governmental documents privilege. The case law discussing this privilege has also considered exemptions under the Freedom of Information Act, 5.U.S.C. § 552(b)(5). This statutory provision exempts from required disclosure "inter-agency or intra-agency memorandums or letters which would not be available by law to

a private party in litigation with the agency." This provision has been interpreted by the courts in harmony with the doctrine of "executive privilege" so that deliberative materials produced in the administrative decision-making process are protected from disclosure while purely factual materials are not protected from disclosure. *See Branch v. Phillips Petroleum Co.*, 638 F.2d 873 (5th Cir. 1981). Agency documents which reflect advisory opinions, recommendations, or deliberations fall within "executive privilege." *Capitol Service, supra*, at 582. The reason for protecting the confidentiality of communications between high government officials and those who advise and assist them is to achieve the goal of receiving the most candid advice without regard for appearances or self interest of the adviser. *United States v. Nixon*, 418 U.S. 683, 705 (1974).

The U.S. Supreme Court in *EPA v. Mink*, 410 U.S. 73 (1973), set forth rules for separating factual material from "deliberative information" through *in camera* inspection, in cases brought pursuant to the Freedom of Information Act. The same procedure has been followed in "executive privilege" cases. *Carl Zeiss Stiftung v. V.E.B. Carl Zeiss, Jena*, 40 F.R.D. 318 (D.D.C. 1966), *aff'd on opinion below*, 384 F.2d 979 (D.C. Cir.), *cert. denied* 389 U.S. 952 (1967).

[C]ourts should not hesitate to make a private examination of disputed materials upon a reasonable showing that it can serve a purpose truly useful to a party actually or potentially entitled to some discovery . . . . *In camera* inspection in executive privilege cases is appropriate where it appears with reasonable clarity that the party seeking production is entitled to access to some of the materials demanded. Examination in this type of situation enables the separation of what should be disclosed from what should not be revealed . . . .

*Id.* at 331.

#### IV. OPINION

We begin our analysis and review of this controversy by assessing the affidavit of FEMA's Director, Louis O. Giuffrida, in the light of our announced prerequisites and the County's objections. First, we note that our copy of the affidavit is signed by Director Giuffrida and his signature is notarized. There is no reason to doubt the validity of the signature. Accordingly, the County's objection that the affidavit is defective because it is unsigned will be overruled.

Second, the County claims that the FEMA affidavit should be rejected because it fails to comply with the criteria established for that affidavit by the Board during the Discovery Conference. We find that FEMA



Director Louis O. Giuffrida is the head of his agency. The Giuffrida affidavit describes the seven documents sought to be withheld. The affidavit asserts that FEMA Director Giuffrida personally examined the documents in controversy and invoked "executive privilege" to prevent disclosure of "intra-departmental memoranda and communications containing opinions, recommendations, and deliberations pertaining to decisions" of FEMA. He further stated that disclosure of the documents would have a "chilling effect" on the ability of FEMA to receive written comments and opinions in the future. We find that, for the purpose of asserting "executive privilege," the seven FEMA documents are described and the reason for preserving confidentiality is articulated. Hence, we find that FEMA has complied with our order concerning the prerequisites of the claim of executive privilege. The objections of Suffolk County to the FEMA affidavit are overruled.

This leads us to the County's claim that the doctrine of "executive privilege" is not available to FEMA because the privilege is only available to protect against disclosure of communications regarding policy formulation and FEMA does not engage in policy formulation in this matter. We find that the County is mistaken. Executive privilege is not limited to policy formulation but extends to the agency's decision-making process. In *Kaiser Aluminum & Chemical Corp. v. United States*, 157 F. Supp. 939 (Ct. Cl. 1958), Justice Reed (Retired), sitting by designation held,

The document sought here was a part of the administrative reasoning process that reached the conclusion embodied in the contracts with Kaiser and Reynolds. The objective facts, such as the cost, condition, efficiency, terms and suitability are otherwise available. So far as the disclosure of confidential intra-agency advisory opinions is concerned, we conclude that they belong to that class of governmental documents that are privileged . . . .

*Id.* at 946.

While we agree with the County that purely factual material is not privileged, it is unproductive to attempt to distinguish "policy formulation" from "decision-making" or "administrative reasoning." As long as the documents in controversy consist of advisory opinions, recommendations or deliberations in the agency decision-making process, we find that they fall within the doctrine of "executive privilege." Thus, the County's argument that we should not consider FEMA's assertion of privilege, for failure to specify the type of policy formulation involved, is rejected.

Although we find in favor of FEMA concerning its claim of the existence of "executive privilege" here, that does not end the matter. We

have previously stated that the privilege is a qualified one. This requires us to balance the need for the privilege against the need of the County to have the documents. With this standard in mind, we begin our review of Director Giuffrida's affidavit asserting "executive privilege" for seven documents. We shall discuss them in the order listed therein.

**"(a.) All drafts of a memorandum . . . ."**

At the outset we note that the final version of this memorandum, from FEMA to NRC on June 23, 1983, is public information which has been served on all parties. We find that the drafts which led up to the final product are privileged and the County has failed to establish compelling reasons for disclosure. We see no reason to examine the drafts. The County's motion to compel production of these drafts is DENIED.

**"(b.) All drafts of a letter . . . ."**

Again we note that the final version of the letter drafted August 29, 1983 from FEMA to NRC is publicly available. We see no reason to examine these drafts. For the same reasons listed concerning drafts of the memorandum above, we DENY the County's motion to compel production of these documents.

**"(c.) Those sections of a Briefing Paper on Shoreham prepared by the Staff . . . for . . . Regional Director . . . detailing his staff's identification of issues and recommendations."**

We find this to be the type of opinion and recommendation squarely protected by the privilege. The County again failed to establish any compelling need for the document which would suffice to overcome the privilege. We found no reason to examine this document. FEMA's claim of "executive privilege" is SUSTAINED.

**"(d.) Memorandum . . . dated June 7, 1983 concerning the response of FEMA to the NRC request of June 1, 1983."**

Although we previously found that FEMA had properly identified this document for a claim of privilege, FEMA's description of the memorandum led us to believe that part of it may be discoverable. Accordingly, we unsealed the documents and examined this memorandum. We find that the memorandum contains factual material which can be separated from the privileged material. Prior to the last paragraph on page 1, the

memorandum contains only factual, non-privileged matter. Beginning with the last paragraph on the first page, the remainder of the memorandum is privileged. The County has not established a compelling reason for disclosure of the privileged material. To clarify this matter, FEMA shall produce a copy of the June 7, 1983 memorandum from Gary D. Johnson to Richard W. Krimm through the paragraph ending with the phrase, "in preparation of FEMA's response to NRC." As to the remainder of that memorandum, FEMA's claim of privilege is SUSTAINED.

**"(e.) Draft letter, never mailed . . . ."**

For the reasons stated in connection with draft memoranda and draft letters in parts (a.) and (b.), *supra*, we uphold FEMA's claim of executive privilege and find no reason to review this document.

**"(f.) Portions of Status Report . . . ."**

**"(g.) Analysis of a hypothetical question . . . ."**

In connection with these two documents, we concluded that the documents in question should be reviewed in order to balance the competing interests. Accordingly, the Board examined the portions of the status report and analysis of a hypothetical question and concluded that neither document contained discoverable factual material and that both documents contained opinions, deliberations and recommendations which should be withheld. FEMA's claim of "executive privilege" as to these items is SUSTAINED.

In addition to the documents described above, Suffolk County, in its Motion to Compel Discovery from FEMA, requested production of written instructions from Gary D. Johnson of FEMA to Fred Sharrocks of FEMA concerning preparation of a draft response to a letter from NRC. FEMA has not asserted "executive privilege" or otherwise objected to the production of this material. Accordingly, Suffolk County's motion to compel production of these written instructions is GRANTED.

## V. ORDER

WHEREFORE IT IS ORDERED that FEMA shall submit to Suffolk County the following documents: (1) Page 1 of a memorandum dated June 7, 1983 from Gary D. Johnson to Richard W. Krimm through the paragraph ending with the phrase, "in preparation of FEMA's response to NRC"; and (2) written instructions from Gary D. Johnson to Fred

**Sharrocks concerning preparation of a FEMA response to a July 22, 1983 letter from William J. Dircks of NRC.**

**IT IS FURTHER ORDERED that as to all other documents for which "executive privilege" was claimed, as identified in the Suffolk County Motion to Compel Discovery from FEMA and the October 12, 1983 FEMA response, the FEMA claim of "executive privilege" is SUSTAINED and the Motion to Compel Discovery is DENIED.**

**FOR THE ATOMIC SAFETY AND  
LICENSING BOARD**

**James A. Laurenson, Chairman  
ADMINISTRATIVE LAW JUDGE**

**Bethesda, Maryland**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Herbert Grossman, Chairman  
Dr. Richard F. Cole  
Dr. Emmeth A. Luebke**

**In the Matter of**

**Docket No. 50-244-OLA  
(ASLBP No. 79-427-07-OLA)**

**ROCHESTER GAS & ELECTRIC  
CORPORATION**

**(R.E. Ginna Nuclear Plant,  
Unit 1)**

**November 7, 1983**

The Licensing Board determines that a further notice of opportunity for intervention should be issued to supersede one issued over ten years before in this proceeding which had been held in abeyance pending a lengthy NRC Staff review mostly conducted under the Systematic Evaluation Program. The Board further denies Intervenor's requests for sanctions against Applicant and NRC Staff, and a reimbursement of Intervenor's future expenses, which he based upon not being notified in advance of certain Applicant-Staff technical meetings.

**RULES OF PRACTICE: RENOTICING AN OPPORTUNITY  
FOR HEARING**

Under the authority of *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-535, 9 NRC 377, 386-87 (1979) and ALAB-539, 9 NRC 422 (1979), a proceeding held in abeyance pending a lengthy Staff review must be renoticed where the

original notice of an opportunity for hearing had been issued over ten years before.

## **RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES**

In the absence of any willful violations of Applicant's or Staff's obligations to the Licensing Board or Intervenor with regard to giving advance notice of Applicant-Staff technical meetings and transmitting relevant documents, no sanctions will be imposed.

## **COMMISSION PROCEEDINGS: FINANCIAL ASSISTANCE TO PARTICIPANTS**

The Commission lacks the legal authority to provide financial assistance to intervenors, having been barred from doing so in successive appropriations acts. *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-80-19, 11 NRC 700 (1980); Pub. L. 97-88, § 502 (Dec. 4, 1981); Pub. L. 97-377, § 512(f) (Dec. 21, 1981).

## **MEMORANDUM AND ORDER**

**(Requiring Staff's Draft of Further Notice of Opportunity for Hearing and Ruling on Intervenor Requests)**

### **MEMORANDUM**

The Ginna plant received a provisional operating license on September 19, 1969, and began commercial operation in July 1970. An application for conversion of the provisional license to a full-term operating license was submitted by the Applicant, Rochester Gas and Electric Corporation, and was noticed at 37 Fed. Reg. 26,144 (1972). The Intervenor, Mr. Michael L. Slade, was admitted to the proceeding by an Atomic Safety and Licensing Board Order on June 8, 1973.

Since that time, the Applicant has made some major modifications to the Ginna plant. In 1974, the revetment was upgraded. In 1975, in response to concerns raised on pipe break outside containment, a standby auxiliary feedwater system and housing structure was constructed. In 1974, to improve steam generator reliability, the Applicant started all-volatile treatment for secondary coolant. Safety Evaluation Report, October 23, 1983, at 1-5.

In 1975, because of a large backlog of unresolved generic issues that were relevant to the operation of provisionally licensed plants, the NRC

Staff stopped its review of provisional operating license (POL) conversions and set out to establish the scope of review needed to support the full-term conversions. In or around 1977, the Commission included the POL facilities in Phase 2 of the Systematic Evaluation Program (SEP). The SEP was established to apply advances in technology and licensing requirements (generally referred to as "backfitting") to older plants. *Id.* at 1-2.

Although the Intervenor was admitted in 1973 and his contentions admitted in 1977, the proceeding has been held in abeyance because of the lengthy Staff review. Staff is currently completing its review and began issuing its final safety reports in December 1982. Its latest issuance, Safety Evaluation Report (NUREG-0944), was issued in October 1983.

With a view towards resuming the proceedings now that Staff is completing its review, the Board ordered the parties to confer with each other and submit status reports by July 15, 1983. Included in the Board's order was a request that the parties state their respective positions with regard to whether the Board is required to, or in any event should, renounce an opportunity for intervention and request for hearing. Board Order of June 15, 1983 (unpublished). The parties timely responded to the Board's order and stated their respective positions: Intervenor was in favor of renouncing; Applicant and Staff were opposed. The parties appear to agree that the proceeding should resume at about the time the Staff issues its final major document which we assume to be the October 1983 Safety Evaluation Report, although a supplement to the SER will issue after the Advisory Committee on Reactor Safeguards has reviewed the Ginna application for a full-term operating license.

We determine that a renouncing of the opportunity for hearing is necessary and require Staff to prepare a draft of notice with the inclusion of certain references. We deny other requests made by Intervenor in his status report.

### **Renouncing an Opportunity to Intervene**

In our order of June 15, 1983, we referred the parties to *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-539, 9 NRC 422 (1979), in formulating their respective positions on whether the Board should renounce an opportunity for intervention. In that decision, the Appeal Board indicated (at 425) that a delay in the proceeding of "perhaps 5 to 10 years" due to a postponement of construction would cause the original notice to become "manifestly stale" so that the proceeding could not be resurrected under

its aegis. In the instant proceeding, the notice of opportunity for hearing was issued in 1972, over 10 years ago. Resuming this proceeding under the aegis of that notice would appear to violate the Appeal Board's declaration.

In opposing a renoticing of the opportunity for hearing, Staff and Applicant both refer to the Appeal Board's declaration as "*dicta*." Staff Response at 4-5; Applicant's Memorandum at 2-3. We do not agree.

In *Allens Creek*, the Applicant in a construction permit proceeding informed the Licensing Board that construction of the facility was indefinitely deferred. Nonetheless, at the Applicant's urging, the Licensing Board issued a partial initial decision on some, but not all, of the issues heard. The Appeal Board affirmed. More than a year and a half later, the Applicant apprised the Licensing Board that it wished to move ahead with its application as recently amended. The amendment called for the reduction of the proposed facility from two units to one.

In response, approximately four years after the original notice of hearing, the Licensing Board issued a "Notice of Intervention Procedures," which invited the filing of new intervention petitions limited in scope to contentions which either arose from proposed changes in plant design or were based upon evidence or information not available prior to the Appeal Board's affirmance of the partial initial decision.

In *Allens Creek*, ALAB-535, 9 NRC 377, 386-87 (1979), the Appeal Board held that the limitations placed upon contentions were "too restrictive." According to the Board, no contention could properly be rejected simply because it did not arise from proposed plant design changes and was not based upon either new evidence or information. Rather, the only proper limitation was upon any prospective relitigation of issues that had already been thoroughly explored at the prior hearing and dealt with in the partial initial decision. The Appeal Board remanded the cause to the Licensing Board for further proceedings in light of its determination. In ALAB-539, *supra*, the Appeal Board was requested to reconsider its disapproval of the Licensing Board's limitation upon new interventions, but reaffirmed its decision to remand with the language that a notice aged "perhaps 5 to 10 years" is "manifestly stale."

Staff's characterization of the Appeal Board's statement regarding a notice becoming manifestly stale as "*dicta*" is inaccurate. Staff's characterization apparently is based upon its erroneous belief (Staff's Response at 4) that, in *Allens Creek*, the "Appeal Board ruled that the [Licensing] Board's limitation to changes in the design was proper." Had the Appeal Board actually so ruled, Staff might be correct with regard to its *dicta* characterization. Such a ruling would be consistent with the position that the mere passage of time does not afford the right



to new interventions and contentions. However, the Appeal Board did not uphold that Licensing Board limitation. It ruled that the new petitioners could *not* be restricted to design changes or new information. Obviously, it was not the design changes or any new information that justified a renoticing of the proceeding (which in that case would have permitted a limitation of contentions to these new matters). Rather, the passage of time “vitiating” the original notice (*see* ALAB-539 at 424-25) and required the issuance of a new notice that would allow the raising of any issues that had not yet been actually heard and decided.

Nor is Applicant’s basis for labeling the Appeal Board’s statement as “*dicta*” correct. Contrary to Applicant’s argument (Applicant’s Memorandum at 2), *Allens Creek* did not involve the question of “whether the renote had been sufficiently clear to preclude consideration of certain issues that had been brought before the NRC at an earlier stage of the proceeding.” As discussed above, the question decided by the Appeal Board was whether issues that had *not* been heard and decided at an earlier stage could be precluded from consideration because they were not based upon new matters. The Appeal Board’s decision that issues could be raised even if they could have been raised under the earlier notice cannot be rationalized on grounds other than that the original notice had been vitiated by the passage of time.<sup>1</sup>

Staff’s and Applicant’s further attempts at distinguishing the instant proceeding from *Allens Creek* are unpersuasive. Staff attempts to “contrast” the present case, in which the proposed action that has been pending remains the same — the conversion of the provisional operating license (POL) to a full-term operating license (FTOL) — with *Allens Creek*, where supposedly the nature of the proposed action was changed significantly. Staff Response at 5. But, while the construction plans in *Allens Creek* may have changed significantly, the proposed action did not. It remained the granting of a construction permit, much the same as the nature of this action remains the conversion of the POL to an FTOL. Nor are we as certain as Staff that the proposed changes in construction plans in *Allens Creek* of *reducing* the nuclear units from two to one would have any greater potential impact upon the public health and safety or the environment as to warrant a new round of interventions than the major modifications made to the Ginna plant (*see* SER, October 1983, at 1-5) and the major changes wrought on the plant’s operations by the passage of time (such as the effect on steam generator

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<sup>1</sup> Although, as discussed above, the *Allens Creek* declaration was not *dictum*, *see South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), LBP-82-55, 16 NRC 225, 268-80 (1982) for a licensing board’s after-the-fact discussion of its dilemma in deciding whether to follow authoritative holdings or Appeal Board *dictum*.

reliability). Furthermore, Staff's and Applicant's (see Applicant's Memorandum at 3) attempts to distinguish *Allens Creek* from this case on the grounds that the basic features of the Ginna plant have not been altered while the *Allens Creek* project had undergone significant design changes continues to ignore the critical holding in *Allens Creek*, ALAB-535 and ALAB-539, that the contentions raised in the new petitions to intervene could not be limited to the design changes.<sup>2</sup>

We are also unpersuaded that there is no policy reason to renote this proceeding, as Applicant argues (Memorandum at 5-7). At the time the original notice was issued in 1972, there was little public interest in environmental or public health and safety issues involving nuclear power. Many issues have crystallized since that time, including some from the operating experience of the Ginna plant. Moreover, significant numbers of persons have been born or have reached their majority in the vicinity of the Ginna plant, or have moved into that area, during the period of dormancy of this proceeding after the March 1974 prehearing conference, which was the last real opportunity for residents of the area to become involved. To deprive these persons of the opportunity to participate in the matter of the issuance of the operating license for the Ginna plant would appear to violate the spirit of Section 189 of the Atomic Energy Act, as amended (42 U.S.C. § 2239), which permits public participation by interested persons.

### **Content of the New Notice**

In his response to the Board's order of June 15, 1983, Intervenor Michael L. Slade requested that, in the event of a renoticing of the opportunity for hearing, the notice include information in addition to what is usually included. The additional information he suggests includes: (1) a history of the plant's operations; (2) a summary of all formal and informal contentions about the plant; (3) a list of all exceptions from current NRC standards granted to the facility; (4) an itemization of all present NRC requirements that did not exist at the time of the original application; and (5) a certification from the Staff and Applicant that the local public document room collection is complete and a listing of all documents on file.

By Order of August 18, 1983 (unpublished), we required Staff and Applicant to reply to Intervenor's request. Staff indicated in reply that Inter-

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<sup>2</sup> Although Staff and Applicant have cited a number of other cases, *Allens Creek* (ALAB-535 and ALAB-539, *supra*) is the only one that deals directly with the effect of the passage of time on a notice of opportunity to intervene.

venor Items (1), (3) and (4) are summarized and publicly available in NRC documents issued pursuant to the Systematic Evaluation Program. It points out that the inclusion of the detailed and voluminous material requested by Intervenor in the notice could make it confusing. Staff suggests that if a further notice is deemed necessary, it would be sufficient to reference the documents containing that requested information in the notice. We agree and will require Staff to draft a proposed notice that would reference those materials.

With regard to Item (2), requiring a summary of all formal and informal contentions, we agree with Applicant (Reply at 3) that the formal contentions are already part of the record and that only the Intervenor can know what he is referring to as "informal contentions." If Intervenor is requesting that we include in the notice a suggestion of issues that might be raised by potential petitioners to intervene, we see no authority or justification for taking such an action.

Finally, with regard to Item (5), a certification of completeness and a listing of all documents contained in the Local Public Document Room, we agree with Staff (Reply at 9-10) that this action is unnecessary, expensive, and burdensome. Staff indicates that the NRC LPDR Staff recently completed an annual visit to the Ginna LPDR and that the collection appeared to be in order. Furthermore, Staff indicates that the collection includes an unofficial listing of Ginna documents taken from the chronological sheets of the NRC Central Files Room and a cumulative computer accession list of all documents dating from September 1978, when the computerized document control system began. *Ibid.* In the absence of any specific allegations with regard to irregularities in the LPDR, we accept the existing system, as described by Staff, as being adequate.

### **Intervenor Complaints About Applicant-Staff Meetings**

Intervenor complains that it has not received transcripts or other records of all meetings between Staff and Applicant as required by a stipulation between the parties. In addition, he alleges that these meetings have been held in or around Washington, rather than in the neighborhood of the site, and that he has received notice of some of these meetings only after the meetings have occurred. He requests, as a remedy, that he be provided with all transcriptions and memoranda pertaining to all Staff-Applicant meetings, that the Staff and Applicant be fined, and that they share the costs of all expenses for travel, food, lodging, and compensation for loss of salary to all those on the notification list who have been aggrieved in the past by lack of appropriate

notification and who wish to be present at any future meeting. If the Board does not grant his request, Intervenor further requests that we remove ourselves as biased from this proceeding and all others to which the Staff or Applicant is a party. Intervenor Status Report at 2-3.

From Applicant's and Staff's replies it appears that the "stipulation between the parties" referred to is an informal agreement made between Intervenor and Applicant's law firm in February of 1974, to which Staff was not a party, pursuant to which Intervenor was to receive copies of all regulatory correspondence and reports submitted by Applicant to the NRC. Applicant indicates (Reply at 2) that it has faithfully complied with that agreement. While not party to the stipulation, Staff asserts that copies of all NRC-generated documents on the Ginna docket have been mailed to Intervenor and to others on the technical service list since 1973 in accordance with NRC policy. Staff Reply at 4.

As to the alleged failures in timely notification, Staff admits that on at least two occasions, due to the need for prompt consideration of a licensing matter affecting the restart of the facility, timely notice of meetings was not provided to Intervenor. Staff however pledges to use its best efforts in the future to notify the Intervenor of meetings one week in advance, where possible, and, as a courtesy, to contact him by expedited means (telephone, mailgram, telegram, etc.) when meeting dates and arrangements are such that advance notice is impractical. The meetings are primarily held in the Washington, D.C. area so as to facilitate the attendance of necessary Staff personnel while minimizing the costs to NRC and the disruption of other Staff work. *Id.* at 3.

We see nothing in what has been told to us by the parties that would justify the imposition of sanctions against Staff or Applicant. No discovery rules have been violated, much less in defiance of a Board order. We do not treat lightly breaches of informal agreements between the parties, but if any occurred in this case, they appear to have been inadvertent. Some failures in communication are bound to have occurred during the lengthy period in which this proceeding was held in abeyance. We are satisfied that Staff and Applicant are committed to supplying prompt notifications of meetings and all relevant records pertaining to those meetings.

Not having found any willful violations of Applicant's or Staff's obligations to the Board or Intervenor, we cannot impose sanctions. Moreover, we are unaware of any obligation of Staff to hold its meetings near the Ginna facility in order to accommodate the local citizenry. On the contrary, Staff has every reason to minimize the public expense by limiting the travel and work disruption of its technical staff. All hearings and prehearings in this proceeding, on the other hand, will be scheduled

near the facility in furtherance of the policy of the Atomic Energy Act and the underlying regulations to encourage public participation.

Although Intervenor may seek financial assistance for itself and others on the notification list who wish to be present at future meetings between Staff and Applicant, the Commission lacks the legal authority to provide financial assistance to intervenors, having been barred from doing so in successive appropriations acts. *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-80-19, 11 NRC 700 (1980); Pub. L. 97-88, § 502 (Dec. 4, 1981); Pub. L. 97-377, § 512(f) (Dec. 21, 1982). Intervenor must persuade the Congress, not the Licensing Board, to supply the funding.

We see no basis for granting Intervenor's further request that this Board remove itself as biased from this proceeding if it does not grant Intervenor's requests with regard to the meetings between NRC technical staff and Applicant. We are ruling fairly and impartially on his requests, and that is all that is required of a licensing board.

## ORDER

For all of the foregoing reasons and based upon a consideration of the entire record in this matter, it is, this 7th day of November 1983

### ORDERED

(1) That Staff (and any other party that so desires) draft a proposed notice of opportunity for hearing in the usual form but containing, in addition, specific citations to the pertinent Ginna documents that contain: a history of the plant's operations, a listing of all exceptions from current NRC standards granted to the facility, and an itemization of all present NRC requirements that did not exist at the time of the original application, to be submitted to the Board by November 23, 1983;

(2) That Applicant and Staff continue the arrangements to which they have committed themselves regarding notification of meetings and the transmittal of relevant documents to Intervenor; and

(3) That all further requests made by Intervenor in his status report of July 15, 1983, including sanctions against the other parties, reimbursement of expenses and the recusal of this Board, are *denied*.

**THE ATOMIC SAFETY AND  
LICENSING BOARD**

**Herbert Grossman, Chairman  
ADMINISTRATIVE JUDGE**

**Richard F. Cole  
ADMINISTRATIVE JUDGE**

**Emmeth A. Luebke  
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland  
November 7, 1983**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

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

**In the Matter of**

**Docket Nos. 50-440-OL  
50-441-OL**

**CLEVELAND ELECTRIC ILLUMINATING  
COMPANY, *et al.***

**(Perry Nuclear Power Plant,  
Units 1 & 2)**

**November 10, 1983**

The Licensing Board examines filings submitted in response to a Board decision reopening the record to receive written evidence on two quality assurance allegations. The Board concludes that the new filings place the Board's concerns in perspective and persuade it that: (1) L.K. Comstock did not have a pervasive practice of using uncertified quality assurance inspectors, and (2) that although the frequency of meeting of the applicant's Quality Assurance Advisory Committee did not fulfill applicant's own internal guidelines, this deficiency does not cast serious doubt on the adequacy of applicant's quality assurance program.

**QUALITY ASSURANCE: PROGRAM COMMITMENTS**

Applicant must meet each of its quality assurance commitments, even if some of the elements of its program might initially have been "add-ons" that were not required by the regulations.

## **RULES OF PRACTICE: MOTION TO HOLD OPEN THE RECORD**

The record on quality assurance may not be held open because a party hopes to be able to obtain witnesses in the future.

## **TECHNICAL ISSUE DISCUSSED**

Quality Assurance (Inspector Certification).

## **MEMORANDUM AND ORDER**

**(Dismissing Additional Quality Assurance Issues and Closing the  
Quality Assurance Record)**

On August 18, 1983 the Board reopened the quality assurance record in this proceeding to receive additional evidence on two issues that had been brought to its attention by the Ohio Citizens for Responsible Energy ("OCRE"). LBP-83-52, 18 NRC 256 (1983). OCRE alleged several deficiencies at Perry, based on newly found documents; the Board accepted two: (1) that electrical inspections at Perry had been performed by unqualified inspectors in 1981 and that the inspections they performed were invalid and (2) that Cleveland Electric Illuminating Company, *et al.*'s (applicant) Quality Assurance Advisory Committee had met only twice in 1981 when it was required to meet quarterly and that this was a period in which applicant was troubled with numerous quality assurance (QA) deficiencies in the area of electrical construction.

The Board has examined the additional evidence submitted by all parties to this proceeding and concludes that the discrepancies alleged by OCRE did not constitute a breakdown of applicant's QA program or loss of control over its electrical contractor, L.K. Comstock, and that these issues do not raise significant questions of safety in the electrical area at Perry. Accordingly, we dismiss the two issues and close the QA record.

### **I. BACKGROUND**

Hearings on quality assurance at Perry were held in Painesville, Ohio, May 24-27, 1983. The record was closed on quality assurance at the conclusion of the hearing and all parties filed proposed findings of fact and conclusions of law as required. The Board has not as yet issued a partial initial decision on QA contentions.



On July 13, 1983 OCRE filed a motion to reopen the record based on information it had obtained concerning a number of QA issues and applicant's control over its electrical contractor L.K. Comstock. The staff of the Nuclear Regulatory Commission (staff) and applicant opposed reopening the record for two reasons: first, that OCRE did not raise significant safety issues which could alter the decision on quality assurance; secondly, that the filing was untimely since the information, while new to OCRE, was not newly generated and could have been found by OCRE either on discovery from the applicant or by filing a FOIA request to the staff at an earlier date. The Sunflower Alliance, Inc., *et. al.* (Sunflower) generally supported the motion to reopen.

The Board denied OCRE's motion to reopen the record as untimely. The Board found, however, that OCRE's filing had raised two issues regarding QA at Perry which had not been explicitly addressed or disclosed at the hearing and which could have a bearing on the safety of electric work at Perry. Neither applicant's nor staff's reply to the motion to reopen were sufficiently detailed to lay the Board's concerns for plant safety to rest. The Board, therefore, ordered the record reopened for the limited purpose of receiving additional written evidence on two QA issues which had been brought to our attention by OCRE.

## II. THE ISSUE OF ELECTRICAL INSPECTOR CERTIFICATION

OCRE's motion to reopen the record was founded in part on a report written by an L.K. Comstock Task Force which stated that in 1981 only 6 of 22 Comstock electrical inspectors were properly certified for the inspections they performed and that inspection documents generated by level I inspectors were not cosigned by level II inspectors before being submitted as required by written procedures. The Task Force report went on to say that all electrical inspections performed prior to January 1, 1982 should be treated as invalid. (OCRE motion to reopen, Attachment 3.)

OCRE argues that those discrepancies took place in the 1981 time frame which was the focus of scrutiny of L.K. Comstock QA problems at the hearing. Although the shortage of electrical inspectors during that time period was discussed at some length at the hearing, the question of their qualification or certification was never unambiguously disclosed by either applicant or staff. Thus, OCRE fears that there may exist an inaccurate record on electrical quality assurance at Perry and the Board may have been misled by the omission.

In response to the order to reopen applicant submitted the affidavit of Gary L. Leidich who was a witness at the QA hearing and who is its Senior Engineer, Nuclear Construction and Engineering Section. (Leidich Affidavit, September 19, 1983)

Mr. Leidich stated that Comstock developed a certification program for its inspection personnel prior to the initiation of safety-related electrical work. The program was consistent with applicable Perry specifications and ANSI N45.2.6 standards and was reviewed by the CEI Project Organization QA personnel prior to implementation.

The certification program sets forth standards for inspector certification which include consideration of education, training, and experience. Completion of proficiency testing is also considered. Certification is granted at three levels, designated as level I, II or III; these correspond to increasing levels of inspector responsibility and authority. The certification does not grant a general authority to inspect but is restricted to task-specific areas such as receipt, equipment, installation, calibration, tray/conduit installation cable pulling and many others. Certification in any task area requires proficiency in the procedures applicable to that area and approval of the Project Organization. An inspector may be generally qualified by virtue of education and training under this scheme and yet not be certified in specific task areas.

Applicant conducted seven audits between 1978 and 1982 of inspector certifications. These audits turned up instances of inspector certification discrepancies which applicant considered to be insignificant in number and kind and which involved no safety deficiencies.

In March 1982, at applicant's direction, Comstock conducted a comprehensive internal audit of its QA program which included a review of inspector certification. The Comstock audit found a small number of inspector certification discrepancies and raised questions about the completeness of inspection documentation. The audit concluded that further assessment was needed. Comstock's response was to set up a task force under the direction of its corporate QA manager, with the broad charter to perform a comprehensive review of Comstock QA documentation. The task force worked from April-December 1982. It was this task force that produced the August 6, 1982 letter which was attached to OCRE's motion to reopen. This was a preliminary report of its findings to that date.

The full task force review continued and finally covered approximately 30,000 records. It ultimately found 190 discrepancies in certification that involved 15 inspectors out of 110 that had been employed by Comstock in the 1978-1982 period. The fifteen inspectors were qualified and the majority of their inspections were conducted within the area of their

certifications. The discrepancies arose because these inspectors had completed some inspections outside their task certifications. The discrepancies, while not proper procedure, were mitigated by the fact that the inspectors performed inspections that were common to two or more certification area checklists. The technical knowledge required to inspect in the area outside the inspector's certification was the same as or similar to that required for tasks for which the inspector was certified. Thus Comstock believed that the inspectors were proficient in the inspections they performed even though the inspectors did not have the required task certification in the areas identified.

In response to the task force findings, applicant issued a corrective action request (CAR 83-02) which required that Comstock discontinue the practice of inspectors signing common checklist items outside their area of certifications. Engineering reviews and reinspections of all inspectable items were then performed without finding safety deficiencies. (Twenty-nine out of thirty-five electrical penetrations were no longer accessible and could not be reinspected.) The certification deficiencies involved uncomplicated matters such as torquing, cleanliness and cosmetic damage, for which the inspectors were proficient even though they were not certified for the checklist in question. Applicant, therefore, concluded that further reinspection was not required. Final acceptance testing of the penetrations will be performed, which will provide added assurance of adequacy.

Among the discrepancies involving electrical inspections by the Comstock task force were about 35 instances where inspection records generated by level I inspectors did not have acceptance signatures from level II inspectors, as required. CEI was aware of this matter from its own audits and it issued a corrective action request (CAR 82-21) in August 1982.

The Comstock task force periodically sent memos and letters to applicant while it was performing its work. While the task force had documented its findings informally, no formal nonconformance reports were issued since the reviews had not revealed hardware problems. Applicant kept a close overview of the work as it was being performed; however, it did not plan a review of the task force findings until the end of the task force review. The staff issued a notice of violation for failure to issue corrective action documents (Inspection Report 50-440/83-06; 50-441/83-06, March 16, 1983). Applicant agreed that the task force findings should be documented in nonconformance reports and this was done (Inspection Report, 50-440/83-08; 50-441/83-08, May 16, 1983). Applicant also placed the findings on the Project Organization Surveillance Inspection Reports (SIRs) to ensure proper resolution. This re-

mains a staff open item pending verification of disposition of NRs and SIRs.

The Board would not ordinarily reopen a closed record to take additional evidence on common documentation discrepancies. In this case, however, the signature discrepancies and tardy nonconformance reports were part of the larger question of whether Comstock conducted electrical inspections using unqualified personnel and whether the issue should have been disclosed at our hearing, which focused explicitly on the ability of Comstock and CEI to conduct electrical inspections during the same time frame. We conclude, however, that the documentation problems discussed here occurred with far more limited frequency than we thought when we reopened the record. Furthermore, these problems have been corrected and have no implications bearing on the safety of the plant.

In response to the order to reopen the record the staff filed the affidavit of James E. Konklin who is Chief of Reactor Projects Section of the NRC Region III Office and who testified at the hearing. (Konklin Affidavit, September 29, 1983.) Mr. Konklin stated that the staff has reviewed a sample of the reinspection reports and found no irregularities nor has it found deficiencies in hardware that were overlooked either in the initial inspections or the reinspections. Applicant's corrective actions are being implemented effectively.

The staff believes that the inspector certification discrepancies were mistakes and not intentional wrongdoing since there is no reason to suspect that any inspections were intentionally conducted in areas where inspectors were not certified. This is based on the facts that there was only a small percentage of hardware items involved, no significant deficiencies were found on reinspection and Comstock discovered and reported the irregularities. The Board accepts that the inspector certification discrepancies were error and not wrongdoing, in the absence of any contrary information.

Applicant reviews inspector certifications at the time of component or system turnover by the contractor. That had not been done at the time the Comstock task force found the inspection report discrepancies. The staff also audits inspector certifications. Neither applicant nor staff audits discovered the discrepancies; however, the final turnover reviews would have given applicant another opportunity to discover discrepancies had that not been caught by Comstock.

OCRE replied only in a limited way to applicant's explanation of circumstances surrounding the inspector certification issue. They cited a recent NRC order imposing a civil monetary penalty on the Niagra Mohawk Power Company for a violation involving the use of uncertified

inspectors. However, OCRE recognized that the penalty in that case was assessed because it involved falsification of records under circumstances where supervision was aware of this practice and failed to take appropriate action to discontinue it. 48 Fed. Reg. 40,582 (1983). The issue of falsification of documents has not been alleged in Perry. Thus the Niagra Mohawk case does not apply to the case before us.

OCRE states that it has no further evidence to present concerning the issues and recommends that no further hearings on this contention be held. OCRE complains strongly, however, that the Board must now take the word of the applicant, who has a significant stake in the outcome, and of the staff, which usually sides with applicant. They complain that the witnesses who were required to tell the whole truth at the hearing failed to mention the certification issue even though it was known to applicant and staff at the time of the hearing.

The Board reopened the record for the limited purpose of receiving written evidence on these matters precisely because it was uncertain as to whether there had been full disclosure at the hearing on a possibly important matter concerning applicant's control over Comstock's QA program.

Our review of the evidence before us leads us to believe that the issues raised by the task force letter attached to OCRE's motion to reopen the record were in the nature of isolated discrepancies in an otherwise functional inspector certification program. The Comstock task force ultimately found only 190 discrepancies out of about 30,000 records they examined. The nature of the discrepancies was of small significance to safety since the inspectors had signed off on items for which they were proficient though not formally certified to perform. This circumstance arose out of what is apparently an artifact of the certification system wherein inspectors become certified to specific checklists of items in each of several subject areas. Not every inspector is certified to inspect against every checklist even though different checklists may have specific items in common. In this case inspectors who were certified to one list inspected the same or similar items from another list for which they were not formally certified. While we do not approve of that procedure, we have no reason to think that it produced serious safety concerns.

We are satisfied that the applicant or Comstock conducted reinspections or reviews of items from which there were discrepant inspection records without finding serious safety deficiencies. We are also satisfied that applicant conducted audits of its own of Comstock inspections and was aware that there were a small number of inspector certification discrepancies in the years 1978-1982 and that its overview ultimately led to

the comprehensive review by Comstock which brought the magnitude of certification deficiencies into focus.

Applicant believes that it was correct in introducing evidence on this subject but not bringing it more forcibly to the attention of the Board during the hearing since they had already been addressed at the time of the hearing without finding matters of safety concern. (Notice of Violation, ff. Tr. 1619.) Furthermore, the adequacy of the resolution was not challenged in the hearing. The Board is aware that large numbers of nonconformance reports have been issued and closed out routinely during construction of Perry. The vast majority of these reports were unchallenged and therefore went unexamined by us in the hearing. This is consistent with our own summary disposition order, which instructed parties that we wished to receive evidence concerning whether there was a breakdown of the electrical QA program at Perry or evidence concerning whether CEI had lost effective control over its contractor Comstock. We explicitly instructed the parties that we did not wish to review lists of individual discrepancies unless they were pertinent to those questions. Thus we find it difficult now to fault applicant for following our instructions.

Neither do we fault OCRE for bringing this matter to our attention. Certainly the wording of the preliminary task force findings was sufficient to raise doubt in the Board's mind as to whether there were serious unresolved questions regarding electrical inspector certification and whether important information had been withheld from us at the hearing. This is particularly so since the certification deficiencies occurred during the same time period and with the same contractor that received close scrutiny at the hearing on other subjects. On balance we would have preferred the applicant to have exercised discretion to have discussed these matters more fully at the hearing simply because there is potentially a close connection between the difficulty of hiring inspectors and their degree of qualification. For all the Board could know from the hearing record, there could well be the possibility that untrained inspectors might be used because of the difficulty in hiring trained inspectors in 1981.

Such a hypothesis might seem plausible when developed from fragmentary or preliminary information. We are now satisfied that that hypothesis is false based on examination of a more complete record. We find that applicant has adequately explained the documentation discrepancies regarding certification of electrical inspectors and cosignatures of level II inspectors on inspection documents. There is no basis in the record for believing that these QA discrepancies caused a potentially unsafe condition of electrical equipment at the Perry Plant. The applicant

took reasonable steps to discover and correct the inspector discrepancies. This matter was resolved within the applicant's organization prior to the QA hearing; that resolution was not directly challenged and no significant safety deficiencies were found; therefore, the applicant did nothing improper by not bringing it to our attention at the hearing even though it would have been better to do so.

### **III. THE ISSUE OF THE QUALITY ASSURANCE ADVISORY COMMITTEE MEETING FREQUENCY IN 1981**

OCRE's motion to reopen the QA record included an unsigned list of items, apparently prepared by an NRC staff member, detailing a number of deficiencies in the Perry QA program. The Board concluded that this list, being unsigned and undated, was not evidence but that it did raise one issue which in our view required further explanation. The notes stated that applicant's Quality Assurance Advisory Committee (QAAC) met only twice in 1981, when applicable procedures required it to meet quarterly, and that the committee did not conduct meaningful reviews.

The functions of the QAAC were discussed in the QA hearing; however, these issues were not brought to our attention by either the staff or applicant. It appeared to the Board that staff notes suggesting a failure of an important advisory committee to meet with the required frequency or to conduct meaningful reviews when it did meet required further explanation. In particular the Board found questionable a staff statement at the hearing that the QAAC was required to meet quarterly without revealing that in fact it had met only twice in 1981.

In response to the Board order to reopen the record the applicant submitted the Affidavit of Mr. Murray Edleman, and the staff submitted the Affidavits of Mr. James E. Konklin, John Streeter and Thomas E. Vandel.

Mr. Edleman stated that the QAAC was created in June 1978 following NRC's February 1978 immediate action letter. The QAAC functions independently of applicant's monthly and quarterly QA review process. Its purpose is not to duplicate these other QA review processes but to advise management on significant QA policy issues. Applicant considers the QAAC to be a positive element of the overall QA program but not one that is required by any regulation.

The QAAC functions by conducting formal meetings which consist of site tours, interviews and formal discussion of agenda items. Additionally committee members work outside of the formal meetings by reviewing QA program documents in their home offices.

The QAAC held six formal meetings in 1978, eight in 1979 and four in 1980. In 1981 the committee held two formal meetings but also conducted site visits to three other nuclear sites. Its scheduled December 1981 meeting was postponed to January 1982. In 1982 the committee held seven meetings in addition to the January meeting. So far in 1983 the Committee has met seven times. The Perry QA program requirement is that the QAAC should meet quarterly, although there was a brief period of confusion in 1982 when it was not clear whether the program requirement was for two or four meetings per year. That confusion lasted about two months and was cleared up in favor of the quarterly schedule.

The staff cited a noncompliance regarding applicant's failure to meet its 1981 QAAC program requirements, in inspection reports dated July 25, 1983. Mr. Konklin of the staff's Region III Office stated his belief that if the QAAC had met more often in 1981 it is possible that some of the problems with electrical contractor performance then existing could have been identified and corrected sooner. However, the staff believes that since early 1982 the Perry site organization's auditing and enforcement program has had significant improvement.

The Board questioned, in its order to reopen, whether the NRC staff members who first prepared the notes which OCRE attached to its motion to reopen the record had any more information to disclose and whether they were now satisfied with the resolution of this matter. In a joint affidavit John Streeter and Thomas E. Vandell, both of the NRC's Region III Office, stated that they had prepared the documents in question as preliminary inspection findings which ultimately led to issuance of the July 25, 1983 inspection reports citing applicant with noncompliance. Both are satisfied with the present staff position regarding the acceptability of the QAAC and neither has any additional evidence that bears unfavorably on the degree of management commitment to QA at Perry.

OCRE, for its part, had no further factual assistance to give the Board and was not able to offer an alternative interpretation to that of the applicant or staff regarding the QAAC activities in 1981.

The Board finds that CEI's QAAC performance during 1981 was deficient regarding its frequency of meeting and that this deficiency has added significance since it occurred during a period when CEI was having significant QA problems with its electrical contractor, L.K. Comstock Co. The staff citation of a noncompliance, coming as it did in July 1983, is both reassuring and disturbing. We are reassured, of course, that staff inspections ultimately found the discrepancy. We are disturbed that that discovery was made some two years after the discrepancy



occurred. This seems to be too late to have practical effect on the applicant's QA program, and it gives the appearance of having no more purpose than creating a paper record. We emphasize here that we expect applicant's and staff's programs to provide a genuine assurance of quality in the physical plant as well as to provide complete and correct documentation of activities.

Applicant's view of the QAAC is that it is a valuable effort which is an extra or add-on to the overall QA program but that it is not mandated by any regulation. That characterization invites the conclusion that QAAC activities should be regarded as being in a separate category that is not subject to the usual rigorous standards imposed on a QA program. The staff apparently sees the QAAC as being, in practice, an integral part of applicant's QA program whether or not it is specifically mandated by regulations. The staff believes the QAAC should be subject to rigorous scrutiny like any other program element.

The Board finds that as a practical matter the QAAC has become an integral part of applicant's QA program even though not mandated by regulation and even though the applicant might have chosen some other means of implementing its QA program. As long as the QAAC program exists and is playing a role in the overall QA program at Perry, it must be subject to the same high standards of performance as the rest of the program. To the extent that there is misunderstanding on that matter between staff and applicant we expect them to act affirmatively to develop a common understanding of the role and performance standards applicable to the QAAC.

The deficiency in meeting frequency that occurred in 1981 is an isolated event since the QAAC met or exceeded the Perry program requirements for meetings in each of the other years from 1978 to the present. We see nothing in this event that in itself would tend to cast doubt on the overall strength of the Perry QA program. Nevertheless this matter should have been disclosed at the hearing since it is closely linked to subjects that were discussed and it was not resolved, at least as far as staff was concerned, when the hearing was held. None of the parties have brought to our attention any safety deficiencies in the physical plant that are traceable to the QAAC performance in 1981. Indeed the QAAC role as a policy advisor to management on QA matters is such that we think it unlikely that there would exist a simple relationship between events that occur in the physical plant and actions taken by the committee. There are other parts of applicant's QA organization that tend to the discovery and disposition of individual construction discrepancies.

#### IV. OCRE REQUEST TO HOLD OPEN THE QA RECORD

OCRE in its Reply to Applicant's and Staff's Affidavits Concerning the Motion to Reopen the QA Record (OCRE Reply, October 7, 1983) urges the Board to hold the QA record open because OCRE is conducting a campaign encouraging Perry workers to come forth with information. They argue that construction is not complete at Perry, that it is likely that further QA deficiencies will occur and that because of the fuel loading schedule there is no compelling reason for closing the record.

In its October 24, 1983 answer to the OCRE request, applicant points out that the Board had denied a similar motion in a telephone conference call of May 9, 1983. The basis for denial was that OCRE had identified no witnesses. The Board made clear that a motion to reopen the record could be made if there is grounds for it in the future.

The Board concludes that its reasoning set forth in May 1983 remains valid in November 1983. OCRE still has identified no witnesses. Its request to hold open the QA record is *denied*.

#### V. CONCLUSION

We conclude after review of the additional evidence filed by the parties in this reopened proceeding that the issues of adequacy of electrical inspector certification and of performance of CEI's QAAC in 1981 constituted discrepancies in an otherwise functional QA program at Perry. As such, these episodes are cumulative to what has already been accepted by all parties, namely, that there were a substantial number of QA problems in the electrical area at Perry in 1981.

The test of a QA program, however, lies not only in its ability to uncover discrepancies in QA but also in its ability to cope with them successfully so that they are remedied and that assurance of safe construction can ultimately be found.

For these two issues we conclude that the full QA procedure worked properly and that no unsafe condition in the Perry plant has resulted from the discrepancies that were found. The issues which led the Board to reopen this QA proceeding are therefore dismissed. There is no genuine issue of fact raised by these filings and no need to take further testimony on these matters.

## **VI. ORDER**

For all of the foregoing reasons and after reviewing the full record in this reopened proceeding, it is, this 10th day of November 1983,

### **ORDERED**

1. That the issues of inspector certification at Perry and performance of Cleveland Electric Illuminating Company's Quality Assurance Advisory Committee are dismissed, and

2. That the record of the quality assurance portion of this proceeding be closed effective this date.

**THE ATOMIC SAFETY AND  
LICENSING BOARD**

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

**Glenn O. Bright  
ADMINISTRATIVE JUDGE**

**Dr. Jerry R. Kline  
ADMINISTRATIVE JUDGE**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

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

**In the Matter of**

**Docket Nos. 50-440-OL  
50-441-OL**

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

**November 15, 1983**

After making preliminary inquiries, the Licensing Board decides not to raise *sua sponte* the question of whether or not reactor operators are adequately trained to discriminate between reactor failures and different kinds of instrument failures. The Board is satisfied that measures presently applied to operator training by the applicant are satisfactory to avoid substantial safety problems at this time and that high-priority research programs are under way in order to improve the operator's ability to discriminate reactor failures from instrument failures.

**RULES OF PRACTICE: *SUA SPONTE* QUESTION**

When applicant's and staff's filings persuade the Board that it was not justified in its preliminary concerns about a possible serious safety issue, the Board should dismiss its own concern and not declare a *sua sponte* issue.

## MEMORANDUM

(In Which the Board Declines to Raise an Issue *Sua Sponte*)

In a telephone conference call with the parties held May 9, 1983 the Board informed the parties that it was considering whether to raise an issue *sua sponte* concerning training of control room operators on simulators. The Board wanted to know whether such training included simulated experience with instrument failure which would permit operators to distinguish between instrument failure and transients.

Before taking such a step, however, the Board requested the parties to file responses to two questions, the answers to which would assist the Board in its decision. The Board posed the following questions:

1. To what extent does the simulator training for operators of the Perry reactors include training in differentiating different kinds of instrument failures from transient or accident conditions.
2. To the extent that some kinds of instrument failures are not simulated during training, please explain whether the omission is detrimental to the safe operations of the reactors.

On June 13, 1983 the staff responded by filing the affidavit of David H. Shum, who is a systems engineer in the Licensee Qualification Branch, Division of Human Factors Safety, Office of Nuclear Reactor Regulation of NRC.

The applicant filed on July 15, 1983 the affidavit of Anthony F. Silakoski, who is a trained engineer and who holds the position of Training Unit Supervisor, Perry Plant Department.

OCRE submitted arguments and documentation in favor of raising a *sua sponte* issue on August 1, 1983. Sunflower did not respond.

In this memorandum the Board considers the statements of all parties who responded, as well as its own limited research on the subject, and concludes that the issue of simulator training of reactor operators at Perry should not be raised *sua sponte*. We set forth our reasoning below.

### I. THE PARTIES' ARGUMENTS

The staff in its brief statement pointed out that the Commission has no requirements for applicants or licensees to describe in detail how reactor operators are being trained to differentiate between instrument failures and transients and accidents. The question of instrument failure in the control room is, however, approached through redundancy of instrumentation. In the event of total failure of instruments monitoring a particular parameter, operators are trained to rely on other instruments

that monitor different parameters to determine that a transient or accident has occurred.

The applicant, in a more detailed filing, stated three ways in which Perry operators are being trained to distinguish instrument failure from transients or accidents.

1. Perry instruments have more than one display channel, providing redundant displays of critical parameters. Power is supplied to these channels from separate power sources or buses. A routine part of simulator training is the simulated failure of each bus and combination of buses culminating in station blackout. Operators are trained to compare readings on one type or range of instrumentation with readings on redundant or related instruments to ascertain whether readings are aberrant.
2. Operators also receive simulator training on failure of the process computer. The computer displays various plant parameters including reactor power, reactor water level and reactor system pressure on CRT displays. The simulated failure freezes the CRT display parameters while actual plant parameters continue to vary. This scenario is used to train operators to detect instrument abnormalities or failures by frequently comparing and contrasting key displayed parameters with alternate channels and related instrumentation.
3. Operators are trained on simulators to recognize instrument error caused by a simulated small-break LOCA in the dry well, which causes erroneous pressure readings in the control rod drive hydraulic system.

OCRE's response criticized both staff's and applicant's reasoning and then went on to supply additional information related to instrument failure to indicate correct reactor pressure vessel water level and human failure to respond correctly to instrument indications.

The thrust of OCRE's criticism of the applicant's response is that the first two scenarios would be easy to diagnose and that the third is insignificant. We need not resolve these subsidiary issues, however, since our interest is limited to knowing whether operators are being trained on simulators to recognize situations where they could be misled into taking incorrect actions by either total or partial instrument failure. Applicant's filing is responsive, in part, to that concern.

OCRE also supplied us with a lengthy discussion and excerpts from a General Electric Topical Report, NEDO 29,934, "Emergency Procedure Guidelines BWR 1-6" as well as excerpts from staff documents which detail current problems in measuring reactor pressure vessel water level. The thrust of the staff discussion on these documents is that there exists

the possibility of false high-water level indications due to leaks in the reference leg and this can affect control of feedwater and high-pressure ECCS. In one scenario with decreased level in the reference leg and pressure vessel water level rapidly decreasing, the operator could be confronted with both high- and low-level alarms simultaneously. This information comes from staff documents that reflect attempts to diagnose and solve pressure vessel water level indicator problems.

We do not accept this argument on behalf of raising a *sua sponte* issue since it involves a question of system design that is not encompassed by the questions we posed. Furthermore, OCRE's documentation shows that the staff and industry are aware of the problem and are addressing it. Whether the solution they ultimately develop will be adequate or not is a matter we cannot address now. We believe that it would be both beyond our jurisdiction and devoid of technical merit for us to attempt to second-guess the process by which the technical staff reaches its conclusions while that process is going forward. We do not have the authority to supervise the staff development efforts.

OCRE also provided us with excerpts from published documents which question human reliability in the control room. These documents point out the likelihood that operators will not follow written procedures in the event of an emergency. Two kinds of operator error are discussed. The first is an attack on the applicant's and staff's reliance on redundancy of instrumentation to avoid error. There exists the possibility that an operator will focus exclusively on the malfunctioning instrument and take inappropriate actions even though other redundant and correctly indicating instruments exist. The second raises the possibility that operators will not believe their instruments when in fact they indicate an emergency condition. The operators are said to have a bias towards keeping a plant on line which will lead them to either discount emergency indications which are true or accept normal indications when they are false. These issues are within the scope of our questions. However, for the reasons stated below, we will not raise them *sua sponte*.

## II. THE BOARD ANALYSIS

The Board consulted NUREG-0985, Volume 1, U.S. Nuclear Regulatory Commission Human Factors Plan (August 1983), to determine the current regulatory status of operator training on simulators. The plan is a systematic and comprehensive approach for addressing human factors concerns important to nuclear safety in the 1983-1985 time frame.

We learn from the plan that NRC attention to training of plant operators is mandated by the Nuclear Waste Policy Act of 1982, § 306, Pub.

L. No. 97-425. The plan, which contains a specific program element directed to research on operator training, has been adjusted to comply with provisions of the act. The goal of the training element of the plan is the development of training regulations, guidance and evaluation criteria through investigation or application of several key elements, including "the role of simulators and their requisite fidelity and type in training programs" (High Priority) (at 17). Among the end products of this program will be "a definition of the role of simulators in training" and "regulatory guidance for simulator certification."

We also learn that INPO has undertaken a major program to ensure the adequacy of utility training programs. This includes development of an accreditation process for utility training programs and development of guidelines and criteria for training and qualifications for both licensed and non-licensed personnel.

The Board concludes from review of NUREG-0985 that there currently exists a systematic and comprehensive effort both within NRC and industry to develop regulations, guidelines and criteria applicable to the problems of reactor safety presented by human factors. That effort specifically includes a program element on operator training. The specific high-priority goals of that program element include definition of the role of simulators in training. This program is broader and more comprehensive in scope than the narrow issues which we contemplated in our questions to the parties. Clearly this is not a subject which has escaped the attention of Congress, the Commission or the industry. We are compelled to the conclusion that no long-term safety benefit could be obtained by raising the issues we have specified *sua sponte*. Given the comprehensive and systematic nature of the Commission program, there would appear to be a potential for harm in adjudicating and attempting to resolve a single narrowly framed question that is encompassed by the larger program now in progress.

We also have adequate assurance of the safety implications of current practice in operator training. Staff and applicant report that the potential for instrument failure is accounted for through redundancy of instrumentation or through additional separate channels of related information in the control room. This is confirmed in NUREG-0737, Appendix B, where a detailed account of post-TMI requirement for accident-monitoring instrumentation is given.

The applicant states that its simulator training program provides for training of operators to scan redundant and related instruments in order to confirm the true status of the reactor. This training apparently provides operators with training in how to relate instruments to other instruments reflecting the same process. Therefore, it gives operators an



overall conceptual framework in which to understand individual instrument failures. The program also provides some simulator training on large-scale instrument failures.

We see no serious safety question in applicant's present program, though near-term incremental improvements in training might be possible. It would therefore be inappropriate for us to litigate possible improvements in operator training. The possibility of such improvement might be the stuff from which admissible contentions are fashioned, but they are not the ingredients of a *sua sponte* issue.

It would be improper for us to speculate now on what the future might bring in the way of improvements to operator training or in the role that simulators might ultimately play in training. It is sufficient to conclude that current practice provides reasonable assurance of safety and that long-term improvements are being studied. The mandate of law and the systematic and comprehensive development programs now in place give reasonable assurance that if improvements in operator training are possible they will be forthcoming.

For all of the foregoing reasons, the Board concludes that the questions it has been considering do not raise a serious matter of public health and safety. Accordingly, we shall not raise the matter of simulator training of reactor operators as a *sua sponte* issue in this case.

**THE ATOMIC SAFETY AND  
LICENSING BOARD**

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

**Glenn O. Bright  
ADMINISTRATIVE JUDGE**

**Dr. Jerry R. Kline  
ADMINISTRATIVE JUDGE**

Dated at Bethesda, Maryland,  
November 15, 1983.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

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

**In the Matter of**

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

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

**November 25, 1983**

The Licensing Board declines to admit a late-filed contention on hot functional testing because: (1) the five criteria for late-filing, on balance, are not satisfied, and (2) the contention is not concrete or litigable because it fails to specify any safety problem related to the hot functional testing program that is the focus of the contention.

**RULES OF PRACTICE: LATE-FILED CONTENTIONS**

Even though four of the five criteria for late-filing were satisfied, a late contention shall not be admitted if it is so poorly organized that its consideration in the proceeding would cause undue delay.

## **RULES OF PRACTICE: BASIS FOR CONTENTION**

A contention about hot functional testing is not admissible merely because it lists dozens of items omitted from the plant's system during testing and dozens of other items found to be problems during the test. These omissions and problems were known to and documented by the applicant. Merely listing these items does not give rise to any safety issue concerning the plant. Hence, the list, unsupported by any basis for believing a safety problem exists, does not establish the basis for a contention.

### **SPECIAL PREHEARING CONFERENCE ORDER (Late Contention on Hot Functional Testing)**

A Special Prehearing Conference was held by telephone on November 16, 1983 for the purpose of considering the admissibility of a late contention, filed by Citizens Association for Sound Energy (CASE), concerning hot functional testing and other testing.<sup>1</sup> We find that the late contention does not meet the five factors for late filing, set forth in 10 C.F.R. § 2.714(a)(1), as most recently explicated by an Atomic Safety and Licensing Appeal Board in *Washington Public Power Supply System* (WPPSS Nuclear Project No. 3), ALAB-747, 18 NRC 1167 (1983) (Lateness Decision). Consequently, we have decided that the contention shall not be admitted. In addition, we have decided that the Motion does not raise any concerns that we need to declare an issue by ourselves (*sua sponte*).

#### **I. REVIEW OF LATENESS FACTORS**

We find that CASE had good cause for late-filing its contention, consequently its burden with respect to other factors is somewhat diminished. Applicant and staff point out that the hot functional tests were performed on February 24 to May 27, 1983 and that an Inspection and Enforcement Report (I&E Report 83-08) was received by CASE on April 29, 1983 (CASE Exhibit 828; Tr. 7000). However, hot functional testing is not a part of this proceeding, so neither discovery nor cross-

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<sup>1</sup> CASE's Motion was filed on October 13, 1983. Both Texas Utilities Generating Company, *et al.* (applicant) and the Staff of the Nuclear Regulatory Commission (staff) have made timely answers. We shall refer to these documents as the Motion, Applicant's Response and Staff's Response.

examination<sup>2</sup> concerning these matters was in order. Therefore, it would appear that the only method which CASE might have used within the NRC context was a request for the applicant to provide the information voluntarily, since most of the information consists of applicant's records. This might have produced the information CASE sought in a more timely fashion than it received it. However, CASE chose on August 12, 1983, to pursue discovery rights in unrelated rate hearings.

We find that although CASE might have sought information about the hot functional testing from the applicant there was nothing about the information available to CASE that suggested serious deficiencies in hot functional testing and applicant has not been notably receptive to voluntarily surrendering information since discovery has been closed. Consequently, it was reasonable for CASE to pursue the information in the way it chose. Furthermore, the information was obtained in fairly expeditious fashion.

The second and fourth lateness factors work in favor of CASE. There is no other means to protect its interests and no party to represent its interests.<sup>3</sup>

The third factor also works for CASE. Its expert testimony by engineers Mark Walsh and Jack Doyle has raised frequent, serious issues concerning the adequacy of design of this plant. It also has demonstrated notable success in obtaining information from informants, several of whom have produced important information adverse to applicant.

However, the fifth factor (delaying the proceeding) works heavily against CASE. Its contention is a rambling affair with eleven different points, single-spaced on almost two full pages of the Motion.<sup>4</sup> It asserts, without basis, that ill will befall the public either because applicant did not have certain components connected to its system during hot functional testing or because of unremedied defects discovered during hot functional testing. It discusses, without any analytical differentiation or sense of priority, dozens of specific omissions and problems.

We do not find these omissions or the discovery of problems to have been startling or disturbing. The staff states that the plant cannot load fuel unless staff is satisfied that it is safe to go to power. The staff must be satisfied that it is safe to load fuel even though certain items have not

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<sup>2</sup> Staff's witness, Mr. Taylor, testified that he was unaware of any problems discovered during hot functional testing that related to the issues CASE had raised in this proceeding. Motion at 9-10; Staff Response at 4.

<sup>3</sup> Lateness Decision, 18 NRC at 1173-75.

<sup>4</sup> Motion at 1-3.

received hot functional testing. It also must be sure that each of the problem areas has been resolved.<sup>5</sup>

Under these circumstances, we consider that any attempt to litigate the CASE contention would be both endless and fruitless. This contrasts to other CASE filings, such as the proposed findings on Walsh/Doyle matters, that have been comparatively well organized and focused. We suspect that this lack of focus comes from the fact that CASE has not identified any specific safety problems related to its contention and it may also be attributable to the immense energies that this citizen's group is already exerting with respect to other, already admitted matters.

We are convinced that admission of this contention would unduly broaden the issues and delay the proceeding. Because of this concern, we find the overall balance to lean against CASE. The contention shall not be admitted.

## II. BASIS

We are also constrained to reject CASE's Motion because it seeks to raise an issue which is not concrete or litigable. *Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 AEC 13, 20-21 (1974) (listing five factors, of which this is the fifth). The purpose of a licensing proceeding is to determine compliance with safety or environmental regulations. The purpose of a contention is to raise some safety or environmental question concerning the plant. This contention does not do that. It contains a very detailed description of omissions of equipment during hot functional testing, but it does not give a basis for believing that any of those omissions has safety significance. Similarly, it points out problems found by applicant during its own test, but it does not provide any basis for believing that the discovery of these problems indicates some safety deficiency in the construction of the plant.

Thus, this contention is without a basis set forth with reasonable specificity. 10 C.F.R. § 2.714.<sup>6</sup>

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<sup>5</sup> Staff's Response: attached Kelley Affidavit at 4. On page 4 of his affidavit, Mr. Kelley used language that confuses the Board. He apparently foresees permitting startup tests with fuel in order to test items that were identified during the HFT, that do have safety significance but that are "inherently incapable of resolution" unless a power level is achieved. We do not know what items he is referring to. However, we expect that the staff would not permit any tests to be done at power if those tests would cause a substantial safety risk. If we are wrong in this expectation, we require immediate notification.

<sup>6</sup> See *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 & 2), LBP-81-24, 14 NRC 175 (1981) at 184 (factor 5), 210-12 (quality assurance contention admitted only because intervenor was able to show that individual quality assurance deficiencies had amounted to a substantial problem,

(Continued)

### III. IMPORTANT SAFETY QUESTION

In the course of the Special Prehearing Conference, we asked CASE to identify important safety questions contained within its contention. The one item CASE identified appears at the top of page 39 of its Motion and relates to a steam generator test, that required three attempts because of "numerous leaks" in the steam generators. However, the Board has no reason to believe this to indicate improper installation or quality assurance with respect to the generators and we have no reason to believe that the problem will not be corrected. Consequently, we are not prepared to declare this to be an important safety issue.

The Board also expressed its concern that the problem area, "thermal expansion,"<sup>7</sup> might indicate that applicant had not properly designed its pipes and supports to account for thermal expansion. This concern was allayed, however, when applicant assured us that the results of the hot functional tests are utilized by the designers of the pipes and supports. Applicant stated that "[i]f the support needs to be moved, it is moved. If it has to be modified, it is modified. And if such changes are required, then the analysis is rerun."<sup>8</sup> Based on this assurance, we do not believe that the thermal expansion question is relevant to the admitted quality assurance contention.

### IV. RELEVANCE TO QUALITY ASSURANCE

At the present time, we do not see any relevance of the hot functional test findings to the admitted quality assurance contention. However, it is possible that these tests may have discovered problems that should have been detected in applicant's quality assurance program. Hence, the test provides a perspective from which to judge that program; and we would expect applicant and staff to be alert to implications about quality assurance that might be derived from applicant's deficiency reports (TDIs). Should those implications become apparent, they would be relevant to the admitted contention and the Board would expect to be promptly and fully apprised of the development.

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citing a staff report). Individual problems found in the course of a testing program only indicate that the program is working. Unless there is additional basis, discovered problems are not in themselves grounds for admitting a contention.

<sup>7</sup> Motion at 9, citing Inspection Report 50-445/83-08 (April 29, 1983) at 8.

<sup>8</sup> Tr. 9167. See also the immediately following dialogue between Mr. Reynolds and Judge Bloch.

## **ORDER**

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

**ORDERED**

That the October 13, 1983 Motion of Citizens Association for Sound Energy, concerning the admission of a new contention about hot functional testing, is denied.

**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

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Sheldon J. Wolfe, Chairman  
Dr. David L. Hetrick  
Dr. James C. Lamb, III**

**In the Matter of**

**Docket No. 50-289  
(ASLBP No. 83-491-04-OLA)  
(Steam Generator Repair)**

**METROPOLITAN EDISON COMPANY,  
*et al.***

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

**November 29, 1983**

The Licensing Board issues a memorandum and order which, *inter alia*, rules upon the admissibility of contentions.

**RULES OF PRACTICE: ADMISSIBILITY OF CONTENTIONS**

There are five purposes for the basis-for-contention requirement in 10 C.F.R. § 2.714.

**RULES OF PRACTICE: ADMISSIBILITY OF CONTENTIONS**

The degree of specificity required involves the exercise of judgment by Licensing Boards on a case-by-case basis.



### **RULES OF PRACTICE: ADMISSIBILITY OF CONTENTIONS**

10 C.F.R. § 2.714 does not require the petition to detail the evidence which will be offered in support of the contentions. Once admitted, a contention may be the subject of a motion for summary disposition pursuant to § 2.749.

### **RULES OF PRACTICE: ADMISSIBILITY OF CONTENTIONS**

The qualifications of those individuals who prepared documents are not proper subjects of contentions. The thrust of a contention should be directed to contesting the analyses and conclusions of those individuals.

### **RULES OF PRACTICE: ADMISSIBILITY OF CONTENTIONS**

A contention lacks bases if it is premised upon a misunderstanding or error with respect to the details which are being contested.

### **RULES OF PRACTICE: ADMISSIBILITY OF CONTENTIONS**

Even if a matter is under consideration as a generic issue, that matter as a subject of a contention is not precluded in a contested proceeding.

### **RULES OF PRACTICE: JURISDICTION OF BOARDS**

A Licensing Board does not have jurisdiction to explore matters beyond those which are embraced by the notice of opportunity for hearing.

### **RULES OF PRACTICE: CHALLENGE TO COMMISSION REGULATIONS**

If a regulation provides that, as a minimum, certain requirements must be met and those requirements have been met, a contention asserting that a different analysis or technique should be utilized is inadmissible because it attacks the Commission's regulations.

# MEMORANDUM AND ORDER\*

## (Ruling on Contentions)

### Memorandum

#### I. BACKGROUND

Pursuant to the Notice of Hearing on Issuance of Amendment to Facility Operating License issued on August 8, 1983, Three Mile Island Alert, Inc. (TMIA) and the Joint Petitioners (Ms. Jane Lee, Mr. Norman Aamodt, Dr. Bruce Molholt) filed their proposed contentions on September 21, 1983. The Licensee and the NRC Staff filed their respective responses on October 6, 1983. During the course of the § 2.751a special prehearing conference held on October 17, 1983, the Board heard oral argument upon the admissibility of the proposed contentions, and it granted Dr. Molholt's request to withdraw his petition for leave to intervene as one of the Joint Petitioners.

#### II. DISCUSSION OF LEGAL PRINCIPLES

Section 2.714(b) requires that the bases for each contention be set forth with reasonable specificity. In *Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 AEC 13, 20-21 (1974), the Appeal Board stated that the purposes of the basis-for-contention requirement in § 2.714 were:

1. to help assure that the hearing process is not improperly invoked, for example, to attack statutory requirements or regulations;
2. to help assure that other parties are sufficiently put on notice so that they will know at least generally what they will have to defend against or oppose;<sup>1</sup>
3. to assure that the proposed issues are proper for adjudication in the particular proceeding — *i.e.*, generalized views of what applicable policies ought to be are not proper for adjudication;
4. to assure that the contentions apply to the facility at bar; and

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\*Modified Memorandum and Order (Partially Granting Licensee's Motion for Reconsideration) dated January 9, 1984 (unpublished).

<sup>1</sup> See also *Kansas Gas and Electric Co.* (Wolf Creek Generating Station, Unit No. 1), ALAB-279, 1 NRC 559, 576 (1975).

5. to assure that there has been sufficient foundation assigned for the contentions to warrant further exploration.

Further, with respect to the degree of specificity required, the Appeal Board noted in the Peach Bottom decision that this involves the exercise of judgment on a case-by-case basis. Moreover, the Appeal Board stated that § 2.714 does not require the petition to detail the evidence which will be offered in support of the contentions.<sup>2</sup>

Finally, *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-316, 3 NRC 167 (1976), holds that a Licensing Board does not have jurisdiction to explore matters beyond those which are embraced by the notice of opportunity for hearings.<sup>3</sup>

### III. RULINGS ON CONTENTIONS

#### A. TMIA

Contention 1 reads as follows:

Neither Licensee nor the NRC Staff have demonstrated that the kinetic expansion steam generator tube repair technique, combined with selective tube plugging, provides reasonable assurance that the operation of TMI-1 with the as-repaired steam generator can be conducted without endangering the health and safety of the public, for the following reasons:<sup>4</sup>

- a. Post repair and plant performance testing and analysis including the techniques used, empirical information collected, and data evaluation, and proposed license conditions are inadequate to provide sufficient assurance that tube ruptures, including but not limited to those which could result upon restart, a turbine trip at maximum power, thermal shock from inadvertent actuation of emergency feedwater at high power or following rapid cooldown after a LOCA, will be detected in time and prevented to avoid endangering the health and safety of the public through release of radiation into the environment beyond permissible limits.

As written, subpart a. lacked basis because no reason was advanced in support of the allegation that the testing and analysis were inadequate. For that reason, the Licensee and the Staff concurred in opposing its admission as an issue in controversy (Licensee's Response at 9-11; Staff's

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<sup>2</sup> See also *Mississippi Power & Light Co.* (Grand Gulf Nuclear Station, Units 1 and 2), ALAB-130, 6 AEC 423, 426 (1973); *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542 (1980).

<sup>3</sup> See also *Portland General Electric Co.* (Trojan Nuclear Plant), ALAB-534, 9 NRC 287, 289 n.6 (1979).

<sup>4</sup> This introductory wording of TMIA Contention 1 will not be reiterated *infra* with respect to subparts b through e.

Response at 5). During the course of the special prehearing conference, TMIA failed to particularize any bases in support of this specific contention.<sup>5</sup> However, TMIA's representative did state that "[t]he basis for that contention really is the fact that the data supplied is inadequate for us to make a determination" (Tr. 39).

We admit this subpart. As stated in the SER, the technical evaluation report prepared by the Staff's consultant, the Franklin Research Center, was not attached thereto, and, as reflected in note 5, *supra*, two of the Licensees' TDRs were not made available for TMIA's review. We conclude that this subpart is as reasonably specific as was possible under these circumstances.

- b. Because of the enormous number of tubes in both steam generators which have undergone this repair process, (1) the possibility of a simultaneous rupture in each steam generator, which would force the operator to accomplish cooldown and depressurization using at least one faulted steam generator, resulting in release of radiation into the environment beyond permissible levels, "isn't an incredible event," (see, September 19, 1982 memorandum from Paul Shewmon, then Chairman of the ACRS), (2) and could lead to a sequence of events not encompassed by emergency procedures, (3) and in the course of a LOCA, such a scenario could create essentially uncoolable conditions.

The Licensee objects in that the subpart b. lacks a basis since Dr. Shewmon's memorandum does not reflect that his concern about the three scenarios arose due to the enormous number of tubes in both steam generators which have undergone this repair process. It asserts that the memorandum merely reflects a concern over a generic problem concerning all B&W steam generators and the possibility of simultaneous tube ruptures in both generators, and thus this subcontention is unrelated to the efficacy of the repair program (Licensee's Response at 11-14). While not opposing the first two parts of this subpart in its written submission, the Staff, after understanding TMIA's position at oral argument, suggested that it "may have been too hasty" in the way it read this subpart and appeared to agree with the Licensee (Tr. 44, 49).

TMIA made it clear that it "is not interested in litigating multiple tube ruptures occurring in the same generator at the same time, but just in simultaneous generators" (Tr. 45).

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<sup>5</sup> In passing, we note that, in some instances, TMIA provided erroneous citations or failed to cite various sections of the SER and attachments. Also, although it corrected its error in a letter of October 20, 1983, the Licensee represented at the conference that its Technical Document Reports (TDRs) 388 and 417 had been available in the public document room. All concerned are notified that citations should be complete and accurate and that representations to the Board should be well-founded.

This subpart is admitted since its bases are set forth with reasonable specificity.<sup>6</sup> We are not prepared to draw conclusions based merely upon Dr. Shewmon's memorandum or upon the other documents cited by the Licensee and TMIA at page 51 of the transcript. Moreover, even if the subject of simultaneously faulted steam generators is under consideration as a generic issue, admissibility of such an issue as the subject of a contention is not precluded in a contested proceeding. *Gulf States Utilities Co.* (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760 (1977). Finally, it appears that this subpart is related to the efficacy of the repair program in alleging that, because of the great number of repaired tubes in both generators, there is the possibility of a simultaneous rupture in each steam generator which would result in the release of radiation beyond permissible levels.

- c. The type of plug used, the number of tubes requiring plugging, and choice of tubes to be plugged, including failure by Licensee to plug 66 degraded tubes, supported a conclusion that plant operation with the as-repaired steam generator can not be conducted without endangering the health and safety of the public, considering among other things interference which plugged tubes will have in the plant's ability to respond to transients and accidents.

The Licensee and the Staff opposed this subpart because of lack of bases for the assertions therein (Licensee's Response at 14-18; Staff's Response at 6-7). During the conference, TMIA explained that it was not really concerned about the type of plug used but rather was concerned that, because the unique process weakened the tubes, the plugs would not be able to hold and give a good seal. It also asserted concern that, while the third-party review group report of May 16, 1983 revised its earlier opinion in the report of February 18, 1983, the former report was not clear why the group was satisfied that certain degraded tubes did not have to be plugged. Finally, TMIA asserted that, 'by virtue of the sheer number of tubes requiring plugging, there is a greater possibility of leakage (Tr. 53-56, 58). The Staff rested upon its written submission (Tr. 55). The Licensee, in effect, urged (1) that the report of May 16, 1983 clearly set forth the reason why the third-party review group concluded that the decision not to plug degraded tubes would not present a safety risk, and (2) that, because the kinetic expansion took place at some sixty feet from the plugging, the sealing capabilities of the plugs would not be adversely affected (Tr. 55, 58-59).

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<sup>6</sup> It is not our function to and we do not reach the merits of this or of any other contention. Subsequently, with respect to any admitted contention, any party may move for summary disposition pursuant to § 2.749 of the Commission's Rules of Practice.

As stated in note 6, *supra*, we do not reach and decide the merits of contentions at this stage of the proceeding. We are satisfied that the Licensee and the Staff are sufficiently apprised at least generally as to that which they will have to defend against or oppose, and that sufficient foundation has been laid to warrant further examination. This subpart is admitted.

- d. Neither the "Report of Third Party Review of Three Mile Island, Unit 1, Steam Generator Repair" nor the Staff's Safety Evaluation Report (NUREG-1019) are credible documents in their evaluation of the kinetic expansion repair technique, including leak tightness and load carrying capabilities, and thus can not be used as a basis for conclusion that the repairs insure safe plant operation, because of the reports' inherent inconsistencies, their failure to provide data or calculations to support their evaluations, assumptions, and conclusions, and the fact that those individuals participating in the Licensee and NRC reviews lack proper qualification to render an expert opinion on this issue, as evidenced for example by the fact that their basic assumptions and conclusions rest improperly on linear fracture mechanics theory as opposed to non-linear theory, axial symmetric stress analysis which would not be applicable to all cracks, failure to analyze crack resistance on the basis of toughness as opposed to hardness which has no relation to crack resistance, and failure to differentiate in their analysis between the effects of thermal stress on small versus large cracks.

The Licensee and Staff agreed that this subpart should be rejected for failing to provide any basis having the specificity required to support it (Licensee's Response at 18-24; Staff's Response at 7-8). With respect to the "reports' inherent inconsistencies, . . ." both assert that TMIA failed to identify any of them.

In the prehearing conference, TMIA explained that the "inconsistencies" referred to by it as its first basis relate to concerns expressed by the Staff's consultants and by the Licensee's third-party review consultants which were either discussed inadequately or not at all in the SER. TMIA identified specific areas which it felt showed those inconsistencies, and stated in response to a Board question that given sufficient time more specifics could be provided (Tr. 61, 67-68). Licensee's further statements indicated uncertainty as to whether or not one inconsistency noted by TMIA actually was true (Tr. 64). This portion of the subpart is admitted.

No additional details were supplied by TMIA during the prehearing conference about "their failure to provide data or calculations to support their evaluations, assumptions, and conclusions. . . ." Licensee and Staff conclude that this second basis does not cite specific instances and should be rejected because of impermissible vagueness (Licensee's Response at 19; Staff's Response at 8). In response to a Board question,

TMIA stated that this part of the contention refers to different parts of this or other TMIA contentions discussed elsewhere in the prehearing conference (Tr. 69). As such this basis is duplicative, vague and without value in this proceeding. We conclude that it does not provide reasonable specificity or put the participants on notice concerning areas in which they would have to respond. Thus, we reject this portion of the subpart.

The third basis presented by TMIA for this contention is: "those individuals participating in the Licensee and NRC reviews lack proper qualification to render an expert opinion on this issue, . . ." followed by specific examples purporting to show errors that caused TMIA to reach that conclusion. Licensee argued that the expert qualifications of reviewers are not proper subjects for contentions and responded directly to the areas of alleged deficiencies.

With respect to the example of the use of the linear fracture mechanics theory, Licensee stated that use of that technique is mandated by a Commission regulation, 10 C.F.R. § 50.55a(g), which requires that components of the reactor coolant pressure boundary must meet the criteria of ASME Code Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components" (Licensee's Response at 21-22) and that this allegation constitutes an attack on the Commission's regulations which is precluded by 10 C.F.R. § 2.758. Staff concurs that the technique is set forth in the ASME Code and is referenced in 10 C.F.R. Part 50 (Tr. 66). TMIA did not respond to these specific arguments in the prehearing conference. Rather TMIA stated that, from discussions with knowledgeable people, it appeared that the non-linear theory is the proper analysis to utilize and that these types of cracks would not respond in a linear fashion (Tr. 62-63, 66-67). We agree with the Licensee that the qualifications of reviewers should not be the subject of a contention because their expertise may be questioned during voir dire and/or cross-examination and, most importantly, because the thrust of a contention should be directed to contesting the analyses and conclusions of such individuals. Moreover, we conclude that the use of the linear fracture mechanics theory is acceptable under the regulations and that TMIA's example constitutes an impermissible attack on § 50.55a(g). Section 50.55a(a)(2) provides that *as a minimum* the components specified in paragraph (g) of that section shall meet the criteria of ASME Code Section XI. TMIA does not contend that the minimum requirement of this regulation has not been met. Thus, in asserting that a different analysis or technique should be utilized, this example does attack the Commission's regulations and is rejected.

With respect to the three other examples cited by TMIA, Licensee argued that TMIA has failed to suggest why axial symmetric stress analy-

sis would not be applicable or what types of cracks have not been properly analyzed and indicates that Licensee did consider both symmetric and asymmetric stresses (Licensee's Response at 22). TMIA's objection to: "failure to analyze crack resistance on the basis of toughness as opposed to hardness which has no relation to crack resistance . . ." is countered by the Licensee which stated that it did not use any method of calculation, but derived the values empirically, and thus that the material properties, including toughness, are inherent in the values utilized (Licensee's Response at 23). Licensee also states that TMIA is in error in the statement concerning "failure to differentiate in their analysis between the effects of thermal stress on small versus large cracks" because a linear fracture mechanics analysis and other calculations were performed to address these matters (Licensee's Response at 23-24). The Staff merely states that TMIA has not explained its assertions and has failed to put the parties on notice as to why the analyses are believed to be in error (Staff's Response at 8). The statements made by TMIA during the course of the special prehearing conference marginally provide reasonably specific bases to support the main contention discounting credibility of the documents in their evaluation of the kinetic expansion repair technique (Tr. 20, 63).

As indicated in the discussion above, certain portions of this subpart are rejected and certain wording should be modified, leaving a subpart which we feel provides reasonable specificity and direction to the parties. We conclude that the surviving portions of this subpart meet the requirements of § 2.714(b).

Contention 1, subpart d. is partially admitted, and reads as follows:

- d. Neither the "Report of Third Party Review of Three Mile Island, Unit 1, Steam Generator Repair" nor the Staff's Safety Evaluation Report (NUREG-1019) are credible documents in their evaluation of the kinetic expansion repair technique, including leak tightness and load carrying capabilities, and thus can not be used as a basis for conclusion that the repairs insure safe plant operation, because of the reports' inherent inconsistencies, because the basic assumptions and conclusions therein rest improperly on axial symmetric stress analysis which would not be applicable to all cracks, because of the failure to analyze crack resistance on the basis of toughness as opposed to hardness which has no relation to crack resistance, and because of the failure to differentiate in their analysis between the effects of thermal stress on small versus large cracks.



- e. Neither the staff nor the Licensee considered any alternative repair process, including the safest alternative in terms of potential tube rupture, *i.e.*, removal of the steam generators.<sup>7</sup>

In its written submission, the Licensee, in substance, opposed admission of this subpart because the mere fact that alternative repair processes might be utilized or that the steam generators might be replaced is irrelevant as a matter of law (Licensee's Response at 24-25). In substance, the Staff concurred with the Licensee (Staff's Response at 8). Additionally, in its written submission at 25, the Licensee asserted that TMIA erred in that the Licensee and the Staff had considered alternative repair methods as is evidenced by slides presented at an April 7, 1982 meeting which discussed the "sleeving" and "rolling" options and are available in the Public Document Room. During the special prehearing conference, TMIA merely responded that the risks are so great that it is irresponsible not to have at least discussed replacement of the steam generators, and, in not addressing the Licensee's additional argument, obviously conceded that alternative repair methods had indeed been considered (Tr. 69-70).

We agree with the Licensee and the Staff. Moreover, it should be noted that the Licensee alone bears the risk — it will not be permitted to reactivate the two steam generator units if the Board concludes that its proposed kinetic expansion and/or tube plugging repair method endangers the health and safety of the public. Finally, we do not have jurisdiction to explore matters such as these which are beyond those which are embraced by the notice of opportunity for hearing. This sub-part is rejected.

Contention 2 asserts:

Neither Licensee nor the NRC staff has demonstrated that the corrosion which damaged the steam generator and other RCS components and systems, will not reinitiate during plant operation and rapidly progress, attacking either the steam generator or elsewhere in the primary pressure boundary, thus providing no reasonable assurance that the operation of TMI-1 with the as-repaired steam generator can be conducted without endangering the health and safety of the public, for the following reasons:<sup>8</sup>

- a. There is no assurance that the causative agent or the source of initiation or the conditions under which initiation originally occurred, have been properly identified, thus undermining any conclusion that the causative agent has been

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<sup>7</sup> Here and with respect to Contention 2, subpart b.3, *infra*, TMIA explained that the phrase "removal of steam generators" meant replacement of the steam generators with two new units.

<sup>8</sup> This introductory wording of TMIA Contention 2 will not be reiterated *infra* with respect to subparts b. and c.

removed from the system, and undermining the reliability of any proposed clean-up process, procedures meant to eliminate the corrosive environment, or the reliability of the Licensee and staff stress analysis as to when corrosion could reoccur.

The Licensee and the Staff concur that subpart a. should be rejected because it fails to set forth a basis with reasonable specificity — they argue that, despite the extensive analyses in the SER and its attachments, TMIA failed to discuss this data or to provide any explanation why these analyses are incorrect or inadequate (Licensee's Response at 25-26; Staff's Response at 9-10). The Licensee, however, agreed that this subpart fell within the scope of the Notice of Opportunity for Hearing (Tr. 82).

During the course of the special prehearing conference, TMIA did give bases for its concern — it cited portions of the SER and of attachments thereto which, according to TMIA, evidenced that the causative agent has not been conclusively determined, that the remainder of the sulfur left after the cleaning process has been completed might present a problem, and thus that the corrosion might reinitiate (Tr. 71-72).

We conclude that TMIA has now set forth bases in support with reasonable specificity, and we admit subpart a.

- b.1. The Staff's own consultant on this issue, R.L. Dillon,<sup>9</sup> believes that the risk associated with cleaning, *i.e.*, that a relatively large inventory of sulfur compounds will be put into solution, are greater than simply "living with a large S inventory in the system," supporting a conclusion that the only two possibilities being considered by the Licensee and Staff pose substantial risk that corrosion will reinitiate.
2. Even if the proposed cleaning process presented no risks, there is no assurance that the proposed process can remove more than 50-80% of the contamination, thus there can be no assurance that the contamination which would be left after the process is complete will not cause reinitiation.
3. Neither the Staff nor the Licensee considered any alternative process, including the one alternative which presents no risk of corrosion reinitiation, *i.e.*, removal of the steam generators.

With respect to subpart b.1, the Licensee and Staff argue that, while Dr. Dillon had prospectively opined that the risk in the cleaning process to chemically convert the metal sulfides on the tubing into soluble sulfates presented a risk that corrosion would reinitiate, the cleaning proc-

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<sup>9</sup> During the conference, TMIA acknowledged that R.L. Dillon should have been cited rather than Paul Wu (Tr. 85).

ess was completed and subsequent testing showed no evidence of corrosive attack. They urge that this subpart should be rejected because no factual basis has been advanced challenging the results of the cleaning process and the testing which are reflected in the Licensee's Technical Report 008 (TR-008) and in the SER (Licensee's Response at 28; Staff's Response at 9). TMIA responded by arguing that since Mr. Dillon had raised real concerns, the cleanup process should be explored at the hearing (Tr. 85-89). This subpart is admitted. As stated previously, we do not reach the merits of a proposed contention. If Applicant and/or Staff firmly believe that there is no genuine issue of material fact, they may proceed via the summary disposition route pursuant to § 2.749.

With respect to subpart b.2, the Staff recommended that it be admitted because an adequate factual basis had been advanced, and stated that to address conclusions in the SER would be to discuss the merits which would be improper (Staff's Response at 11; Tr. 93, 95). The Licensee disagrees with the Staff and urges that this subpart should be rejected because it does not take into account the conclusions in the SER and the TR-008 (Licensee's Response at 28; Tr. 94-95). We find that this subpart is admissible since an adequate factual basis has been asserted, and since we do not reach the merits at this stage of the proceeding.

Subpart b.3, which is similar to TMIA Contention 1, subpart e., *supra*, is rejected because the mere fact that alternatives to the cleanup process might be utilized or that the steam generators might be replaced is irrelevant as a matter of law, and because we do not have jurisdiction to explore matters such as these which exceed those which are embraced by the notice of opportunity of hearing.

- c. Neither the "Report of Third Party Review of Three Mile Island, Unit 1, Steam Generator Repair" nor the Staff's Safety Evaluation Report (NUREG-1019) are credible documents in their evaluation of the causative agent, cleanup, or procedures to prevent contaminant reintroduction, and thus can not be used as a basis for conclusion that the repairs insure safe plant operation, because of the reports' inherent inconsistencies, their failure to provide data or calculations to support their evaluations, assumptions, and conclusions and the fact that those individuals participating in the Licensee and NRC reviews lack proper qualification to render an expert opinion on this issue, as evidenced for example by the fact that their basic assumptions and conclusions rest improperly on linear fracture mechanics theory as opposed to non-linear theory, axial symmetric stress analysis which would not be applicable to all cracks, failure to analyze crack resistance on the basis of toughness as opposed to hardness which has no relation to crack resistance, and failure to differentiate in their analysis between the effects of thermal stress on small versus large cracks.

The wording of this subpart is essentially the same as that of TMIA Contention 1, subpart d., but is directed to an evaluation of the causative agent, cleanup, or procedures to prevent contaminant reintroduction rather than being directed to an evaluation of the kinetic expansion repair technique. The Licensee and Staff addressed this contention only briefly, referring to their earlier objections to Contention 1, subpart d., and indicated that the same objections would be operative here (Licensee's Response at 29; Staff's Response at 12).

Discussion of this proposed subpart in the prehearing conference was limited and differed from the earlier discussion of Contention 1, subpart d., principally in clarification of certain details of TMIA's views concerning the cleanup and related matters. Licensee rested on positions stated earlier for Contention 1, subpart d., and Staff repeated its objections to Contention 1, subpart d. Both concluded that this subpart should be rejected (Tr. 97-101).

We find that this subpart suffers from the same infirmities that were discussed in our ruling upon Contention 1, subpart d. Thus, here corresponding portions of this subpart are rejected and certain wording is modified, for the same reasons. The remainder of this subpart is admitted for the same reasons as stated in our discussion of Contention 1, subpart d.

As partially admitted, Contention 2, subpart c. reads as follows:

- c. Neither the "Report of Third Party Review of Three Mile Island, Unit 1, Steam Generator Repair" nor the Staff's Safety Evaluation Report (NUREG-1019) are credible documents in their evaluation of the causative agent, cleanup, or procedures to prevent contaminant reintroduction, and thus can not be used as a basis for conclusion that the repairs insure safe plant operation, because of the reports' inherent inconsistencies, because the basic assumptions and conclusions therein rest improperly on axial symmetric stress analysis which would not be applicable to all cracks, because of the failure to analyze crack resistance on the basis of toughness as opposed to hardness which has no relation to crack resistance, and because of the failure to differentiate in their analysis between the effects of thermal stress on small versus large cracks.

## B. Joint Petitioners

Contention 1, as restated, reads as follows:<sup>10</sup>

There is no assurance that the steam generator tube repair program can assure the integrity of the tubes and their joints under the environmental conditions attendant to operation. TMI-1 shall not be permitted to restart before such assurance is provided. The following elements of the repair program are deficient:<sup>11</sup>

- (1) The efficacy of lithium addition is not adequately established to warrant reliance on this method to prevent sulfur induced intergranular stress corrosion cracking (IGSCC).
  - Attachment 4 to SER Pg. 6(vi) "... The mechanism by which this occurs is not fully understood, nor is the phenomenon firmly established."

In the written restatement, the Joint Petitioners cited as a basis an attachment to the SER prepared by one of Staff's consultants (Attachment 4 to SER at 6(vi)), which in substance stated that, while some evidence exists that the addition of lithium may inhibit the growth of sulfur-induced IGSCC, the mechanism by which this occurs is not fully understood, nor is the phenomenon firmly established. The Licensee and Staff argue in their respective responses of October 31 and November 4, 1983, that no basis has been set forth — *i.e.*, that the proposed subpart erroneously implies that the repair program is deficient in

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<sup>10</sup> During the course of the special prehearing conference on October 17, 1983, the Board approved Licensee's counsel's suggestion that he and the Staff counsel would consult with the Joint Petitioners about some further resolution of Joint Petitioners' proposed Contention 1 and would report the results, if any, to the Board by October 24, 1983 (see Order of October 21, 1983 (unpublished)). In a letter dated October 20, Licensee's counsel advised that he and the Joint Petitioners had been unable to agree on a revision of Contention 1, that the Licensee stood on its previously advanced objections, and that, if, as they advised they might do, the Joint Petitioners submitted a revision of their contentions, the Licensee would respond in writing.

On October 22, 1983, the Joint Petitioners submitted a Restatement of Contentions which presented a single Contention 1 in lieu of their Contentions 1, 2 and 3 previously proposed on September 21, 1983, and stated therein that brief bases were given which were derived solely from their arguments on October 17th, with appropriate citations to documents. In their responses, respectively filed on October 31 and November 4, 1983, the Licensee and the Staff did not object to the substitution of the restated Contention 1 in lieu of the previously proposed three contentions; however, for the reasons discussed therein and in their earlier responses of October 6, 1983, they opposed the admission of restated Contention 1. In a conference call on November 14, 1983, Mr. Aamodt notified the Chairman and the other parties that the Joint Petitioners did not wish to reply to the Licensee's and the Staff's responses since their Restatement of Contentions had set forth everything that they had wanted to state.

Although they are not strangers to NRC practices and proceedings, the Joint Petitioners failed to file a motion for leave to file their restated Contention 1. This one time we will overlook this informal approach and permit the filing of the restated contention because (1) the proceeding is in an early stage and no untoward delay will result, (2) the Licensee and the Staff registered no objections, and (3) because, in light of the discursive arguments that were presented for the first time during the special prehearing conference (Tr. 116-59) this will be the first opportunity for the Licensee and the Staff to address knowledgeably the Joint Petitioners' arguments.

<sup>11</sup> This introductory wording of Joint Petitioners' (restated) Contention 1 will not be reiterated *infra* with respect to subparts (2) through (5).

exclusively relying on the addition of lithium to inhibit sulfur-induced IGSCC. Since the SER and TR-008 explain that the Licensee developed and implemented a detailed program<sup>12</sup> to provide the requisite assurance that the sulfur concentration during operation will remain below the level needed to initiate IGSCC, they assert that the addition of lithium is merely an "additional assurance" or "backup" against the recurrence of sulfur-induced IGSCC. While conceding that the addition of lithium might not be an effective inhibitor, they state that the other primary means of protection as set forth in the Licensee's detailed program will provide the necessary assurance of safety (Licensee's Response at 3-4; Staff's Response at 3-4). This subpart is premised upon an erroneous understanding of the details of the repair program. Accordingly it is rejected because of lack of basis — no foundation has been laid to warrant further examination.

- (2) Active forms of sulfur can be generated from presumably benign sulfur remaining on the tubes after cleaning.
  - Attachment 3 to SER, Pg. 6, 3rd Para "If it has not been shown that SCC does occur in low temperature solutions, neither has it been shown that it does not."
  - Third Party Review, May 16, 1983, Pg. 5, last sentence 2nd para. "... There was (and is) no quantitative measure of the potential for reactivation."

The Joint Petitioners challenge the efficacy of the Licensee's cleaning process. While agreeing that "active forms of sulfur can be generated from presumably benign sulfur remaining on the tubes after cleaning," the Licensee and Staff assert that the SER and the TR-008 explain that it is unnecessary to completely remove the sulfur because the low levels of sulfur in solution remaining in the coolant do not have a significant corrosive effect, and that any sulfur remaining on tube surfaces after cleaning will be released so slowly that there will be more than ample time to prevent buildup of corrosive sulfur concentrations. They advance other arguments based upon various other findings or conclusions in the SER and TR-008 (Licensee's Response at 4-6; Staff's Response at 4-5). The subpart is admitted since a basis has been advanced with reasonable specificity. Whether the particular concern of the Joint Petitioners is

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<sup>12</sup> Citing the SER and TR-008, the Licensee explains that this program included (1) a cleaning process which removed sufficient quantities of sulfur to eliminate the potential for future corrosion, (2) laboratory corrosion tests which verified that corrosion will not reinitiate under operating conditions, and (3) imposition of administrative controls to prevent further introduction of contaminants.

justified must be left for consideration when the merits of the controversy are reached.

- (3) Morphological changes in the inner tube surface, remote from the expanded joints, could reasonably be presumed to be precursors of IGSCC.
- Pg. 81 of GPUN Topical Report 008 “Most extensive IGA is in the vicinity of major cracks.”

The Staff objects because the Joint Petitioners merely presume that morphological changes could be precursors of IGSCC, and because they do not specify wherein Licensee’s methods of inhibiting and detecting the progression from corrosion precursors to actual tube cracks are inadequate (Staff’s Response at 5-6). While acknowledging that surface intergranular attack (IGA) was present on tubes remote from the cracking, the Licensee objects in that Joint Petitioners have ignored the testing evidence in the TR-008 which suggests that IGA will not progress to become IGSCC (Licensee’s Response at 6). We find that the basis for the Joint Petitioners’ concern has been set forth with reasonable specificity. At this stage of the proceeding we do not look at the evidence. Accordingly, this subpart is admitted.

- (4a) The effect of dynamic stress on less than 40% thru wall cracks has only been demonstrated through calculations with no experimental verification.<sup>13</sup>
- Attachment 3 to SER Pg. 7, last sentence “... Fracture mechanics calculation of residual tube properties in circumferentially cracked tubes are presently unsupported by experimental data.”

Both the Licensee and Staff assert that in fact the key input parameters used in the calculations were experimentally verified (Licensee’s Response at 6-7; Staff’s Response at 6). Having reviewed TR-008 at 84 and Figure IX-4, we agree and reject this subpart because, being in error, it lacks a basis, and thus there is no foundation warranting further exploration.

- (4b) E. C. testing, though highly reproducible, cannot be relied upon to accurately assess depth of penetration.

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<sup>13</sup> This subpart, as submitted, read “[t]he effect of dynamic stress on less than 40% thru wall cracks has only been demonstrated empirically with no experimental verification.” Assuming that Joint Petitioners meant to say “through calculations” (Tr. 146), we have inserted those words in lieu of “empirically.”

- SER, pg. 13, last para. "E. C. measurements . . . (indicated) greater than 40% thru wall . . . all exceeded 50% with the majority 100% thru wall."

The complete paragraph at page 13 of the SER, from which the preceding basis for this subpart was condensed, reads as follows:

The licensee interpreted the eddy-current test measurements of the through-wall depth of the indications in the UTS transition zone regions as greater than 40% through-wall, and hence tubes with such indications were characterized as defective tubes. Metallurgical examination conducted by the licensee on tubes removed from service confirmed that the flaws in the transition zone region all exceeded 50% through-wall, with the majority 100% through-wall.

Both the Licensee and the Staff assert that the results of metallurgical examinations are consistent with the eddy-current tests, in that eddy-current tests indicated greater than 40% through-wall, and metallurgical examinations confirmed this ("all exceeded 50% . . . with the majority 100% . . .") (Licensee's Response at 8; Staff's Response at 7). We agree the preferred basis for subpart (4b) indeed is supportive of the accuracy of eddy-current testing. Accordingly, since no basis has been set forth which questions or challenges the accuracy or reliability of eddy-current testing, this subpart is rejected.

- (4c) The effect of creep has not been evaluated in the expanded joint laboratory qualification tests.

The Licensee and the Staff oppose admission of this subpart because no basis has been set forth with reasonable specificity (Licensee's Response at 9-10; Staff's Response at 7-8). We agree that no reasons have been advanced for the allegation that the non-evaluation of creep resulted in the repair program being deficient and the subpart is rejected. It does not sufficiently put the Licensee and Staff on notice as to that which generally they would have to defend against or oppose, and lacks sufficient foundation to warrant further exploration. This subpart is rejected.

- (5) The possible effects of potential stress cracking agents other than active forms of sulfur have not been studied in relation to the initiation of IGSCC.
  - Synergistic effects have not been considered.
  - Third Party Review, February 18, 1983, pg. 9 Recommendation 1 "Carbonates in the presence of oxidants at high temperature can produce OGA and IGSCC of INCONEL 600. Other contaminants (lead, mercury, phosphorus) can also induce IGSCC."



- Third Party Review, May 16, 1983, pg. 3 "Further Comments"  
"... carbonaceous material was found to be the major impurity near tube failure, and may have played a role in the failure which, in our ignorance, we do not understand."

Here, as in TMIA Contention 2, subpart a., *supra*, Joint Petitioners contend that causative agents other than sulfur may have caused IGSCC. They are also concerned that synergistic effects of these chemicals were not considered (Tr. 141-45). The Licensee and the Staff urge that there is nothing in the Third Party Review attachments to the SER that lead, mercury or phosphorous were or are present in sufficient quantities to induce IGSCC, and that there is no need to consider synergistic effects (Licensee's Response at 10-12; Staff's Response at 8-9). We find that the bases for this subpart have been set forth with reasonable specificity. As stated many times before, we do not look at the merits. Moreover, not only are we interested in the matters raised by the Joint Petitioners, we are also interested in hearing evidence about the purpose for and the expected efficacy of the administrative controls which, according to TR-008, the Licensee plans to initiate to guard against the introduction of *all* contaminants, including carbon. This subpart is admitted.

4. There is no assurance that beyond-design compressive fatigue stress will not predispose the OTSG tubes to IGSCC. TMI-1 shall not be permitted to restart before such assurance is provided.<sup>14</sup>

The basis that was offered in the written submission of September 21, 1983, is as follows: "Nowhere in the SER is there evidence of any significant analysis of operational stresses in the OTSG tubes."

In their written responses submitted on October 6, 1983, the Licensee and the Staff addressed Contention 4 in its original form. The contention as originally submitted contained the phrase "did not predispose" in place of "will not predispose." It is in fact a new contention, and the Licensee and the Staff had no opportunity to prepare responses.

The contention, as amended during the special prehearing conference, no longer addressed corrosion that occurred in the past, but was instead directed to speculation about future events. Also, whether the contention is amended or not, the basis as quoted above is vague and lacking in specificity because it does not enumerate specific sections in the SER where analyses of operational stresses should have been per-

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<sup>14</sup> As amended by Joint Petitioners at Tr. 115.

formed nor does it cite discussions of stress analysis that are regarded as not significant.

During the special prehearing conference, the Joint Petitioners were given an opportunity to provide support for the amended contention. Mr. Aamodt stated:

I noted that the tubes, as did the writer in the reports here, that the tubes which have fractured and have lost their pretension will be subject to a maximum compressive loading in the order of 1025 pounds (Tr. 159).

Continuing, Mr. Aamodt recounted a personal experience with "fatigue cracking of metallic sheets of long-line cables" and stated:

When we diminished the maximum compressive load, we diminished the rate of the onset of cracking, and that just made me think that we might have a similar problem here and it was worth throwing in.

Following oral responses by the Licensee and the Staff, Mr. Aamodt closed his arguments on Contention 4 by stating:

But in any event, I feel that it is a fair statement that these very differently loaded samples, differently from the others that have been considered, have been ignored and that a new mechanism might exist and that evaluation of that mechanism's impact on safe operation should be examined (Tr. 161).

The assertions that "we might have a similar problem here" and "a new mechanism might exist" cannot reasonably be accepted as sufficiently specific. However, Mr. Aamodt's statement that the fractured tubes "will be subject to a maximum compressive loading in the order of 1025 pounds" has, at least superficially, the appearance of a serious allegation.

The statement is attributed to "the writer in the reports here." We find the following in the SER at 20:<sup>15</sup>

The licensee has recently indicated that during the kinetic expansion process, an estimated 600 tubes lost pre-tension due to slight downward movement of as yet unexpanded tubes which had corrosion-caused full circumferential cracks. For tubes which have lost pre-tension, this would result in a maximum cold compressive load

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<sup>15</sup> This paragraph in the SER has been modified in a supplement to the SER (NUREG-1019, Supp. No. 1, at 7-8), which the Staff recently issued under date of November 23, 1982. It now states that 16 lbs. "is insignificant compared to the 800 lbs. necessary to cause initiation of tube bowing and 1025 lbs. necessary before the lateral displacement of the tube would result in contact with adjacent tubes." Furthermore, the phrase "and approximately 1500 lbs. estimated to cause tube buckling" has been deleted, and the concluding sentence of the paragraph has been modified slightly. These modifications do not affect our subsequent conclusions.

of 16 pounds. Although this deviates from the licensee's repair goal, it is insignificant compared to the 1025 pounds necessary to cause tube bowing and approximately 1500 pounds estimated to cause tube buckling. Therefore, reasonable assurance is provided that the repaired tubes are not in significant compression while cold and will not buckle during hot operations.

TR-008 contains a discussion of transient and accident loads on tubes that have lost all or part of the preload (pre-tension). It is concluded that, for such a tube, 875 lbs. is the maximum compressive design basis load expected under normal, transient, or accident conditions. Moreover, this Topical Report at 54 states that "[f]or conservatism, an evaluation was performed of the ability of a tube to withstand 1025 lbs. of compressive load."

The quotations from the SER and TR-008, *supra*, are included here because they are possible sources of Mr. Aamodt's assertion about a maximum compressive loading in the order of 1025 lbs. We have not been able to locate other possible sources of the assertion. It appears to us that it would be a misinterpretation of either quotation to conclude that the tubes in question will be subject to 1025 lbs.

Moreover, the dynamic stresses discussed in the quotations refer to occasional or rare transient events, not to the repetition or cyclic stresses usually associated with metal fatigue. However, the contention is concerned with "compressive fatigue stress." In addition, the Joint Petitioners have made no attempt to connect "compressive fatigue stress" with IGSCC, though this would appear to be the ultimate concern of the contention. We conclude that the assertion about a compressive load of 1025 lbs., whatever its source, has not been connected with the contention.

In summary, we find that (1) the assertion about stress analysis in the SER is vague and lacking in reasonable specificity, (2) the assertions that "we might have a similar problem here" and "a new mechanism might exist" are entirely speculative, (3) the allegation of a compressive load of 1025 lbs. is not supported, (4) the Joint Petitioners have not connected the compressive load of 1025 lbs. with fatigue stress, and (5) no connection has been made between compressive fatigue stress and IGSCC. Accordingly, Contention 4, as amended, is rejected.

5. Even if we were to assume that the repairs at present were adequate, there is no assurance that licensee possesses the requisite competence and integrity to protect, maintain and monitor the integrity of OTSG of Unit 1.

In their written submissions the Licensee and the Staff concur that this contention should be dismissed because it exceeds the scope of the

proceeding and because the issue of management integrity and competency is pending before the Commission, the Appeal Board and a Licensing Board (Licensee's Response at 14-15; Staff's Response at 17-18). During the oral argument, Joint Petitioners were "quite willing to concede that they [the Licensee and the Staff] might be right" in urging that this contention exceeded the scope of the proceeding (Tr. 163). Moreover, the Joint Petitioners agreed that there was no connection between the remainder of their oral argument and the contention (Tr. 165).

The contention is rejected. We do not have jurisdiction to explore matters beyond those which are embraced in the Notice of Opportunity for Hearing published at 48 Fed. Reg. 24,231 (1983). *Portland General Electric Co.* (Trojan Nuclear Plant), ALAB-534, 9 NRC 287, 289 n.6 (1979); *Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-316, 3 NRC 167 (1976). That notice authorized the Licensing Board to determine the adequacy of the Licensee's steam generator tube repair program and specifically stated that "[c]ontentions shall be limited to matters within the scope of the amendment under consideration." It did not authorize us to determine the Licensee's competence and integrity. Further, the issue of the Licensee's management competency and integrity is pending before the Commission, the Appeal Board, and a Licensing Board. *See especially* the Notice to the Parties in *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), Docket No. 50-289-SP, wherein, on October 7, 1983, the Commission stated that upon completion of the investigations of the NRC Office of Investigation, or perhaps earlier, a decision will be made on the need to reopen the record of the TMI-1 restart proceeding and to conduct further hearings on some or all of the management competence and integrity issues addressed in these investigations.

6. There is no assurance that the repairs of the OTSG will maintain their integrity under transient conditions.

In their supplement to their petition for leave to intervene of September 21, 1983, the Joint Petitioners barrenly stated that the SER is void of adequate analysis of tube integrity during transients. In their written responses the Licensee and the Staff opposed the admission of this contention because it failed to meet the basis-with-requisite-specificity requirement of § 2.714(b) (Licensee's Response at 15; Staff's Response at 19). During the special prehearing conference the Joint Petitioners were not prepared to argue or to support this contention (Tr. 167).

The contention is rejected because it fails to set forth bases with reasonable specificity — *i.e.*, the inadequacies of the SER analysis are not explained with some specificity. The Licensee and the Staff are not sufficiently placed on notice so they will know at least generally what they will have to defend against or oppose. Further, a sufficient foundation has not been laid to warrant further examination.

## ORDER

1. Subparts a., b. and c. of TMIA's Contention 1 are admitted as issues in controversy. Subpart d. is partially admitted as reworded. Subpart e. is rejected.

Subparts a., and b.1 and b.2 of TMIA's Contention 2 are admitted. Subpart c. is partially admitted as reworded. Subpart b.3 is rejected.

2. Subparts (2), (3), and (5) of Joint Petitioners' Contention 1, as restated, are admitted. Subparts (1), (4a), (4b), and (4c) are rejected.

Joint Petitioners' Contentions 4 (as amended), 5, and 6 are rejected.

3. Discovery shall be initiated *immediately* and shall be *completed* by no later than January 31, 1984.

4. By no later than February 8, 1984, any party, which intends to file a motion for summary disposition pursuant to 10 C.F.R. § 2.749, shall so notify the Board and other parties and identify the subparts of the contentions which will be the subjects of such a motion. Any such motions for summary disposition must be filed by no later than February 24, 1984.

5. A section 2.752 prehearing conference will be held on February 27, 1984 at a time and place which will be specified in a subsequent Order.

6. Pursuant to 10 C.F.R. § 2.714a(c), this Order, to the extent that it rules upon the admissibility of contentions in paragraphs 1 and 2, *supra*, and admits TMIA and the Joint Petitioners as intervening parties in paragraph 7, *infra*, may be appealed by the Licensee and/or the Staff to the Atomic Safety and Licensing Appeal Board within ten (10) days after service of this Order. However, the Intervenor (TMIA and the

Joint Petitioners) may not so appeal because some of their contentions have been admitted as issues in controversy — *see* section 2.714a(b).

7. TMIA and Joint Petitioners are admitted as intervening parties.

**THE ATOMIC SAFETY AND  
LICENSING BOARD**

**David L. Hetrick  
ADMINISTRATIVE JUDGE**

**James C. Lamb, III  
ADMINISTRATIVE JUDGE**

**Sheldon J. Wolfe, Chairman  
ADMINISTRATIVE JUDGE**

**Dated at Bethesda, Maryland,  
this 29th day of November 1983.**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

OFFICE OF INSPECTION AND ENFORCEMENT

Richard C. DeYoung, Director

In the Matter of

Docket Nos. 50-440  
50-441  
(10 C.F.R. § 2.206)

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

November 15, 1983

In response to a request by the Ohio Citizens for Responsible Energy that substantial enforcement action be taken against Cleveland Electric Illuminating Company for material false statements made during the licensing review for the Perry Nuclear Power Plant, the Director of Inspection and Enforcement concluded that a material false statement had been made but that, given the severity level of the violation, the appropriate sanction was a Notice of Violation.

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

During the course of the ongoing operating license proceeding for Cleveland Electric Illuminating Company's (CEI) Perry Nuclear Power Plant (PNPP), Ms. Susan L. Hiatt, on behalf of the Ohio Citizens for Responsible Energy (OCRE), filed a motion before the Atomic Safety and Licensing Board (ASLB) for summary disposition and dismissal of the license application on the basis that CEI had made material false statements in its application concerning the use of herbicides to control vegetation along transmission lines. On May 9, 1983, the ASLB ruled

that the motion was directed at an issue not permitted before the Board and consequently denied the motion. The Board, however, asked the NRC Staff to provide OCRE's documentation to the appropriate persons for consideration as a petition for enforcement action under 10 C.F.R. § 2.206. Notice of receipt of the petition for handling as a 2.206 request was published in the *Federal Register* on June 14, 1983 (48 Fed. Reg. 27,327). OCRE supplemented its petition by letter dated July 5, 1983.

OCRE contends that information given in response to a staff question on use of herbicides along transmission line right-of-ways, and used by the staff in preparing the Draft and Final Environmental Statements, was subsequently contradicted in a submission by the licensee to the Ohio Power Siting Board. The licensee did not change the information previously provided to the NRC. Thus, OCRE contends, the licensee made a material false statement either in its original statement to the Commission or by its failure to correct it. Consequently, OCRE requests that the licensee's operating license application be dismissed, its construction permit be revoked or a civil penalty be assessed. For the reasons set forth below, OCRE's request for action is denied.

## BACKGROUND

Prior to granting a construction permit to CEI<sup>1</sup> for the Perry facilities, the Commission prepared a Final Environmental Statement (issued April 1974). In that statement, the Commission discussed the proposed methods for initial clearing and maintenance of transmission line right-of-ways for the licensee's two proposed lines — the Macedonia-Inland line and the Perry-Hanna line. CEI indicated in Section 3.9 and Appendix B3.9 of its Environmental Report for its construction permit that, when permitted and where feasible, it would use herbicides on selected plants as a basal spray before cutting. Where such use was not feasible, mechanical clearing would be used. The Environmental Report indicated that, in service areas of Ohio Edison, herbicides would be used for clearing, with extra care taken in certain areas and in compliance with all regulations. (FES-CP, § 2.2.1.2, at 5-22 and 5-23). The Commission found no significant effects from such proposed practices and imposed no specific limitations on use of the herbicides when the construction permit was issued.

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<sup>1</sup> CEI is the applicant, acting as agent for the other co-owners Duquesne Light Company, Ohio Edison Company and Toledo Edison Company. CEI is responsible for all submittals to the NRC and for construction and operation of the PNPP facility. Other co-owners have responsibilities for those portions of the distribution system off site within their respective service areas.



The applicant submitted its PNPP Environmental Report — Operating License Stage (ER-OL) on June 20, 1980. It was docketed on June 19, 1981. The staff then initiated its operating license environmental review.

The applicant indicated in Section 5.5 of the ER-OL that, “[t]he operation and maintenance methods for the transmission system are unchanged from those described in the ER-CP. The estimated effects of the operation and maintenance of the transmission system are also unchanged.” ER-OL at 5.5-1. In section 2.2 of the ER-OL, the applicant also reported the results of its construction monitoring program and of terrestrial ecology studies conducted on site between March and October 1972. In Section 2.2.2.2.3, the applicant indicated that the spotted turtle (*Clemmys guttata*), a species listed as “endangered” by the State of Ohio, had been found on site in several locations, including the transmission corridor in the southeastern part of the site.

As part of its environmental analysis for the operating license review, the NRC staff posed a number of questions to the applicant. On July 31, 1981, the staff asked the applicant to “[p]rovide an assessment of the effects of transmission line maintenance procedures on the spotted turtle (*Clemmys guttata*). Indicate whether herbicides will be used along any portions of the Perry transmission line.” Question 290.08. The applicant’s response on November 20, 1981 was “[i]t is not the policy of CEI to use herbicides for vegetation control along the Perry transmission lines. CEI cuts the vegetation with a bush hog. To date, there have not been any apparent effects on the spotted turtle.”

In January 1982, the Ohio Power Siting Board denied joint applicants, CEI and Ohio Edison, a certificate of environmental compatibility and public need for the Perry-Hanna transmission line.

In its Draft Environmental Statement, issued in March 1982, and its Final Environmental Statement, NUREG-0884, issued in August 1982, the staff described the facility and related environment for areas where additional or changed information existed and any changes in the staff’s evaluation of the environmental effects of operating the PNPP facility in light of information gained since the FES-CP was issued in April 1974. The staff noted in the FES that the Perry-Macedonia-Inland line was under construction but that the originally proposed Perry-Hanna line had been denied approval by the Ohio Power Siting Board. The staff stated that, when final alignments for the Perry-Hanna line are approved by the State, the applicant will be required to provide a description and analyses of any changes pursuant to conditions of the construction

permit.<sup>2</sup> NUREG-0884, § 4.2.7, at 4-10. The staff also discussed the presence of the spotted turtle on site and noted that it was the staff's understanding that the applicant was currently discussing with the Division of Wildlife of the Ohio Department of Natural Resources habitat requirements and methods of protection. NUREG-0884, § 4.3.7.2, at 4-25.

In its discussion of environmental consequences, the staff summarized as follows:

Maintenance procedures for vegetative control along the PNPP transmission lines will consist of periodical mechanical cutting employing a bush hog. The applicant indicates that it is not his policy to use herbicides for vegetation control along the PNPP transmission lines. Thus, it is the staff's evaluation that adverse impacts from the maintenance activities will be minimal.

NUREG-0884 at 5-8.

With respect to any impacts of PNPP operation on the spotted turtle, the staff found that to date, the spotted turtle's habitat has not been affected by activities at PNPP and that the applicant was discussing the possible effects of future construction and operating activities on the turtle with the State of Ohio.

In October 1982, CEI and Ohio Edison filed an amended application before the Ohio Power Siting Board for the Perry-Hanna transmission line. In the amended application, as in their original 1978 application, the applicants stated they would use a number of herbicides and described the methods of application and chemical components of those to be used.

## ANALYSIS

The issue is whether the applicant's statement in its response to Question 290.08 concerning the use of herbicides or its failure to correct the staff's conclusions in the FES on maintenance procedures is a "material false statement," and, if so, what enforcement action, if any, is appropriate.

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<sup>2</sup> The construction permits state:

Before engaging in a construction activity that may result in a significant adverse environmental impact that was not evaluated or that is significantly greater than evaluated in the Final Environmental Statement, Applicants shall provide written notification to the Director, Division of Site Safety and Environmental Analysis; and

If unexpected harmful effects or evidence of irreversible damage are detected during facility construction, Applicants shall provide to the Commission an acceptable analysis of the problem and a plan of action to eliminate or significantly reduce the harmful effects or damage. (See License Conditions F.6 & F.7 construction permit number of CPPR-148 & CPPR-149.)

The Commission's authority to take enforcement action for material false statements derives from section 186 of the Atomic Energy Act of 1954, as amended:

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. § 2236(a).

The Commission addressed the meaning of the term "material false statement" in its decision in *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), CLI-76-22, 4 NRC 480 (1976), *aff'd*, 571 F.2d 1289 (4th Cir. 1978) (hereinafter *VEPCO*). In *VEPCO*, the Commission determined that material false statements encompass material omissions. 4 NRC at 489-91. Knowledge of falsity is not necessary for liability for a material false statement. 4 NRC at 486. With respect to the materiality of an omission, the Commission stated:

By reading material false statements to encompass omissions of material data, we do not suggest that unless all information, however trivial, is forwarded to the agency the applicant will be subject to civil penalties. An omission must be material to the licensing process to bring Section 186 into play. . . . [D]eterminations 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 to influence a reasonable agency expert.

4 NRC at 491.

The first question to be addressed is whether the applicant's response to Question 290.08 was false or whether pertinent information was omitted. The staff asked the applicant to assess the effects of transmission line maintenance procedures on the spotted turtle and to state whether herbicides would be used along any portion of the Perry transmission lines. CEI, the entity responsible for submittals to the NRC and for construction and operation of the PNPP, replied with regard to its own practices but did not address the practices of its co-applicants. CEI's response that CEI's policy was not to use herbicides along the Perry transmission lines was true as far as it went. However, CEI omitted the fact that the other owners of the plant planned to use herbicides to maintain portions of the transmission line corridors passing through their service areas. Under the criteria established by the Commission, both the applicant's initial incomplete statement in response to the staff's

question and the failure to correct the staff's use of the statement in the FES are "false statements" by omission.

The second question is whether these omissions are "material," in the sense of having the capability to influence a reasonable agency expert or cause him or her to inquire further. With respect to the general issue of the use of herbicides for transmission line maintenance, the staff had previously evaluated the practice in its FES-CP and concluded that the environmental impact would not be significant. This conclusion was based upon information supplied by the applicant in the ER-OL. The applicant had correctly stated in the ER-OL that transmission line maintenance would be as stated in the ER-CP, *i.e.*, by use of herbicides. This statement was correct because some co-owners intended to use herbicides. The staff apparently did not notice the discrepancy between the ER-OL and the response to Question 290.08. It relied on the response to Question 290.08 and included that information in its discussion in the FES.

If the applicant had told the staff reviewer in response to Question 290.08 that it intended to use herbicides along some transmission line right-of-ways, the reviewer would then have tried to determine whether the use of specific herbicides to be applied would be detrimental to the spotted turtle or its habitat. If no specific information was available, or the information indicated a detrimental impact, the staff would have consulted with the State specialist on the spotted turtle for specific recommendations. Thus, the omissions were material because, had accurate information been provided, the staff would have taken additional actions.

After determining that the licensee made a material false statement, the Director examined what enforcement action would be appropriate under the Commission's Enforcement Policy, 10 C.F.R. Part 2, Appendix C. The Enforcement Policy provides for categorization of violations under one of five Severity Levels depending upon the safety and regulatory significance of the violation.

The applicant's initial incomplete statement and its failure to correct the staff's use of the statement in the FES have not had any significant regulatory impact. The staff's review of the transmission lines for the PNPP is not yet complete. The Perry-Hanna line (the only line where herbicides may be used) has not yet been approved and, therefore, any impact of the use of herbicides on the spotted turtle or its habitat off site is speculative. Moreover, the State reviewers who have the expertise in this area (since it is a State-listed endangered species) have had accurate information on the use of herbicides. When a utility applies for a permit from the Ohio Power Siting Board, the Department of Natural

Resources, Division of Wildlife, reviews the request to determine its environmental consequences. Once the Ohio Power Siting Board approves a transmission line route, the NRC will rely on its conclusions regarding the environmental consequences of the route for the State's endangered species such as the spotted turtle. Thus, the environmental consequences of herbicide usage at Perry are being adequately considered and the applicant's false statement has not impeded that consideration.

There is no indication that this was other than an isolated occurrence or that there was any intent on the part of the applicant to mislead the Commission or gain any economic advantage. Counsel for the applicant has indicated that apparently when CEI reviewed the DES, it did not notice that the staff had broadened CEI's response to include all the transmission lines rather than just CEI's portion alone.<sup>3</sup> Thus, the Director has concluded that this violation should be categorized as a Severity Level IV violation.

A Notice of Violation will be issued to the applicant following the Commission's review in accordance with 10 C.F.R. § 2.206(c). The Notice of Violation will require the applicant to respond and describe its corrective actions to prevent similar occurrences in the future. OCRE's request for other enforcement actions is *denied*.

FOR THE NUCLEAR  
REGULATORY COMMISSION

Richard C. DeYoung, Director  
Office of Inspection and  
Enforcement

Dated at Bethesda, Maryland,  
this 15th day of November 1983.

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<sup>3</sup> *Cleveland Electric Illuminating Co. (Perry Nuclear Power Plant, Units 1 & 2)*, Docket Nos. 50-440 and 50-441, transcript of Telephone Conference, May 9, 1983, Tr. 845-47.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Harold R. Denton, Director

In the Matter of

Docket Nos. 50-289  
50-320  
(10 C.F.R. § 2.206)

GENERAL PUBLIC UTILITIES  
NUCLEAR CORPORATION  
(Three Mile Island Nuclear  
Station, Units 1 and 2)

November 18, 1983

The Director of the Office of Nuclear Reactor Regulation denies a petition by Randy King, on behalf of the Three Mile Island Public Interest Resource Center and others to the extent that the petitioners' request sought to have the NRC prohibit the licensee from conducting a load test of the TMI Unit 2 polar crane or otherwise qualifying the crane for use.

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

By letter to Chairman Palladino of the Nuclear Regulatory Commission dated March 23, 1983, Randy King, on behalf of the Three Mile Island Public Interest Resource Center and others (hereinafter referred to as TMI-PIRC, or the petitioners), requested that the Commission "halt all work at TMI Units 1 and 2 immediately, save for maintenance necessary for safety." TMI-PIRC based its request on the allegations of Richard D. Parks concerning implementation of the quality assurance program and related areas at the Three Mile Island Nuclear Station.

On May 17, 1983, TMI-PIRC was informed that its letter would be treated as a request for action pursuant to 10 C.F.R. § 2.206 of the Commission's regulations, and that its request for immediate action had been denied. At that time, the petitioners were informed that a preliminary assessment of the Parks allegations indicated that the issues raised did not materially change the assessment of risk to workers and the public associated with the Unit 2 cleanup activities or the licensee's efforts to ready Unit 1 for possible restart. Given the substantial NRC oversight of activities conducted at TMI Unit 2, and the fact that Unit 1 was not authorized to operate, ordering an immediate halt to all work at TMI, with the exception of maintenance necessary for safety, did not appear to be necessary or appropriate at that time. TMI-PIRC was also informed that the NRC's Office of Investigations (OI) was conducting an inquiry into the Parks allegations, and consequently, action would be taken on the TMI-PIRC request within a reasonable time in light of the results of the OI investigation and other pertinent information. OI released an interim report dealing with the Parks allegations on September 1, 1983, which was released to the public on September 13, 1983. Although the staff's review of the interim report is ongoing, the staff has evaluated the findings regarding the Parks allegations as they relate to a major aspect of the TMI Unit 2 cleanup effort, refurbishment of the polar crane. For the reasons stated herein, the petitioners' request is denied to the extent that it seeks to have the NRC prohibit the licensee from conducting a load test of the TMI Unit 2 polar crane.

## THE PARKS ALLEGATIONS

Richard D. Parks, a senior start-up engineer at TMI Unit 2, provided a signed, sworn affidavit to Thomas Devine, Legal Director of the Government Accountability Project, on March 21, 1983. That affidavit, which was provided to the Commission by letter from Thomas Devine dated March 23, 1983, contained Mr. Parks' concerns regarding deficiencies in the recovery program at TMI Unit 2. Several allegations were made concerning a breakdown of TMI management controls and administrative procedures. The licensee was charged with no longer having a *working, systematic review process for cleanup activities* due to its attempt to meet "unrealistic schedules." Work requests regarding the polar crane were alleged to be inadequate because the request did not cover engineering functions or documentation of design quality assurance. Furthermore, modifications and changes regarding the polar crane were alleged to be intentionally classified as "not important to

safety" so as to circumvent administrative procedures. Technical Specification violations were also alleged. As to polar crane testing itself, Mr. Parks alleged that load test procedures had not been developed in accordance with applicable administrative procedures, and that the polar crane refurbishment violated quality assurance with dissimilar replacement of parts of the polar crane. Mr. Parks also alleged that the polar crane safety evaluation report prepared by General Public Utilities Nuclear Corporation (the licensee) was inadequate because significant deficiencies were not addressed or resolved. The allegations also focused on concerns in both the quality assurance and quality control area. In particular, continuous quality assurance violations were said to be evidenced by numerous quality deficiency reports and inadequate corrective action. Furthermore, it was alleged that the management of the Bechtel Power Corporation, project director of the cleanup effort, improperly exerted influence on safety evaluation reports.

## **OFFICE OF INVESTIGATIONS REPORT**

The OI interim report released on September 1, 1983 substantiated many of the Parks allegations. Both procedural control violations and onsite management deficiencies were identified by the OI investigation. According to OI, the procedural control violations included noncompliance with the licensee's administrative procedures, and misclassification of activities, which resulted in the failure to follow quality assurance procedures which would otherwise be required. OI attributed its findings concerning deficiencies in the onsite management organization to several factors, including inadequate communication between the various aspects of the licensee's organization, the failure of the quality assurance/quality control department to receive proper management support, and the lack of an effective administrative procedures training program.

## **REFURBISHMENT OF THE POLAR CRANE**

The staff has given significant attention to the issue of refurbishing the TMI Unit 2 polar crane and the validity of the Parks allegations relative to the polar crane. Since the polar crane is a prerequisite for major activities leading to the defueling of the damaged core, its refurbishment and requalification was recognized as essential to further progress in the cleanup. Accordingly, in the spring of 1982, the staff developed criteria for the refurbishment of the crane and forwarded those criteria to the



licensee. On February 18, 1983, the licensee submitted its safety evaluation report for the polar crane load test, a critical procedure in requalifying the polar crane for use. The licensee's submittal stated that the only component that is mandatorily covered by the quality assurance plan is the polar crane structure. The staff has reviewed the licensee's submittal and verified that the licensee did comply with the requirements of that plan. The staff had already initiated its own safety review of the proposed load test when the Parks allegations came to light. Upon the Commission's directive to OI to evaluate the Parks allegations, the staff deferred its safety review of those polar crane load test issues associated with the allegations, although reviews of the detailed load test and operating procedures continued forward.

Upon receipt of the interim OI findings, and in view of the administrative and procedural deficiencies in the refurbishment program identified by the OI report, the staff held a public meeting with the licensee in Middletown, Pennsylvania, on September 27, 1983 to discuss the programs, including the managerial controls employed throughout the refurbishment. At the meeting, the licensee was informed that additional information would be needed to provide assurance that the refurbishment had the proper management controls and quality workmanship. The information requested included assurances by the licensee that: (1) the quality assurance organization would independently review the polar crane refurbishment activities and that any identified deficiencies would be corrected, (2) modifications to the polar crane involving "unlike kind" components would be evaluated and reviewed in accordance with applicable administrative procedures, (3) all polar crane testing would be performed in accordance with applicable administrative procedures and with the cognizance or approval (for tests performed by other groups) of the Test Working Group, and (4) all personnel including contractors, involved with polar crane activities were adequately trained in the licensee's administrative and procedural requirements. This request was formalized in a letter to the licensee dated September 28, 1983. The licensee responded to this request by letters dated October 11, 1983 and October 19, 1983, outlining a program for completion of the necessary actions. All deficiencies have now been adequately corrected and training will be completed before the crane is used.

The staff has also conducted an independent review to assure polar crane safety during testing and operation. The primary focus of the review was not whether the correct administrative controls were used in the refurbishment program, but whether the procedures actually utilized during the refurbishment program revealed any health and safety con-

cerns related to the crane itself (*i.e.*, to determine whether there was a hardware problem in addition to administrative discrepancies).

The program utilized by Bechtel in refurbishing the polar crane involved the use of "work packages" and Bechtel administrative procedures to control, perform, and document the work in the crane refurbishment. The program incorporated the Bechtel Design Engineering Organization for engineering review and assistance. Prior to implementation, the bulk of the work packages were reviewed by the NRC onsite staff. The refurbishment work was planned and scheduled on a daily basis and strict control was maintained over reactor building entries. Personnel were trained prior to the performance of in-containment work and equipment was staged for the planned activities. Activities in the building were monitored by closed-circuit television and radio communication. With regard to the work actually performed, the staff review of the work packages indicated they were technically adequate and the quality of the work was such that no significant rework was necessary.

For various aspects of the refurbishment and requalification program, Bechtel employed technical expertise from U.S. Crane Certification Bureau, Inc., Whiting Corporation (the crane manufacturer) and the United Engineers and Constructors. Additionally, Bechtel employed the services of a former Whiting employee for quality assurance support. U.S. Crane was the prime overseer for the refurbishment program while Whiting performed an evaluation of the crane runway rails. United Engineers and Constructors participated in the electrical refurbishment of the crane. Thus, Bechtel had considerable technical support from companies having special skills for the refurbishment program to ensure a safe crane for the requalification test.

In addition to the technical expertise employed on the procedures and controls utilized to refurbish the crane, actual verification of the adequacy of the work performed was demonstrated by functional and operability testing of the crane and its separate components (such as the brakes, motors, and power supplies). As each functional part was refurbished, it was functionally tested to demonstrate its performance capability. Further, at the end of the refurbishment program, the crane was operationally tested as a complete system to demonstrate the functional performance, under no-load conditions, of all operating entities of the crane. The operational testing was successful and demonstrated the crane was capable of performing its required functions. The staff's

expert crane consultant was a direct observer of portions of the limited operational testing of the crane.\*

Accordingly, I have concluded that, notwithstanding the identified procedural deficiencies in the refurbishment of the polar crane, the program utilized to refurbish, test and operationally verify a working crane was technically sufficient and provides reasonable assurance that the crane is safe for the conduct of the requalification test. Furthermore, the licensee has taken action to correct the quality assurance deficiencies identified by Mr. Parks and substantiated by the OI report. Therefore, the petitioners' request is denied in part to the extent that it seeks to have the NRC prohibit the licensee from conducting a load test of the TMI Unit 2 polar crane or otherwise qualifying that crane for use. The staff will, however, continue to evaluate the merits of Parks' allegations and the OI findings regarding those allegations. The staff reserves judgment as to whether enforcement action is appropriate concerning the allegations and findings related to this matter. I will issue a final decision with regard to the remaining aspects of the petitioners' request upon the completion of the staff's evaluation.

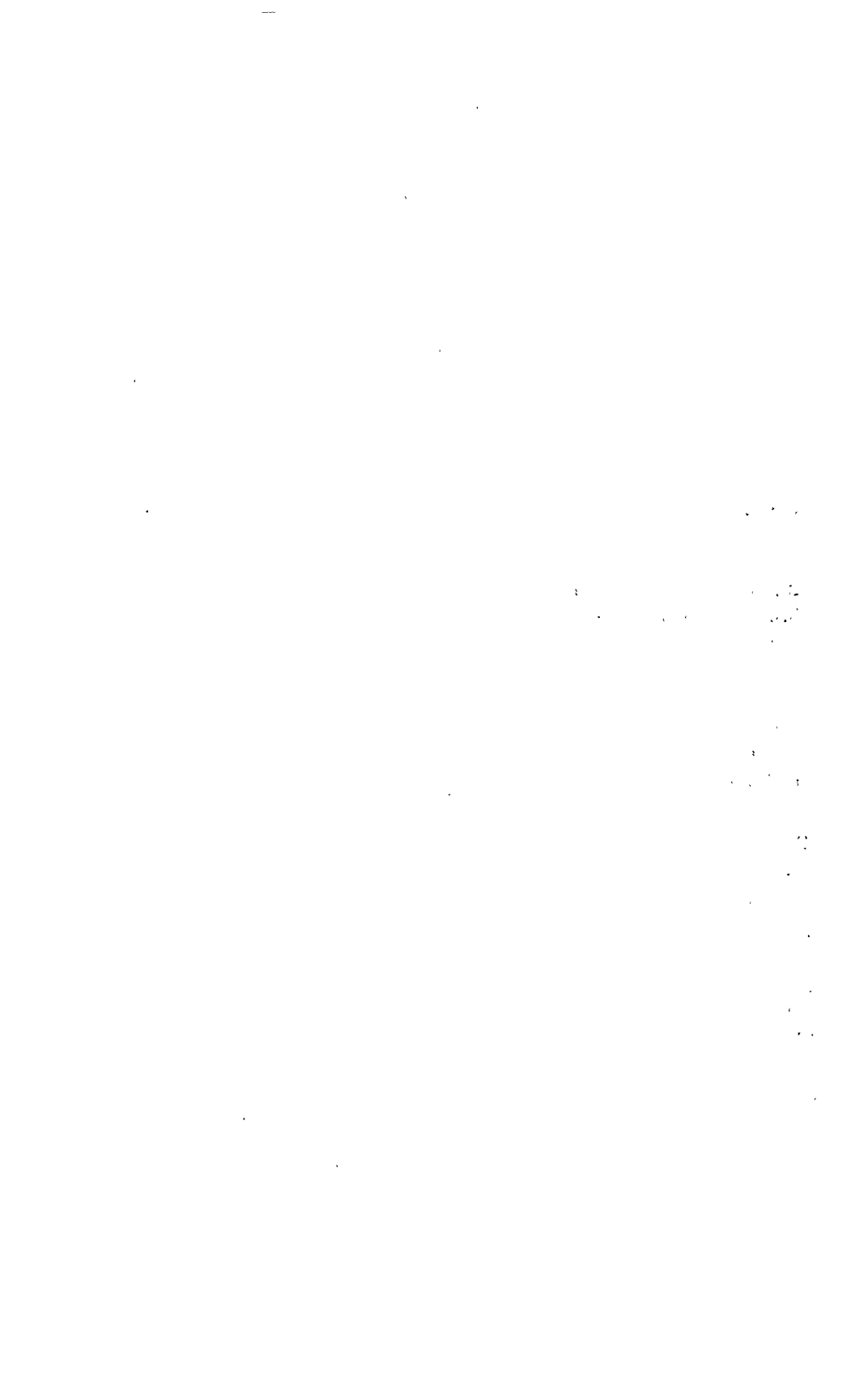
A copy of this decision will be filed with the Secretary for the Commission's review in accordance with 10 C.F.R. § 2.206(c) of the Commission's regulation.

Edson G. Case, Acting Director  
Office of Nuclear Reactor  
Regulation

Dated at Bethesda, Maryland,  
this 18th day of November 1983.

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\*Further details concerning the staff's review are found in the Office of Nuclear Reactor Regulation, Three Mile Island Program Office *Safety Evaluation of the Refurbishment of the Reactor Building Polar Crane, Load Test, and Recertification for Use for the Three Mile Island Nuclear Station, Unit 2* (November 18, 1983). This report may be found in the NRC Public Document Room, 1717 H Street, NW, Washington, DC 20555.



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

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

**In the Matter of**

**Docket Nos. 50-413**  
**50-414**

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

**December 6, 1983**

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

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

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

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

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

### **ORDER**

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

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

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

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

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

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

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

regarding prior communications between the witnesses and Duke counsel.<sup>2</sup>

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

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

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

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

Duke's request for a stay is therefore DENIED.

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



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

For the Commission<sup>3</sup>

SAMUEL J. CHILK  
Secretary of the Commission

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

### DISSENTING VIEW OF COMMISSIONER ROBERTS

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

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<sup>3</sup> Commissioner Gilinsky was not present but had previously indicated his approval of this order.

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

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

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

**In the Matter of**

**Docket Nos. 50-275**  
**50-323**

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

**December 9, 1983**

**ORDER**

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

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

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

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

It is so ORDERED.

For the Commission

SAMUEL J. CHILK  
Secretary of the Commission

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

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

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

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

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

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

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

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

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

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

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

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

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

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

### **SEPARATE VIEWS OF COMMISSIONER ASSELSTINE**

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

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

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

**In the Matter of**

**Docket Nos. 50-443-OL**  
**50-444-OL**

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

**December 6, 1983**

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

**RULES OF PRACTICE: MOTION FOR RECUSAL (OR  
DISQUALIFICATION)**

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

## APPEARANCES

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

## MEMORANDUM AND ORDER

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

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

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

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

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<sup>1</sup> A copy of the order is attached as Appendix A to this opinion.



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

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

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

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

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

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

<sup>4</sup> *Id.* at 5.

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

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

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

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

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

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

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

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

**APPENDIX A**

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judge:**

**Helen F. Hoyt**

**In the Matter of**

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

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

**November 28, 1983**

**ORDER**

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

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

NECNP's motion is *denied*.

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

**Helen F. Hoyt  
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

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

**In the Matter of**

**Docket Nos. STN 50-553**  
**STN 50-554**

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

**December 6, 1983**

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

**RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES**

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

**APPEARANCES**

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

## MEMORANDUM AND ORDER

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

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

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

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<sup>1</sup> *Duke Power Co.* (Cherokee Nuclear Station, Units 1, 2 and 3), ALAB-745, 18 NRC 746 (1983).

<sup>2</sup> 8 NRC 533, 550 (1978).

<sup>3</sup> See *Cherokee*, *supra*, 18 NRC at 747.

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

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

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

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

**In the Matter of**

**Docket No. 50-382-OL**

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

**December 9, 1983**

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

**RULES OF PRACTICE: REOPENING OF PROCEEDINGS**

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

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

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

## **RULES OF PRACTICE: REOPENING OF PROCEEDINGS**

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

## **RULES OF PRACTICE: REOPENING OF PROCEEDINGS**

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

## **RULES OF PRACTICE: REOPENING OF PROCEEDINGS**

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

## **RULES OF PRACTICE: SUMMARY DISPOSITION**

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

## **RULES OF PRACTICE: REOPENING OF PROCEEDINGS (BOARD JURISDICTION)**

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



## **RULES OF PRACTICE: REOPENING OF PROCEEDINGS**

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

## **TECHNICAL ISSUES DISCUSSED**

Cracking and moisture in concrete.

## **APPEARANCES**

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

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

**Sherwin E. Turk** for the Nuclear Regulatory Commission staff.

## **DECISION**

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

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

## I.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

<sup>6</sup> A second report reaches the same conclusion. See Harstead Report (October 12, 1983) at 20-23.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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<sup>13</sup> We reiterate that the cracking and moisture in the foundation mat have been shown to be without safety significance.

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

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

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

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

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

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

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



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

## II.

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

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

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

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

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

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

**In the Matter of**

**Docket No. STN 50-483-OL**

**UNION ELECTRIC COMPANY**  
**(Callaway Plant, Unit 1)**

**December 9, 1983**

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

**EMERGENCY PLANNING: GENERAL REQUIREMENTS**

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

**EMERGENCY PLANS: CONTENT (USE OF  
RADIOPROTECTIVE DRUGS)**

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

## EMERGENCY PLANS: FEMA VIEWS

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

## DECISION

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

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

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

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

<sup>2</sup> See 10 C.F.R. § 50.47(b)(10).

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

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

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

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

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

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

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<sup>4</sup> 10 C.F.R. § 50.47(a)(2).

<sup>5</sup> See testimony of Marlee Carroll, Community Planner, Technological Hazards Branch, Natural and Technological Hazards Division, FEMA-Region VII, fol. Tr. 2366, at 2-3.

<sup>6</sup> *Id.* at 4-5.

<sup>7</sup> LBP-83-71, *supra*, 18 NRC at 1109.

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

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

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

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<sup>8</sup> *Id.* at 1112, 1116.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

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

**In the Matter of**

**Docket No. 50-537-CP**

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

**December 15, 1983**

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

**CONSTRUCTION PERMIT PROCEEDINGS: TERMINATION**

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

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

## ORDER

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

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

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

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<sup>1</sup> See LBP-83-8, 17 NRC 158.

<sup>2</sup> In ALAB-721, 17 NRC 539 (1983), we denied a request for a stay of the Licensing Board's decision. The Commission made the Licensing Board's decision immediately effective in an unpublished order of May 5, 1983, and the Office of Nuclear Reactor Regulation issued the LWA on May 19, 1983. As a practical matter, most of the site preparation activities authorized by the LWA have already been completed under an exemption granted by the Commission in August 1982. See CLI-82-23, 16 NRC 412. The exemption was challenged in court and the Commission's decision was reversed and remanded. *NRDC v. NRC*, 695 F.2d 623 (D.C. Cir. 1982). Site preparation activities went forward, however, because the court declined to stay the Commission's exemption decision. The Commission reaffirmed the grant of the exemption in an opinion issued on January 6, 1983. See CLI-83-1, 17 NRC 1.

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



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

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

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

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

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

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

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

**In the Matter of**

**Docket Nos. 50-275-OL**  
**50-323-OL**

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

**December 19, 1983**

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

**RULES OF PRACTICE: REOPENING OF PROCEEDINGS**

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

**RULES OF PRACTICE: REOPENING OF PROCEEDINGS**

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

motion been considered. *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 523 (1973); *Georgia Power Co.* (Alvin W. Vogtle Nuclear Plant, Units 1 and 2), ALAB-291, 2 NRC 404, 409 (1975); *Northern Indiana Public Service Co.* (Bailly Generating Station, Nuclear-1), ALAB-227, 8 AEC 416, 418 (1974). See also *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-598, 11 NRC 876, 879 (1980).

#### **OPERATING LICENSE: HEALTH AND SAFETY STANDARD**

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

#### **RULES OF PRACTICE: REOPENING OF PROCEEDINGS**

To determine what constitutes a "significant safety issue" for reopening motions predicated on alleged deficiencies in an applicant's construction quality assurance program, the new evidence must establish either that uncorrected construction errors endanger safe plant operation, or that there has been a breakdown of the quality assurance program sufficient to raise legitimate doubt as to the plant's capability of being operated safely. See *Union Electric Co.* (Callaway Plant, Unit 1), ALAB-740, 18 NRC 343, 346 (1983).

#### **APPEARANCES**

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

**John K. Van DeKamp**, Attorney General of the State of California, **Andrea Sheridan Ordin, Michael J. Strumwasser, Susan L.**

**Durbin and Peter H. Kaufman**, Los Angeles, California, for George Deukmejian, Governor of the State of California.

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

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

## MEMORANDUM AND ORDER

We are faced with the question whether the record in this operating license proceeding should be reopened to consider new evidence on the alleged inadequacy of the construction quality assurance program utilized by the Pacific Gas and Electric Company in the construction of the Diablo Canyon facility. In our unpublished order of October 24, 1983 we answered that question in the negative. The reasons for our decision are detailed below.

### I

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

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

they subsequently conceded that the motions met the adjudicatory standards for reopening the record on the *design* phase of the quality assurance program. We agreed and ordered the proceeding reopened on the issue of design quality assurance but declined to rule at that time on the construction quality assurance issue because of the procedural posture of the case.<sup>2</sup>

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

Owing to the voluminous filings and the number of unanswered questions we had concerning the exact nature and significance of the new evidence, we set the motions for hearing so that these questions could be more fully explored.<sup>4</sup> Further, because of the importance of quality assurance in the Commission's scheme for regulating the construction of nuclear power plants<sup>5</sup> and our desire to be as informed as possible on the factual claims of the parties, we allowed movants to supplement their previous filings with any new evidence not already submitted.<sup>6</sup> Commencing on July 19, 1983, a four-day hearing on the motions was held near the plant's site at San Luis Obispo, California, where the parties were afforded an opportunity to cross-examine each other's affiants.

The joint intervenors and the Governor advance a number of arguments in support of their motions to reopen. In general, they follow four lines: (1) errors in the applicant's design quality assurance program suggest the existence of errors in the construction quality assurance program; (2) newly found deficiencies in the construction quality assurance programs of several of the applicant's contractors indicate that further quality assurance program errors, as well as construction errors, exist; (3) the applicant's alleged lack of commitment to implement the Commission's quality assurance regulations confirms the existence of flaws in the applicant's construction quality assurance program; and (4) the extensive nature and rapid pace of recent modification work follow-

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<sup>2</sup> See Memorandum and Order of April 21, 1983 (unpublished).

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

<sup>4</sup> See Order of June 28, 1983 (unpublished).

<sup>5</sup> See, e.g., *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-124, 6 AEC 358, 361-62 (1973).

<sup>6</sup> See Order of June 28, 1983, *supra*.

ing the discovery of design errors at the plant suggest the need to monitor the present construction quality assurance program. We consider these arguments below.

## II

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

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

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

Although the timeliness of the May 1983 motions is not in dispute, the applicant contests the assertions of the joint intervenors and the Governor that the new evidence establishes a significant safety issue and, that had the evidence previously been known, a different result would have been reached. For its part, the staff rests its opposition on the "significant safety issue" criterion. We turn, therefore, to the second prong of the *Wolf Creek* standard. Because we conclude that the new evidence presented by the joint intervenors and the Governor lacks the requisite safety significance on the issue of construction quality assurance, we reach no other question.

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

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<sup>7</sup> The construction permits were issued for Units 1 and 2 on April 23, 1968 and December 9, 1970, respectively.

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

It is in this context that the movants' evidence of alleged quality assurance deficiencies must be addressed. In order for new evidence to raise a "significant safety issue" for purposes of reopening the record, it must establish either that uncorrected construction errors endanger safe plant operation, or that there has been a breakdown of the quality assurance program sufficient to raise legitimate doubt as to the plant's capability of being operated safely. See *Union Electric Co.* (Callaway Plant, Unit 1), ALAB-740, 18 NRC 343, 346 (1983).<sup>8</sup>

### III

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

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

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

The movant's evidence on this point falls far short of establishing their asserted inference. Although at Diablo Canyon both design and construction quality assurance are parts of a single program, the historical development, organizational structure and responsibilities of each component are different. Similarly, the personnel skills, verification methods and corrective actions applicable to each phase of the programs are different.<sup>9</sup> Therefore, it simply does not follow that merely because the same top management is ultimately responsible for the entire quality assurance program and the details of the program are found in a single manual, the existence of defects in the design aspect of the program are symptomatic of like errors in the construction phase of the program. The many different elements and functioning of each component of the program are such that it would be gross speculation to arrive at the movants' conclusion based on these two factors alone.<sup>10</sup> More important, however, is the fact that the joint intervenors and the Governor — despite the additional opportunity presented by the hearing on their motions — were unable to support their premise and establish construction quality assurance shortcomings sufficient to show a systematic breakdown in the quality assurance program or defects in the plant that may adversely affect its capability for safe operation.

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

1. The Foley Company was responsible for all of the electrical work at the plant and, from about 1977, for much of the completion of the plant's construction (*i.e.*, the "clean-up" contractor). The joint intervenors and the Governor claim that the inadequacy of Foley's (and, in

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<sup>9</sup> See Affidavit of Richard S. Bain (July 1, 1982) and Affidavit of Warren A. Raymond, Charles W. Dick and Michael J. Jacobson (July 2, 1982), accompanying Response of Pacific Gas and Electric Company to Joint Intervenors' Motion to Reopen the Record (July 2, 1982). These affidavits are incorporated by reference in Response of Pacific Gas and Electric Company to Motions to Reopen the Record on Construction Quality Assurance (May 31, 1983).

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



turn, the applicant's) construction quality assurance program is made manifest by several incidents and construction practices. Relying heavily on a sworn statement provided to the Governor's attorneys by a former quality assurance manager of the company, Virgil H. Tennyson, they assert that Foley's quality assurance organization, in contravention of the Commission's regulations, 10 C.F.R. Part 50, Appendix B, I, lacks sufficient independence from the company officials responsible for production. On this score, they allude to statements made by Mr. Tennyson to the effect that he was constantly under pressure to shortcut quality assurance requirements in order that construction work could go forward. They stress, for example, an incident recounted by Mr. Tennyson in which red tags, used by the Foley construction quality assurance department to identify nonconforming work, were allegedly ordered removed by the company's project manager in violation of quality assurance procedures.

But when Mr. Tennyson was cross-examined at the hearing on the motions, a far different picture emerged from that painted by the joint intervenors and the Governor. Although an incident involving the premature removal of red tags from nonconforming work did occur in violation of the company's quality assurance procedures, it appears that the physical corrections to the nonconforming work already had been performed before the tags were removed.<sup>11</sup> The same conclusion was reached by the staff after its investigation of the incident.<sup>12</sup> Moreover, the incident appears to be an isolated one. Thus, it neither establishes a systematic breakdown in Foley's construction quality assurance program nor demonstrates an uncorrected defect in the plant that adversely affects safe operation. Nor do we believe that the red tag incident, or other statements concerning the removal of red tags attributed to Foley's construction manager by Mr. Tennyson, demonstrate a lack of independence on the part of the quality assurance organization from the production department. In the context in which these statements were allegedly made, we believe the various remarks were little more than shorthand expressions to complete the inspection process in a timely manner, but not at the expense of proper quality assurance procedures or the independence of that organization.<sup>13</sup>

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<sup>11</sup> Tr. 652.

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

<sup>13</sup> Tr. 336, 341-43, 350-52.

We note that in the opinion of the NRC senior resident inspector at Diablo Canyon, John Carlson, the quality assurance organization enjoyed sufficient independence within the company's corporate  
*(Continued)*

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

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

2. Like the H.P. Foley Company, the G.F. Atkinson Company and the Wismer and Becker Company were major contractors for the Diablo Canyon plant. The former was responsible for the erection of the containment structure while the latter installed the primary coolant system

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structure. He stated that although Foley's organizational structure was such that both production and quality management reported to the senior project manager at the site, the quality assurance manager had direct access to the company's regional vice-president in the company's corporate offices in California. Tr. 900-01.

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

<sup>15</sup> Tr. 805-07.

<sup>16</sup> Tr. 562-72.

<sup>17</sup> The movants also cite Mr. Tennyson's sworn statement concerning an incident of harassment of a quality assurance inspector by an ironworker as evidence of Foley's deficient quality assurance program. According to Mr. Tennyson, such harassment was reported to the Foley project manager but, as far as Mr. Tennyson was aware, nothing was done to curtail it. The record, however, shows that the errant ironworker was immediately dismissed as a result of the harassment. See Affidavit of Richard S. Bain, James R. Manning and Richard D. Etzler (May 31, 1983) at 14, accompanying Response of Pacific Gas and Electric Company to Motions to Reopen the Record on Construction Quality Assurance (May 31, 1983) [hereinafter "BME Affidavit (May 31, 1983)"].

pipng. Asserted deficiencies found by a review of the construction performed by these contractors also form part of the basis for the joint intervenors' and the Governor's assertions that the record should be reopened on the issue of the applicant's quality assurance program.

In the fall of 1981, the applicant discovered errors in the assignment of seismic design spectra for equipment and piping in portions of the containment annulus of Unit 1. These errors, in conjunction with the discovery of additional problems with the applicant's design quality assurance program, prompted the Commission to order the applicant to undertake an independent design verification program to assure the adequacy of the Diablo Canyon design.<sup>18</sup> While the program was in progress, and as an adjunct to it, the applicant commissioned the same organizations performing the design review to examine the containment structure construction and the primary coolant system piping. The applicant undertook this, at the urging of the NRC regional staff, to confirm the adequacy of the construction of Diablo Canyon and to verify that the staff inspection efforts had not allowed significant undetected deficiencies.<sup>19</sup> Although a number of contractors were involved in constructing the applicant's facility, the independent reviewers selected the construction performed by the Atkinson Company and the Wismer and Becker Company (and their subcontractors) because that construction was both substantial and involved structures or components vitally important for safe operation of the plant.<sup>20</sup> This review resulted in a favorable finding on both the adequacy of the applicable quality assurance programs and the construction.<sup>21</sup>

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

Although the review did result in the finding of a number of errors, these deficiencies were essentially matters of minor significance and

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<sup>18</sup> See CLI-81-30, 14 NRC 950 (1981).

<sup>19</sup> See Affidavit of Philip J. Morrill (June 2, 1983) at 3, accompanying NRC Staff's Response to Joint Intervenor's and Governor Deukmejian's Motions to Reopen the Record (June 6, 1983).

<sup>20</sup> *Id.*

<sup>21</sup> *Id.* See also Attachment 3, Interim Technical Report No. 36 (Revision 1) and Attachment 4, Interim Technical Report No. 38 (Revision 2), accompanying Response of Pacific Gas and Electric Company to Motions to Reopen the Record (May 31, 1983) [hereinafter "ITR 36" and "ITR 38"].

were generally the result of close decisions by the reviewing personnel on items that had called for the exercise of similar judgments by the contractors' quality control personnel.<sup>22</sup> None of the deficiencies required any physical modifications.<sup>23</sup> Moreover, the review was conducted on work performed as far back as eight years earlier using today's more stringent quality standards and not those applicable to the period of the actual construction.<sup>24</sup> Thus, in the circumstances, the number of errors discovered by the review is neither surprising nor particularly meaningful. What is important is that none of the deficiencies represents any defect adversely affecting the safe operation of the plant or a systematic breakdown of the applicable construction quality assurance programs.

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

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

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<sup>22</sup> Tr. 428-40.

<sup>23</sup> See ITR 36 and ITR 38.

<sup>24</sup> Tr. 429-31.

<sup>25</sup> See p. 1344, *supra*.

<sup>26</sup> The movants also assert that numerous deviations in piping installations from what the movants label "as built" drawings, identified by the applicant and the independent construction review, show the fail-

(Continued)

C. In a more general vein, the joint intervenors and the Governor contend that since 1970 the applicant's construction quality assurance program for Unit 1 has not complied with the Commission's quality assurance regulations, 10 C.F.R. Part 50, Appendix B, because the applicant did not commit to conform its program to Appendix B after it became effective. Rather, the applicant only committed to apply Appendix B to the extent possible. Thus, they argue, the applicant effectively exempted its quality program from compliance with the regulations for post-1970 construction activities and the record must be reopened to ensure that Diablo Canyon was properly constructed.<sup>27</sup> Although not expressly stated, seemingly implicit in movants' argument is the notion that the regulations required immediate compliance upon the effective date of Appendix B and that the applicant's commitment was insufficient to ensure a properly constructed facility. We disagree.

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

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ure of the applicant's construction quality assurance program. But the conclusion the joint intervenors and the Governor draw from these asserted discrepancies is unsupported by the record and evidences a misapprehension of the applicant's drawing procedures.

The applicant has had in place and followed appropriate drawing procedures from the beginning of the Diablo Canyon project. See BME Affidavit (May 31, 1983) at 2-5; Tr. 634-35. Further, the subject piping was correctly installed by the contractor in accordance with the design requirements on the area drawings and erection isometric drawings. See BME Affidavit (May 31, 1983) at 6-7; Tr. 618, 619-20, 634. Hence, there was no construction quality problem. Tr. 619, 626. The discrepancies cited by the movants were those between the design analysis isometric drawings and the actual installations. But those analysis drawings were not used in the field to erect piping. See BME Affidavit (May 31, 1983) at 7; Tr. 618, 619-20, 634. The apparent source of the problem was the failure of the applicant's engineering department timely to incorporate into the analysis drawings all the previously approved field changes so that the drawings at the time of the review conformed to the installed piping. See BME Affidavit (May 31, 1983) at 7-8; Tr. 626. We do not find this particular failure by the Pacific Gas and Electric Company engineering department to be significant from the standpoint of the applicant's construction quality assurance program.

<sup>27</sup> The joint intervenors point to the construction of certain raceway supports at Diablo Canyon using "Superstrut" material manufactured by the Midland-Ross Company as evidence of the applicant's failure to comply with Appendix B and to construct the facility properly. An NRC inspection of the Midland-Ross facility determined that the manufacturer's quality assurance program was insufficient and not in conformance with Appendix B. See Board Notification No. 83-02 (January 7, 1983) and enclosure. Thereafter, the agency conducted an inspection at Diablo Canyon on the use of the material. That inspection concluded that the applicant's procurement and use of the material was generally consistent with Appendix B requirements applicable to off-the-shelf or commercial grade items. See Affidavit of Philip J. Morrill (June 2, 1983) at 6 and Exhibit C (Inspection Report Nos. 50-275/82-41, 50-323/82-19 (January 6, 1983)), accompanying NRC Staff's Response to Joint Intervenors' and Governor Deukmejian's Motions to Reopen the Record (June 6, 1983); Tr. 887-92. Further, we note that subsequent physical testing and evaluations of the Superstrut material indicate that it meets the design requirements for Diablo Canyon. Tr. 884. See Board Notification No. 83-14A (April 6, 1983) and enclosure. See also Pacific Gas and Electric Company and Bechtel Power Corporation "Final Report on the Evaluation of Spot-welded Materials Used in Support Systems for Electrical Conduit and Cable Trays at Diablo Canyon Power Plant" (July 1, 1983).

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

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

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

<sup>28</sup> 35 Fed. Reg. 10,498, 10,499 (1970) (emphasis supplied).

<sup>29</sup> See Diablo Canyon FSAR, § 17.0.

<sup>30</sup> Tr. 464.

The movants turn the applicant's commitment on its head by suggesting that it was a loophole that permitted the applicant to ignore construction quality assurance for Unit 1. Although Mr. Raymond further stated that it would take "an exhaustive review" to identify the construction work at Unit 1 performed under the quality assurance criteria of Appendix B and that such a review had not been undertaken, this fact does not translate into a conclusion that the applicant neglected construction quality assurance at Unit 1. Tr. 466. Indeed, as early as May 6, 1971 the staff noted in Inspection Report No. 50-275/71-1 at 9:

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

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

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

(Continued)

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

The movants have failed to produce any reliable or persuasive evidence that the extent of recent construction activities has led to significantly faulty construction or a serious breakdown in quality control. Rather, it appears that the modification work has been adequately planned and coordinated. In addition, this work has been subjected to an aggressive program of quality assurance inspections and audits by the staff and the applicant which has insured that the minor deficiencies uncovered have been corrected.<sup>32</sup> Further, as explained by Allan Johnson and Bobby Faulkenberry, Enforcement Officer and Deputy Regional Administrator, respectively, of the Commission's Region V office, shakedown errors can be expected at the beginning of any large construction work.<sup>33</sup> Moreover, Mr. Faulkenberry, in his review of the inspection history of Diablo Canyon from 1969 to the present time — a program amounting to some 20 to 25 man-years of effort and covering the activities of all contractors on the site — did not find the applicant's non-compliance record out of the ordinary. Indeed, he found the non-compliance rate "about average, or possibly even on the low side."<sup>34</sup> This being so, in the absence of evidence of serious construction quality assurance breakdowns in connection with the modification work now going on at the plant, no justification is presented for reopening of the record.

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

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

<sup>33</sup> Tr. 805-08.

<sup>34</sup> Tr. 807, 820-22.

We have also considered the other allegations of construction quality assurance deficiencies made by the movants. We find them without merit.<sup>35</sup>

#### IV

As is evident from our discussion above, we find that the joint intervenors and the Governor have failed to provide new evidence of a significant safety issue. Although there is some evidence of errors in both the applicant's construction quality assurance program and the construction at Diablo Canyon, we are unable to find that the errors are pervasive so as to indicate a breakdown in the construction quality assurance program and raise legitimate doubt as to the plant's capability of being operated

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

The staff response indicates that a review of the NRC inspection reports for the period covered by the NSC audit shows the same kind of deficiencies in the Pullman program as those noted in the audit report. Therefore, the staff believes the audit findings reflect already corrected, isolated occurrences. The applicant's response contains a detailed history of the NSC audit and full documentation of subsequent actions taken by Pullman and Pacific Gas and Electric Company. That documentation shows that Pullman responded fully to each of the audit findings and, where appropriate, proposed corrective actions. See Affidavit of Russell P. Wischow (September 21, 1983), Attachment 4, accompanying Pacific Gas and Electric Company Answer to Joint Intervenors' Supplement. The applicant reviewed the NSC audit findings with the Pullman responses and then conducted a separate audit of the Pullman quality assurance program, including a review of the installed hardware. The applicant's audit found three programmatic deficiencies and three deficiencies in the implementation of the program but concluded that the Pullman program generally met the applicable criteria. *Id.* at Attachments 5 and 6. The deficiencies identified by the applicant were then corrected. *Id.* at Attachment 7. The applicant also concluded that the NSC audit findings presented an inaccurate measure of the overall Pullman quality assurance program because many of the NSC findings inappropriately compared the Pullman program to 1977 standards rather than those applicable when the work was actually performed. *Id.* at 3.

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

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



safely. Nor can we find that any construction errors endanger safe plant operation. Accordingly, the motions of the joint intervenors and the Governor to reopen the record on the issue of construction quality assurance and for other relief are *denied*.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING APPEAL BOARD**

**Administrative Judges:**

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

**In the Matter of**

**Docket Nos. 50-443-OL  
50-444-OL**

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

**December 20, 1983**

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

**RULES OF PRACTICE: MOTION FOR RECUSAL (OR  
DISQUALIFICATION)**

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

**RULES OF PRACTICE: MOTION FOR RECUSAL (OR  
DISQUALIFICATION)**

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

## APPEARANCES

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

## MEMORANDUM AND ORDER

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

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

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

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<sup>1</sup> 18 NRC 1313 (1983).

<sup>2</sup> 18 NRC 1184 (1983).

<sup>3</sup> 18 NRC 1195 (1983).

<sup>4</sup> 18 NRC at 1314.

<sup>5</sup> New England Coalition on Nuclear Pollution Motion for Reconsideration (December 13, 1983) at 3 (footnote omitted).

<sup>6</sup> *Id.* at 2-3.

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

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

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

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

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

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

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

<sup>8</sup> *Id.* at 34.

<sup>9</sup> See ALAB-749, *supra*, 18 NRC at 1199 n.8.

<sup>10</sup> Coalition's Reconsideration Motion at n.2.

<sup>11</sup> Motion by New England Coalition on Nuclear Pollution for Disqualification of Judge Hoyt (November 23, 1983) at 19.

<sup>12</sup> *Ibid.*

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

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

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

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<sup>13</sup> Tr. 1845-61.

<sup>14</sup> Tr. 1855-77.

<sup>15</sup> Tr. 1875.

<sup>16</sup> Coalition's Disqualification Motion, *supra*, at 21.

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

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

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

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

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

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

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

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<sup>18</sup> ALAB-751, *supra*, 18 NRC at 1315-16. See also ALAB-749, *supra*, 18 NRC at 1199.

<sup>19</sup> Coalition's Reconsideration Motion, *supra*, at 6.

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

officer must be appointed. Thus, we insist that all requests for disqualification or recusal be filed promptly.<sup>21</sup>

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

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

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

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

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<sup>21</sup> ALAB-749, *supra*, 18 NRC at 1198.

<sup>22</sup> 585 F.2d 83 (3d Cir. 1978).

<sup>23</sup> *Id.* at 86.

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

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

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

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

<sup>25</sup> See note 17, *supra*.

<sup>26</sup> Coalition’s Reconsideration Motion, *supra*, at 7.

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



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

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

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

FOR THE APPEAL BOARD

C. Jean Shoemaker  
Secretary to the  
Appeal Board

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<sup>28</sup> Coalition’s Reconsideration Motion, *supra*, at 9-10.



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

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

**In the Matter of**

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

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

**December 2, 1983**

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

**QUALITY ASSURANCE: RESOLUTION OF DEFICIENCIES**

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

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

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

### **QUALITY ASSURANCE: NUMBERS OF DEFICIENCIES**

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

### **QUALITY ASSURANCE: SIGNIFICANCE OF VIOLATIONS**

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

### **QUALITY ASSURANCE: RESPONSIVENESS TO CRITICISM**

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

## **PARTIAL INITIAL DECISION (Quality Assurance Contention)**

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

The genuine issues of fact set for trial were:

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

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

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

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

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

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

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

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

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

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<sup>2</sup> LBP-82-114, 16 NRC 1909 (1982) at 1917.

<sup>3</sup> LBP-82-15, 15 NRC 555 (1982) at 564.

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

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

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

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

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

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

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

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<sup>5</sup> Tr. 1164.

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

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

## I. OVERVIEW OF ISSUE NO. 3

### A. Sequence Leading to Issues of Material Fact

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

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

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

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

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

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

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<sup>7</sup> 46 Fed. Reg. 12,372 (1981).

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

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

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

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

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

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

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

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

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

Whether applicant has an adequate system for periodically reviewing its program for assuring the quality of contractor performance and ascertaining and correcting deficiencies that have arisen, particularly in systems essential to safe plant operation.<sup>16</sup>

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

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

<sup>13</sup> Affidavit of James E. Konklin and Cordell C. Williams in Support of Summary Disposition of Issue No. 3, dated October 22, 1982.

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

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

<sup>16</sup> *Id.* at 1917.



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

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

## B. Prefiled Testimony and Evidentiary Hearing

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

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

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

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

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

<sup>20</sup> Edelman/Leidich Testimony at 2-3, 7-8.

Electronic Engineers (IEEE), and has participated in developing nuclear electrical standards for IEEE.<sup>21</sup>

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

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

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

The Board received limited appearances on May 23, 1983, and May 31, 1983,<sup>27</sup> and conducted an evidentiary hearing on May 24-27, 1983, in Painesville, Ohio. We received a site tour of electrical and other areas on June 1, 1983.

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<sup>21</sup> Edelman/Leidich Testimony at 3-5.

<sup>22</sup> Tr. 1006 (Board).

<sup>23</sup> Tr. 1491-1543 (Leidich); see Section III.B., *infra*.

<sup>24</sup> Konklin, *et al.*, Testimony at 2-3.

<sup>25</sup> Tr. 1572 (Williams).

<sup>26</sup> Board Ex. 3, Report No. 81-19, at 1; see Tr. 1626 (Williams).

<sup>27</sup> We also granted an unscheduled limited appearance on May 24, 1983. Tr. 1134-36.

## C. Governing Standards

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

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

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

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<sup>28</sup> Edelman/Leidich Testimony at 12, Attachment 3.

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

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

<sup>30</sup> Criterion XVI states:

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

<sup>31</sup> See Tr. 1399-1400, 1594-99.

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

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

## II. RELATIONSHIP BETWEEN APPLICANT AND COMSTOCK

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

### A. Applicant's General Program

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

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

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<sup>32</sup> LBP-81-24, 14 NRC at 211.

<sup>33</sup> *Id.*

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

<sup>35</sup> *Id.* at 7.

<sup>36</sup> *Id.* at 8-9, 15-16.

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

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

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

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

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

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

<sup>38</sup> *Id.* at 7-8, 15-16, 23-24.

<sup>39</sup> *Id.* at 14, and Attachment 3.

<sup>40</sup> *Id.* at 8-15, and Attachment 2.

<sup>41</sup> *Id.* at 8, 16, 18-19, and Attachment 2.

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

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

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

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

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<sup>42</sup> *Id.* at 9, 17; Tr. 1045-54, 1215-17 (Edelman).

<sup>43</sup> Edelman/Leidich Testimony at 9-10, 19.

<sup>44</sup> *Id.* at 13, 19-20.

<sup>45</sup> *Id.* at 9, 16-19, 22; Tr. 1077-83, 1118 (Leidich and Edelman).

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

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

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

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

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

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

<sup>48</sup> *Id.* at 20-21; Tr. 1076-77, 1116-22 (Leidich and Edelman).

<sup>49</sup> Edelman/Leidich Testimony at 23; Konklin, *et al.*, Testimony at 20-21.

<sup>50</sup> Assessment of Quality Assurance Program Effectiveness for the Perry Nuclear Power Plant, First Quarter 1979 — First Quarter 1983 (Licensing Board Ex. 2), identified at Tr. 1256, received at Tr. 1259.

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

<sup>52</sup> Edelman/Leidich Testimony at 16, 24; Konklin, *et al.*, Testimony at 22.

<sup>53</sup> Tr. 1781-83 (Maxwell).

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

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

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

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

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<sup>54</sup> Edelman/Leidich Testimony at 18-19, 25.

<sup>55</sup> See, e.g., Tr. 1509 (Leidich).

<sup>56</sup> Tr. 1085-89, 1096-97 (Leidich).



vidual inspectors are responsible for documenting compliance with applicable work and inspection procedures.<sup>57</sup>

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

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

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

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

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<sup>57</sup> Tr. 1094-96, 1099 (Leidich).

<sup>58</sup> Tr. 1097-1104 (Leidich).

<sup>59</sup> Tr. 1107-08 (Leidich).

<sup>60</sup> Tr. 1104-07 (Leidich).

<sup>61</sup> Tr. 1089-93 (Leidich).

<sup>62</sup> Konklin, *et al.*, Testimony at 4-5.

staff's routine inspection program, the staff evaluates and investigates allegations and performs special team inspections by regional or head-quarter groups such as the Regional Construction Assessment Team (CAT) review performed at Perry in July and August 1982.<sup>63</sup>

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

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

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

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<sup>63</sup> *Id.* at 5-6.

<sup>64</sup> *Id.* at 6-7, 9.

<sup>65</sup> *Id.* at 10.

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

<sup>67</sup> Konklin, *et al.*, Testimony at 23-24. Tr. 1672 (Williams). See Section V, *infra*.

<sup>68</sup> Konklin, *et al.*, Testimony at 27.

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

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

## **B. Chronology of Applicant's Electrical QA Program**

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

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

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

<sup>70</sup> Konklin, *et al.*, Testimony at 10-14, 25-26.

<sup>71</sup> Sections III.B, IV and V, *infra*, focus on the specific application of the program with respect to Comstock.

<sup>72</sup> Edelman/Leidich Testimony at 26-32.

<sup>73</sup> Tr. 1006-08 (Board).

<sup>74</sup> Tr. 1489-1551 (Leidich).

<sup>75</sup> Tr. 1490 (Board).

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

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

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

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

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<sup>76</sup> Tr. 1539 (Leidich).

<sup>77</sup> Tr. 1286, 1491-93 (Leidich).

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

<sup>79</sup> Tr. 1493-98 (Leidich).

<sup>80</sup> Tr. 1495 (Edelman).

<sup>81</sup> Tr. 1497-98 (Leidich).

<sup>82</sup> Edelman/Leidich Testimony, Attachment A.

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

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

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

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<sup>83</sup> Tr. 1497-1510 (Leidich).

<sup>84</sup> Tr. 1500-06 (Leidich).

<sup>85</sup> Tr. 1497-1512 (Leidich).

<sup>86</sup> Edelman/Leidich Testimony at 27.

<sup>87</sup> *Id.* at 27-28.

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

<sup>89</sup> Memorandum and Order (Concerning Scheduling), September 16, 1982 (unpublished), at 3; Tr. 1868-72.

<sup>90</sup> Tr. 1511-13 (Leidich).

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

ed Comstock's craft training program and identified areas for improvement.<sup>92</sup>

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

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

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

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

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<sup>92</sup> Tr. 1514-15 (Leidich).

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

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

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

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

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

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

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<sup>95</sup> Edelman/Leidich Testimony at 29; Tr. 1527-28 (Leidich).

<sup>96</sup> Edelman/Leidich Testimony at 29; Tr. 1532 (Leidich).

<sup>97</sup> Tr. 1529, 1532, 1534-35 (Leidich).

<sup>98</sup> Tr. 1534-41 (Leidich).

<sup>99</sup> Tr. 1532-33, 1535, 1538-39 (Leidich).

<sup>100</sup> Tr. 1540 (Leidich).

<sup>101</sup> See Tr. 1085 (Leidich).

<sup>102</sup> Edelman/Leidich Testimony at 32; Tr. 1537 (Leidich).

<sup>103</sup> Edelman/Leidich Testimony at 28; Tr. 1538 (Leidich).

<sup>104</sup> Tr. 1541-42 (Leidich).

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

### III. TIMELINESS OF CORRECTIVE ACTION

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

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

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

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

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

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

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

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<sup>105</sup> Edelman/Leidich Testimony, Attachment A.

<sup>106</sup> SALP 2 Report at 7 (emphasis added). See LBP-82-114, 16 NRC at 1916.

<sup>107</sup> Licensing Board Ex. 3, NRC letter to applicant dated September 27, 1982, at 1 (emphasis added).

<sup>108</sup> Licensing Board Ex. 3, Report No. 81-19, at 93.



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

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

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

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

The Board and intervenors also inquired extensively into whether Comstock has corrected applicant ARs and CARs on a timely basis.<sup>117</sup>

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<sup>109</sup> Edelman/Leidich Testimony at 20.

<sup>110</sup> Tr. 1356-57 (Edelman).

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

<sup>112</sup> Tr. 1163-64 (Edelman).

<sup>113</sup> Tr. 1162-64 (Edelman).

<sup>114</sup> Tr. 1164-66, 1168-69 (Edelman).

<sup>115</sup> Tr. 1596 (Konklin).

<sup>116</sup> Tr. 1597 (Maxwell).

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

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

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

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<sup>118</sup> Tr. 1274 (Licensing Board); Tr. 1363 (Hubbard).

<sup>119</sup> Tr. 1278-79, 1363-64 (Leidich); Tr. 1371 (Edelman).

<sup>120</sup> Tr. 1371 (Edelman). See Tr. 1308-11, 1507 (March 1980 CAR); Tr. 1527 (November 1981 SWN); Tr. 1535 (April 1982 CAR); Tr. 1374-75, 1538 (August 1982 CAR) (Leidich).

<sup>121</sup> Tr. 1272-79 (Edelman/Leidich); pp. 1383-84, *supra*.

<sup>122</sup> Pages 1385-86, *supra*; see Tr. 1369-70 (Leidich).

<sup>123</sup> Tr. 1279 (Leidich).

<sup>124</sup> Tr. 1371 (Edelman). See, e.g., Edelman/Leidich Testimony at 33 (discussing applicant's responses to Comstock's final inspection backlog).

<sup>125</sup> Tr. 1366-68 (Leidich).

<sup>126</sup> Edelman/Leidich Testimony at 21.

<sup>127</sup> Tr. 1867-68 (Silberg).

<sup>128</sup> Tr. 1375-76 (Leidich).

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

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

#### IV. SIGNIFICANCE OF REPORT NO. 81-19 FINDINGS

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

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<sup>129</sup> Tr. 1290-91 (Leidich).

<sup>130</sup> Tr. 1391, 1394 (Edelman).

<sup>131</sup> Tr. 1313 (Board).

<sup>132</sup> See note 46 *supra*.

<sup>133</sup> Tr. 1314 (Board).

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

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

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

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<sup>134</sup> Board Ex. 3, Report No. 81-19, at 6-29.

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

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

<sup>137</sup> Board Ex. 3, Notice of Violation.

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

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

<sup>140</sup> Tr. 1774 (Williams); see Tr. 1817-18 (Williams).

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

<sup>142</sup> Tr. 1795 (Williams).

<sup>143</sup> Tr. 1699 (Williams).

<sup>144</sup> *Id.*

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

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

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

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<sup>145</sup> Tr. 1544-51 (Leidich); pp. 1371-72, *supra*.

<sup>146</sup> Tr. 1549 (Leidich).

<sup>147</sup> Tr. 1647-56 (Williams).

<sup>148</sup> Tr. 1632 (Board, Williams).

<sup>149</sup> Tr. 1354 (Leidich).

<sup>150</sup> Tr. 1633-44 (Board, Williams, Maxwell).

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

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

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

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

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<sup>151</sup> See pp. 1384-85, *supra*.

<sup>152</sup> Tr. 1661 (Board, Williams).

<sup>153</sup> Tr. 1276, 1283.

<sup>154</sup> Tr. 1659-60 (Williams).

<sup>155</sup> Tr. 1695-1701 (Williams).

<sup>156</sup> Board Ex. 3, Notice of Violation at 2.

<sup>157</sup> Tr. 1668, 1778 (Williams).

<sup>158</sup> Board Ex. 3, Report No. 81-19, at 95.

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

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

The Licensee's — I suppose we are talking about his attitude, if you will, was one of cooperation. He demonstrated professional competence. He demonstrated general willingness to get on with correcting the issues that we mutually agreed needed correcting. He demonstrated a willingness to assist the regulator, to the extent that it was possible, in establishing the status of his activities and by that I simply mean, they were willing to provide all records and as many bodies as we need to track through their system to get things in order.

As I have indicated before — and perhaps others of this panel have been a benefactor of that to the extent they allowed you to come onto the site and plow through all of the records — it is an open book. By my experience, and I participated in a number of these, that rarely happens.<sup>162</sup>

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

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

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<sup>159</sup> See, e.g., Tr. 1623-24, 1656, 1817 (Williams).

<sup>160</sup> See e.g., Edelman/Leidich Testimony at 30-32; Konklin, et al., Testimony at 15-20.

<sup>161</sup> Tr. 1587 (Williams).

<sup>162</sup> Tr. 1769-71 (Williams). See Tr. 1861-62 (Gildner).

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

## V. MISCELLANEOUS — ISSUANCE OF PARTIAL INITIAL DECISION

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

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

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

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

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<sup>163</sup> 10 C.F.R. Part 2, App. A, § I(c)(1) (emphasis added).

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



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

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

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

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

<sup>167</sup> *Limerick*, *supra*, 17 NRC at 759 n.9.

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

<sup>169</sup> Order at 2.

<sup>170</sup> *Id.*

## VI. CONCLUSION

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

## ORDER

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

### ORDERED

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

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

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

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

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

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

**THE ATOMIC SAFETY AND  
LICENSING BOARD**

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

**Jerry R. Kline  
ADMINISTRATIVE JUDGE**

**Glenn O. Bright  
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

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

**In the Matter of**

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

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

**December 13, 1983**

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

**MEMORANDUM AND ORDER**

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

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

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

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

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

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

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

Accordingly, it is

**ORDERED**

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

**FOR THE ATOMIC SAFETY AND  
LICENSING BOARD**

**John F. Wolf, Chairman  
ADMINISTRATIVE JUDGE**

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

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

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

**In the Matter of**

**Docket Nos. 50-440-OL  
50-441-OL**

**CLEVELAND ELECTRIC ILLUMINATING  
COMPANY, *et al.***

**(Perry Nuclear Power Plant,  
Units 1 & 2)**

**December 20, 1983**

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

**RULES OF PRACTICE: DISCOVERY**

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

**MEMORANDUM AND ORDER  
(OCRE Motion to Reopen Discovery)**

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

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

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

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

the purpose of a discovery cut-off date is to require a party to complete as much discovery as is feasible before that date. The fact that Sunflower will obtain additional information in the future will permit it to argue that it has good cause for late-filing of interrogatories with respect to that material, providing that the information was not previously available to it.

We will not deprive [a party] of its fair opportunity to seek discovery of matters not previously known to it, but that is not a reason to extend the deadline on matters already known to it.<sup>4</sup>

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

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

<sup>2</sup> OCRE’s Motion at 1.

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

<sup>4</sup> Unpublished Memorandum and Order (Concerning Request to Extend Discovery on Issue #1), dated October 8, 1982, at 1.

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

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

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

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

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<sup>5</sup> Tr. 753.

<sup>6</sup> Tr. 800-01.



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

## **ORDER**

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

### **ORDERED**

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

### **THE ATOMIC SAFETY AND LICENSING BOARD**

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

**Jerry R. Kline  
ADMINISTRATIVE JUDGE**

**Glenn O. Bright  
ADMINISTRATIVE JUDGE**

**Bethesda, Maryland**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

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

**In the Matter of**

**Docket Nos. 50-440-OL  
50-441-OL**

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

**December 23, 1983**

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

**RULES OF PRACTICE: LATE-FILED CONTENTION**

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

**RULES OF PRACTICE: LATE-FILED CONTENTION**

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

## MEMORANDUM AND ORDER (New Contention on Diesel Generators)

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

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

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

### I. BASIS FOR THE CONTENTION

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

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

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<sup>1</sup> The authority to simplify and focus contentions is derived from 10 C.F.R. § 2.714(e).

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

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

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

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

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

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<sup>3</sup> Staff Response, Attachment E, "Summary of September 2, 1983 Emergency Diesel Generator Meeting," September 21, 1983 at 1.

<sup>4</sup> OCRE's Motion at 4 n.1.

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

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

<sup>7</sup> *Id.* at 2. See also *id.* at Enclosure 5 (letter transmitting Notice of Violation).

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

<sup>9</sup> For a discussion of these DARs, see Applicant's Answer at 12-14 and the referenced attachments.

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

We note that the serious failure at Shoreham also involved improper design of the crankshafts.<sup>10</sup>

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

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

## II. GOOD CAUSE FOR LATE FILING

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## **ORDER**

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

### **ORDERED**

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

### **THE ATOMIC SAFETY AND LICENSING BOARD**

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

Jerry R. Kline  
**ADMINISTRATIVE JUDGE**

Glenn O. Bright  
**ADMINISTRATIVE JUDGE**

Bethesda, Maryland

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

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

**In the Matter of**

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

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

**December 28, 1983**

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

**QUALITY ASSURANCE: DESIGN**

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



## **QUALITY ASSURANCE: INDEPENDENT DESIGN REVIEW**

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

## **EVIDENCE: EXPERT QUALIFICATIONS**

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

## **EVIDENCE: EXPERT OPINION**

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

## **RULES OF PRACTICE: FINDINGS OF FACT**

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

## **RULES OF PRACTICE: REFERRAL TO THE APPEAL BOARD**

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

## **TECHNICAL ISSUES DISCUSSED**

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

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

## **MEMORANDUM AND ORDER**

### **(Quality Assurance for Design)**

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

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

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

## I. APPLICABLE REGULATIONS

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

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

Structures, systems, and components important to safety shall be *designed* . . . to quality standards commensurate with the importance of the safety functions to be performed.

\* \* \*

Structures, systems, and components important to safety shall be designed to accommodate the effects of and to be compatible with [design, normal and accident conditions] . . . .

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

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<sup>1</sup> Applicant's Findings at 27.

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

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

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

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

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

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

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<sup>3</sup> Emphasis added.

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

<sup>5</sup> Emphasis supplied. The wording of the section has been abridged to increase its conciseness while still reflecting its intent.

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

(Continued)

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

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

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

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

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

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

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

<sup>7</sup> Tr. 6676.

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

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

## II. BACKGROUND

Contention 5 in this proceeding states:

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

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

### A. Relevant History of the Walsh/Doyle Concerns<sup>10</sup>

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

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

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<sup>9</sup> Tr. 714.

<sup>10</sup> For this section of the opinion we rely in part on Staff's Findings.

<sup>11</sup> Tr. 2712-18.

<sup>12</sup> CASE Exhibit 659A.

<sup>13</sup> Tr. 3074-3188, 3197.

<sup>14</sup> CASE Exhibit 659, 659 A-H; CASE Exhibit 668 (and attachment).

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

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

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

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

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<sup>15</sup> CASE Exhibit 669A, Attachment 1.

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

<sup>17</sup> Tr. 3631-4010, CASE Exhibit 669.

<sup>18</sup> Supplemental Testimony of Mark A. Walsh, CASE Exhibit 668; Supplemental Testimony of Jack Doyle, CASE Exhibit 683.

<sup>19</sup> Tr. 3622-4012, 4705-56.

<sup>20</sup> CASE Exhibit 669, 669A, as corrected by CASE Exhibit 669-1, together with attachments to that testimony, CASE Exhibit 669B.

<sup>21</sup> CASE Exhibit 683, together with attachments to that testimony, CASE Exhibit 683A through K.

<sup>22</sup> Applicant's Exhibit 142, Tr. 4766.

<sup>23</sup> Applicant's Exhibit 142F, Tr. 4784.

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

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

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

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

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

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

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<sup>24</sup> Tr. 4832-5305.

<sup>25</sup> Tr. 5326.

<sup>26</sup> Staff Exhibit 201.

<sup>27</sup> Tr. 5351-56.

<sup>28</sup> Tr. 6401-02.

<sup>29</sup> Staff Exhibit 207.

<sup>30</sup> Staff Exhibit 207 at 12.

<sup>31</sup> See "Surrebuttal Testimony of Jack Doyle, Witness for Intervenor CASE," April 26, 1983; "Supplementary Surrebuttal Testimony of Jack Doyle, Witness for Intervenor CASE," May 9, 1983; "Surrebuttal Testimony of Mark Anthony Walsh, Witness for Intervenor CASE," May 4, 1983.



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

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

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

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

## B. Qualifications of Witnesses

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

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

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

<sup>34</sup> Affidavit of Joseph I. Tapia and Affidavit of W. Paul Chen (October 14, 1983).

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

<sup>36</sup> Applicant's Findings at 10.

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

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

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

### C. Extra-Record Materials

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

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

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<sup>37</sup> [Footnote deleted. See LBP-84-10, 19 NRC 509 (1984).

<sup>38</sup> Attachment A is derived from Applicant's Findings at 3-10.

<sup>39</sup> LBP-83-55, 18 NRC 415 (1983).

<sup>40</sup> Applicant's Reply at 1-3; Staff's Findings at 2-3.

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

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

### III. EVIDENCE CONCERNING QUALITY ASSURANCE FOR DESIGN

#### A. The Iterative Design Process

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

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

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

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

<sup>42</sup> Applicant refers us to CASE Exhibit 659B.

1. A conceptual design for a length of pipe is prepared using the piping plan and elevation and/or isometric drawings for the plant.
2. An initial pipe stress analysis on the conceptual piping design is performed to calculate the forces and types of loads on proposed supports on the conceptual piping design.
3. The description of the acceptable piping layout (including the proposed support locations with accompanying directions of restraint and magnitude of forces) is sent to one of the three support design groups.
4. During installation of the supports, field engineers are available to authorize changes to support designs as necessary to produce a usable design.
5. Once piping and some of the accompanying supports are installed, a QA inspection of the as-built dimensions of the piping and installed pipe supports is performed. The drawings utilized at this step are then stamped "as-built verified" and transmitted as a package to the appropriate piping stress analysis organization (Gibbs & Hill or Westinghouse) for a preliminary stress analysis.
6. The pipe stress analysis organization conducts its preliminary stress analysis, adjusting the piping stress problem for any new factors which impact on the pipe or support stresses. The stress problem is rerun to determine new stresses in the pipe and new loads on the pipe supports.
7. The stress package is then returned to the appropriate design group, which reviews the new piping loads to determine whether the particular hanger is still appropriate. Supports which are found to be satisfactory are stamped "vendor certified" and if found to be unsatisfactory are modified and a new as-built design package is sent to the pipe stress analysis organization.
8. Upon completion of installation of all supports, a stress problem package (incorporating changes to the supports since the problem was last run) is prepared and provided to the pipe stress analysis organization for reanalysis. A pipe stress problem will be rerun if the new as-built configuration impacts the pipe stresses.
9. This package is once again returned to the appropriate design group to determine whether any supports need be modified as a result of the new stress problem and if so, will be modified and returned once again to the pipe stress analysis organization until all pipe stresses are acceptable and all pipe supports are vendor certified to the loads developed in the last run of the stress problem.

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

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

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

## B. Analysis

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

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

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

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

<sup>45</sup> Applicant's Findings at 21.

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

<sup>47</sup> Staff's Findings at 17, citing Staff Exhibit 207 at 16.

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

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

(Continued)

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

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

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

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

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

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

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

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

<sup>53</sup> Applicant's Findings at 45.

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

<sup>55</sup> Testimony of Mr. Finneran (Tr. 4889).

<sup>56</sup> CASE Exhibit 669A at 24 (Doyle).

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

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

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

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

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

<sup>58</sup> Tr. 4893 (Finneran).

<sup>59</sup> We are not aware of any program by which applicant trends "deficiencies" found in CMCs.

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

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

solely under pressure from this litigation rather than as part of its routine design process.<sup>62</sup>

### C. SIT Findings

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

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

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

<sup>63</sup> SIT Report at 2.

<sup>64</sup> *Id.* at 28.

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

<sup>66</sup> *Id.*

<sup>67</sup> *Id.*

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

<sup>69</sup> *Id.*

<sup>70</sup> *Id.* at 29.



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

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

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

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

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<sup>71</sup> *Id.*

<sup>72</sup> CASE's Findings at III-7.

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

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

<sup>75</sup> *Id.* at 388.

<sup>76</sup> Applicant's Reply at 15 found this argument confusing.

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

## D. Conclusion

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

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

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

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

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

<sup>80</sup> *Id.*

<sup>81</sup> Tr. 7167-69 (Vega and Finneran); Tr. 4962-65 (Mr. Finneran); Tr. 6406 (Mr. Taylor).

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

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

#### **IV. SPECIFIC DESIGN PROBLEMS**

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

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

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

##### **A. Previously Discussed Problems**

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

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

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

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

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

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

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

might overstress the bolt. Furthermore, note 1 to Table XVII-2461:1-1 of the ASME Code does not exclude the possibility that the U-bolt could exert sufficient clamping force on the pipe to cause substantial local stresses on the pipe. To the contrary, the note calls the amount of clamping force “unpredictable” and allows the possibility that substantial clamping force may be exerted.

## 1. *CASE's Findings*

CASE's Findings on this point are instructive:<sup>82</sup>

The problem associated with cinching up the U-bolts is that this establishes *three* mechanisms for inducing stress into the pipe wall and the U-bolt instead of the *one* which was anticipated. The original mechanism which was anticipated was the loads as listed in the output from the pipe stress run (the original design load). The two additional mechanisms are: (1) the stress induced into the U-bolt and the pipe by the torquing of the nuts to cinch up the U-bolt; and (2) the stress resulting from heating of the piping system (radial expansion) which, regardless of how little, will result in a differential temperature between the pipe and the U-bolt with a subsequent tension induced on the U-bolt, a compression on the pipe, and some bending in the member which restrains the U-bolt.

The stresses and displacement for the U-bolt, pipe, and involved structures are therefore dependent on the three mechanisms involved — not merely the loading as listed by the Pipe Stress Group (the original design load).

In the case of severe thermal constraint as is depicted in CASE Exhibit 669B (Attachment to Doyle Deposition/Testimony), items 14D through 14M and Item 12N, the thermal constraint induced stress may exceed all other considerations such as the problems of mass on the pipe and mechanically induced loads. However, for a proper analysis, it is again the summation of *all* factors which induce stress and/or displacement which must be considered.

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In the May 4, 1983, Surrebuttal Testimony of Mr. Doyle (CASE Exhibit 763 at 11-12) it is proved by the use of standard mathematical means that the stresses developed due to the Applicants' cinching procedures alone mean that the stress levels will exceed manufacturer's allowables, as determined by converting load to stress . . . .

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

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<sup>82</sup> CASE's Findings at IV-8, IV-12-IV-14.

<sup>83</sup> *Id.* at IV-13, IV-14.

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

## 2. Analysis

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

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

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

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<sup>84</sup> *Id.* at IV-16.

<sup>85</sup> *Id.* at IV-17.

<sup>86</sup> *Id.* at IV-15.

<sup>87</sup> Neither applicant nor staff have discussed Code interpretation in this context.

<sup>88</sup> Applicant's Findings at 49.

<sup>89</sup> SIT Report at 30, 33.

<sup>90</sup> *Id.* at 30-31.

<sup>91</sup> *Id.* at 32-33.

<sup>92</sup> Tr. 6742.

<sup>93</sup> *Id.*

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

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

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

The dynamic interaction between the pipe and pipe clamp is a complex design problem. From a design standpoint, there are many uncertainties that could affect the actual system response such as consideration of total support system flexibility, mechanical non-linearities, construction and installation tolerances, and uncertainties in the dynamic loading itself. It is beyond the scope of this report to discuss the clamp-to-piping responses to these various factors. However, the report will focus on those local dynamic effects on the piping that can be attributed primarily to the clamp attachment that, in general, are not explicitly evaluated by piping designers.

The computer programs used for piping dynamic analyses generally consider the pipe as a lumped mass system connected by structural elements with cross-sectional properties equivalent to that of a pipe defined at the center line of the structural element. Piping supports are modelled as springs (or infinitely rigid elements) which are connected to the centerline of the structural elements. Thus, localized pipe stresses due to clamp-pipe interaction are not computed using this lumped mass-spring piping system analytical method. Clamp-induced loads on the pipe should be evaluated as a locally distributed or a concentrated load on a cylindrical shell using an appropriate method of analysis. The resulting local stresses should be added to the stresses calculated by the lumped mass-spring piping model which calculates only beam bending modes.

During dynamic applied loadings, local pipe stresses induced by the pipe clamp could be significant depending on several factors including clamp to pipe surface contact, load magnitude and frequency, and support orientation to pipe.

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It has recently been established by the staff that certain designs rely on a preload of the clamp onto the pipe in order to achieve large stiffness requirements in the

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<sup>94</sup> SIT Report at 32; Tr. 6742 (Chen). See also Applicant's Findings at 49 (overtightening would cause stripping).

<sup>95</sup> Tr. 6746 (Chen); see CASE's Findings at IV-18.

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

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

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

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

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<sup>96</sup> Affidavit of W. Paul Chen (November 4, 1983) at 4.

<sup>97</sup> CASE Exhibit 763 at 14-15; CASE's Findings at IV-17.

<sup>98</sup> CASE Exhibit 763 at 11-12; CASE Exhibit 669B at 10.

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



Mr. Doyle. To us, the concerns derived from the stiff-clamp context have not been demonstrated to be inapplicable here.<sup>100</sup>

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

### C. American Welding Society (AWS) Code

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

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

<sup>101</sup> Board Notification 82-105A at V-22. *See also* CASE Exhibit 669 (Doyle) at 318-21.

<sup>102</sup> CASE's Findings, Chapter V.

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

## **1. CASE's Specific Allegations**

CASE lists the following AWS Code provisions as applicable to non-nuclear facilities and, by inference, to nuclear facilities:<sup>104</sup>

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

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

CASE also has a more specific point related to criteria apparently adopted by applicant pursuant to a September 1982 study by Korol and Mirza.<sup>108</sup> Mr. Doyle's testimony questions whether NPSI rear brackets (three examples of which are listed in the testimony) and two specifically described supports, offered as examples, comply with the Korol and Mirza criterion of a width ratio at least as great as 0.6.<sup>109</sup> CASE also references Mr. Doyle's testimony that the SIT incorrectly evaluated weld sizes on two drawings because those drawings show  $\frac{1}{4}$  inch fillet welds when the minimum weld requirements are  $\frac{3}{8}$  inch or  $\frac{5}{16}$  inch.<sup>110</sup>

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<sup>104</sup> Case's Findings at V-3 to V-4.

<sup>105</sup> *Id.* at V-4.

<sup>106</sup> See SIT Report at 49.

<sup>107</sup> See SIT Report at 50-51 concerning staff inspections that have been conducted.

<sup>108</sup> SIT Report at 50.

<sup>109</sup> CASE Exhibit 763 at 26.

<sup>110</sup> CASE Exhibit 763. (There is a typographical error in CASE's Findings at V-6 which causes one of the support numbers to differ from the number cited by the SIT Report but it is our understanding that Mr. Doyle was referring to the same supports as were referenced by SIT.) We note that the SIT Report does not state the dimensions of welds or the criteria applied, so there has been no direct response to the specific complaint that CASE has made.

CASE also faulted the SIT Report for erroneously finding, without conferring with CASE, that a particular support number did not exist.<sup>111</sup>

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

## 2. Analysis

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

Only those welding processes which are capable of producing welds in accordance with the welding procedure qualification requirements of Section IX and this Subsection [subsection NF] shall be used for welding Component Support materials or attachments thereto. [ASME Code Section III, Subsection NF-4311.]<sup>113</sup>

Applicant contrasts this qualified welding process to the prequalification of procedures incorporated in the AWS Code.<sup>114</sup> It points out that even the AWS Code permits deviations from its provisions for "successful qualification" conducted by the contractor<sup>115</sup> — a point conceded by CASE.<sup>116</sup>

Applicant also has listed for the Board each of the AWS criteria listed by CASE, finding for us the Code sections that were referenced. With respect to the tube-to-tube punching requirement and the Beta requirement, applicant references the SIT's finding of adequate tube-to-tube joint designs<sup>117</sup> but does not rebut any of the Doyle testimony,<sup>118</sup> discussed above, concerning: (1) specific joints that do not meet AWS design requirements, and (2) specific design measurements that do not meet AWS requirements. With respect to the effective throat for flare bevel welds, applicant is correct in its comparison of its own proce-

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<sup>111</sup> CASE's Findings at V-6, citing CASE Exhibit 669B, items 13X and 13Y.

<sup>112</sup> Tr. 6249, 6261-62 (Doyle); Tr. 7957-58 (Compton).

<sup>113</sup> Cited exactly from Applicant's AWS Brief at 10.

<sup>114</sup> *Id.* at 11-12.

<sup>115</sup> *Id.* at 13.

<sup>116</sup> CASE Exhibit 669 (Doyle) at 116, 118.

<sup>117</sup> Applicant's AWS Brief at 16.

<sup>118</sup> CASE's Findings at V-5 to V-7 contain the specific testimony that was not responded to.

dures<sup>119</sup> to the AWS Code; accordingly, applicant has satisfied the Board that there is no problem there.

Applicant does not respond at all to seven different AWS criteria advanced by CASE because “the AWS Code expressly excludes them from applicability to welding procedures which are qualified by tests.”<sup>120</sup> The problem with this response is that it leaves the Board in the dark as to which of these Code provisions has been demonstrated nonapplicable because of specific qualifying tests. Since these criteria, advanced by CASE, represent reference material that is suggestive for plant design, we think it incumbent on the applicant to carry its burden of proof that each criterion has been properly considered in its qualification procedures.

With respect to one of the AWS criteria, “drag angle and work angles (which limit the space allowed for the welder to function),” — referred to by applicant as “groove angles”<sup>121</sup> — we have special curiosity. We cannot imagine how applicant may have performed qualification tests to bypass this criterion. Arguably, this would have required the use of very large or odd-shaped welders to see if they could function adequately in smaller work spaces.

Applicant’s answer with respect to weld cracking also is unacceptable. CASE alleges that the repair of undersized welds apparently was done by performing a cap weld.<sup>122</sup> Applicant answers that the ASME Code requires “the qualification of every welding procedure by extensive testing and examination to assure adequate strength and integrity of the weld.” However, applicant has not responded to CASE’s concern about cap welds and has not stated that the method for repair of undersized welds, by adding additional weld material, has been qualified by test. When CASE presents us with specifics, we are not satisfied when applicant responds with generalities.

We are concerned that specific matters raised by CASE as falling within the AWS Code, may not have been properly addressed by applicant in the design of Comanche Peak. Applicant has not carried its burden of proof on this set of issues.

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<sup>119</sup> CASE Exhibit 716 at 7.

<sup>120</sup> Applicant’s AWS Brief at 15.

<sup>121</sup> Applicant’s AWS Brief at 16.

<sup>122</sup> At CASE’s Brief, V-7 to V-8, a variety of record and extra-record materials are cited. We have considered only the Doyle testimony and the Compton testimony. Although Mr. Doyle has modestly stated that he is not a welding “expert,” he has demonstrated enough knowledge of welding codes and requirements for us to give his testimony some weight.

### **3. Analysis of the Staff's Response**

The staff attempted to respond to the Board's concerns about the AWS Code by filing the affidavit of Dr. Jai Raj N. Rajan, who has a Ph.D. with a major in fluid mechanics from Duke University.<sup>123</sup> This affidavit adds two considerations not raised by applicant: (1) the statement by Dr. Rajan that compliance with the ASME Code and with the AWS Code produces welds of comparable strength but that the Codes have different conceptual approaches,<sup>124</sup> and (2) the following statement concerning the nature of qualification procedures:

Qualification of welding procedures involved testing or examination of a sample of welds which must be fabricated by the construction organization (for ASME) in accordance with the procedure to be qualified, in order to assure that the weld possesses the required properties for its intended application.

He also clarified the relationship between the two Codes, stating that several (but not all) of the criteria cited by Doyle are not explicitly provided for in the ASME Code.<sup>125</sup>

### **4. Conclusion**

The essential conflict among the parties is whether the qualification of welds has been adequate to assure that each of CASE's concerns, stemming from the AWS Code, has been taken care of. It is clear that if the qualification procedures cover these matters or provide reasons for ignoring them, then CASE's argument is without merit. However, the AWS Code contains provisions intended to embody sound welding practice and all our record contains is generalizations that boil down to the fact that the AWS Code and ASME Code have different approaches. Pursuant to the ASME Code, a sample of welds has been tested in a qualification program, but the characteristics of that sample of welds and of the qualification program have not been discussed; nor does our record contain a logical basis for concluding that each of the AWS concerns have been obviated by qualification tests.

We are sympathetic with applicant's and staff's desire to avoid such a complex task of proof. We ourselves are not anxious to undertake such a burden, either. However, we cannot accept an argument that well-recognized welding standards, embodied in an industry code, may be

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<sup>123</sup> NRC Staff Response to Board Question Regarding Applicable Welding Codes at CPSES, October 18, 1983 (Staff's AWS Brief).

<sup>124</sup> Rajan Affidavit at 4-5.

<sup>125</sup> Rajan Affidavit at 3.

waived because of a qualification program about which we are totally in the dark.

On balance, after considering all the arguments on this subject, we find that applicant has not met its burden of proof on the principal thrust of CASE's AWS concerns.

#### D. Upper Lateral Restraint Beam

CASE has called into question the safety of the upper lateral restraint beam, whose primary purpose is to help to resist blowdown loads that may exist within the steam generator in the event of a LOCA.<sup>126</sup> The CASE allegation is that when the beam is heated during a LOCA it will expand about 0.24 inch, creating a free-end displacement between the steel beam and the adjacent concrete.<sup>127</sup> This constraint of free-end displacement must be considered by applicant in the design of its plant,<sup>128</sup> but CASE alleges that applicant's analysis of the upper lateral restraint was incorrect.

We find that CASE's allegations about an incorrect analysis of the upper lateral restraint are meritorious. CASE's first concern was that applicant made an error in its graphical technique (iterative analysis) for analyzing the upper lateral restraint. All parties agree that there was an error, in that the graphical technique was not carried to its proper conclusion but was truncated, apparently without any explanation or notation on the design drawing.<sup>129</sup>

It is our conclusion that the truncation of the graphical technique was an engineering error. Applicant's engineer commenced an analysis of the beam and frame structure that sequentially assumes that one end of the beam is locked and the other is released, thereby redistributing the moments in the beam.<sup>130</sup> Although applicant's engineer knew how to carry out this analysis properly,<sup>131</sup> he did not do so. Had he done so, the criterion the engineer set for his own analysis would have been exceeded;<sup>132</sup> and the analyst himself considers this to have been an error.<sup>133</sup>

Applicant and staff have attempted to excuse this error on two grounds: that it was committed in documents prepared for a hearing

<sup>126</sup> Tr. 6038 (Vivirito).

<sup>127</sup> See CASE's Findings at XIX-6.

<sup>128</sup> See LBP-83-33, 18 NRC 27 (1983).

<sup>129</sup> Tr. 6052-53 (Vivirito); Tr. 6051-54, 6057, 6189-92 (Chen).

<sup>130</sup> Tr. 6189 (Chen).

<sup>131</sup> Tr. 6190 (Chen).

<sup>132</sup> Tr. 6026-27, 6175 (Doyle).

<sup>133</sup> Tr. 6193 (Vivirito report of conversation with the analyst).

and was not representative of what the analyst would have done if this were a real design drawing about to be used for plant construction, and that reanalysis shows that the upper lateral restraint is safe. We reject both of these explanations.

We consider applicant's assertion about the differential care paid to hearing documents and construction documents to be wholly without merit. Mr. Vivirito said:<sup>134</sup>

You must understand, . . . that the calculations that you are seeing here are not design calculations to implement construction. The design calculations were prepared in 1975. These are merely to illustrate that the walls will indeed relieve the stresses.

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The degree to which you would be concerned with the accuracy of these calculations, since they are not actually calculations that are going to result in construction, are not the same as when you are preparing something and you are going to build it. . . .

The first error in this logic is that calculations done for confirmatory purposes, as these were, can result in a decision about whether or not to reconstruct a portion of the plant. Whenever such calculations are required, it is because questions have been raised; and those questions must be analyzed in a serious fashion. The second error in this logic is that this analysis was prepared for possible NRC use, related to Walsh/Doyle contentions, and should have been done with care because of the applicant's responsibility to prepare full and accurate records. Furthermore, these records were shown to NRC investigators and an error was likely to result in embarrassment for Gibbs & Hill. We reject applicant's position that less care was required for this document than for other design documents.

We also are concerned that applicant's analysis used incorrect wall thicknesses, under circumstances where there is no indication that the thicknesses employed in the analysis would have produced conservative results.<sup>135</sup> This error in wall thicknesses, which the staff found to be an offsetting error, was nevertheless an error.<sup>136</sup>

Another concern of ours is that applicant too-readily concluded that the 14,000 kips strain resulting from the 0.24-inch expansion of the upper lateral restraint beam was within the capacity of the concrete walls.<sup>137</sup> Industry codes applicable to concrete do not support this

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<sup>134</sup> Tr. 6055-56.

<sup>135</sup> Tr. 6052-54; see Tr. 6183 (Doyle) (one wall is much more rigid and the other more flexible).

<sup>136</sup> *Id.*

<sup>137</sup> Tr. 6041-50 (Vivirito).

assertion, as one-time stresses of this kind exceed code values but are not covered by the codes.<sup>138</sup> In the event of a LOCA, the upper lateral restraint beam will expand approximately 0.24 inch. Since this expansion will be constrained by the concrete shield walls, the force on the walls is dependent on the stiffness of the beam and the walls. Under applicant's stiffness assumptions the force on the wall would be some 14,000 kips.<sup>139</sup> A force of 14,000 kips is above the design allowables for the shield wall and CASE contends that the wall could fail. The applicant's witness, Mr. Vivirito, testified that in his judgment the effects on the wall would be minimal, that local cracking of the concrete would relieve the expansion stresses and they would drop to zero,<sup>140</sup> and that NRC guidelines do not cover self-limiting stresses.<sup>141</sup>

Since applicant has not introduced into our record any calculations of the effects of beam expansion on the wall, considering them unnecessary,<sup>142</sup> we were faced with balancing the engineering judgments of CASE's and applicant's witnesses. Consequently, we requested the staff witness, Dr. Chen, to look into the matter for us.

In Dr. Chen's opinion neither the applicant nor the intervenor is correct. He does not agree with applicant that the local deformation of concrete would be sufficient to relieve the expansion stresses; instead, he concludes that a load of 14,000 kips would exceed the design load of the walls, as reflected in applicant's calculations. However, Dr. Chen is of the opinion that the applicant has overestimated the stiffness of the walls and that a more reasonable value for wall stiffness would lead to much lower stresses, well within the allowable wall stresses. But the complex calculations required to demonstrate the lower wall stiffness have not been done.<sup>143</sup> Furthermore, CASE's witness, Mr. Doyle, disagrees with Dr. Chen's conclusions about wall stiffness.<sup>144</sup> On balance, therefore, we are unable to accept these lower stiffness values.

Dr. Chen also would approve the design of the upper lateral restraint beam because he believes applicant has used more conservative assumptions about LOCA forces than are necessary. Applicant assumed that the LOCA-induced heat-up of steel in the beam and the LOCA pressure spike in the steam generator would be simultaneous, a condition under

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<sup>138</sup> Tr. 6847 (Vivirito).

<sup>139</sup> Tr. 6048 (Vivirito); Tr. 6061 (Chen); CASE Exhibit 761C at 5 (Doyle).

<sup>140</sup> Tr. 6049 (Vivirito).

<sup>141</sup> Tr. 6071 (Vivirito).

<sup>142</sup> Tr. 6072 (Vivirito), *but see* CASE's Findings at XIX-9, *citing* Tr. 6044-45 (Vivirito) concerning uncertainties in the properties of concrete.

<sup>143</sup> Chen Affidavit at 13-14.

<sup>144</sup> Tr. 6029. Doyle Affidavit at 9-12, summarizing Mr. Doyle's earlier testimony about wall thickness.



which both the concrete and the steel beam itself might fail.<sup>145</sup> However, the staff believes that these thermal and pressure forces will not coincide during a LOCA,<sup>146</sup> a position it asserts without presenting any evidence concerning possible LOCA scenarios. Because of the lack of supporting evidence, we decline to accept this conclusion, particularly without providing other parties with the opportunity for cross-examination on this entirely new evidence.

In the face of the possibly conflicting engineering viewpoints of three different parties, we conclude that applicant has not demonstrated the adequacy of its analysis of the upper lateral restraint beam. This conclusion contributes to our lack of confidence in the design of Comanche Peak.

### **E. Errors Concerning Generic Stiffness Values**

Mr. Doyle alleged that applicant's use of generic stiffness values for supports does not adequately represent actual stiffness values for the purpose of calculating piping system seismic response. The SIT found that applicant had not demonstrated "that supports designed in accordance with Applicant's criteria and guidelines have sufficient stiffness to assure that they do not adversely affect the response of the piping system."<sup>147</sup> Additionally, Mr. Doyle correctly argued that Component Cooling Water Support No. CC-1-107-008-E23R had been incorrectly analyzed because the deflection calculation did not include the potential rotation of the plate.<sup>148</sup> Although subsequent analysis and redesign may have attenuated these concerns,<sup>149</sup> we find that CASE correctly identified these problems, and their subsequent resolution does not eradicate our concern that these design problems were present.

### **F. Differential Seismic Displacement**

CASE alleges that there should be a slip joint in all large frames that span a corridor or go from floor to ceiling. The Pipe Support Engineering (PSE) guidelines acknowledge this principle. Nevertheless, the designs of two PSE floor-to-ceiling service water supports identified by Mr.

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<sup>145</sup> Chen Affidavit at 12, stating that both the concrete and the steel beam itself might fail if these conditions were simultaneous.

<sup>146</sup> *Id.*

<sup>147</sup> SIT Report at 40-41.

<sup>148</sup> *Id.* at 41.

<sup>149</sup> Chen Affidavit at 21-26. We do not decide whether this complex stiffness study, which has not been subject to litigation, used appropriate assumptions concerning deflections of U-bolts and flexibility in base plates and concrete anchorages. *Id.* at 22 n.11; see, e.g., Doyle Affidavit at 14-20.

Walsh were inconsistent with these guidelines and have been redesigned.<sup>150</sup> No explanation has been provided about how this deviation from design guidelines could have arisen and we have no knowledge about the frequency with which such deviations may occur.

We note that, in the absence of a system for promptly correcting design deficiencies, applicant identified the deficiency in the PSE supports in late 1981<sup>151</sup> but the two other pipe analysis groups were not directed to follow the PSE guidelines until January 19, 1983.<sup>152</sup> Although these groups may not have designed wall-to-wall or floor-to-ceiling support frames, they apparently are authorized to do so and their procedures should have been revised more promptly.<sup>153</sup>

Applicant's approach to the design of wall-to-wall and floor-to-ceiling supports, including nonconformance with PSE guidelines and failure to revise guidelines of other groups promptly, contributes to our lack of confidence in its approach to the design process.

### **G. Component Cooling Water Support**

Mr. Doyle correctly alleged that Support No. CC-2-008-709-A43K exceeded applicant's guidelines for maximum deflection. The reason for the error was a mistake in numerical calculations.<sup>154</sup> The result of catching the error is that the plate for the bracket was increased in thickness from ½ inch to 1½ inches and the weld to the plate was increased from 3/16 inch to 5/16 inch.<sup>155</sup> Although the design verification process was not yet completed when this error was found,<sup>156</sup> we do not adopt the SIT's assertion that this error would have been caught in the ordinary design process, regardless of whether this had been a CASE allegation. This design, required by regulations to be of the same quality as an initial design, had a numerical deficiency that produced a deficiency in actual construction. We simply have no way of knowing whether or not errors pointed out by CASE would have been caught in the ordinary design process.

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<sup>150</sup> Tr. 3142; SIT Report at 26.

<sup>151</sup> *Id.*

<sup>152</sup> SIT Report at 25.

<sup>153</sup> *Id.* at 25. The SIT reports that it "was informed" that the other pipe support groups had not designed these large frame supports. However, the source of the information was not provided to the Board and the SIT apparently did no verification of this matter. *Id.*

<sup>154</sup> *Id.* at 40-41.

<sup>155</sup> Chen Affidavit at 1-2; SIT Report at 41.

<sup>156</sup> SIT Report at 41-42.

## H. Richmond Insert

### 1. Testing

CASE had alleged that Richmond Insert assemblies (Richmonds) at Comanche Peak were not adequately designed.<sup>157</sup> With respect to one aspect of this allegation, the design of 1½-inch-diameter Richmonds, the SIT Report vindicated the CASE allegation by finding that applicant's use of a safety factor of two for Richmonds was insufficient because "there are no deflection test data for 1½-inch Richmond inserts in shear loading."<sup>158</sup> Consequently, the staff required further testing.<sup>159</sup> The staff considers the further testing to be adequate.<sup>160</sup>

The extent of this design deficiency is accurately depicted in the following portion of the Staff's Findings,<sup>161</sup> which we adopt as our own:

The allowable tension loads for the 1½-inch Richmond anchor insert were established by the Applicants based on a factor of safety of two of the ultimate load as determined from actual tension test results. Allowable shear loads were set equal to the allowable tension loads and reduced by a factor equal to the ratio of the manufacturer's allowable load values (about 0.83). Shear load allowables for the 1½-inch insert would have a factor of safety of about 2.4 based on the assumption that the shear test ultimate is equal to the tension test ultimate. However, there was no empirical support for this assumption since no shear tests had been conducted on the 1½-inch size at the time of the SIT's inspection. Moreover, published allowable loads in the Richmond Screw Anchor Company Bulletin No. 6 are based on a factor of safety of three. As a result, the Applicants' shear load allowables for the 1½-inch insert are 50 percent higher than the value recommended by the manufacturer. ((SIT Report at 19.)) The SIT found this reduction in the factor of safety to be of concern, since these factors establish a reserve capability which will account for the possibilities of overload and understrength. Such possibilities may be due to variations in material dimensions, variations in construction procedure implementation, simplifications in calculation procedures, effects of erection tolerances, and disregard of secondary stresses (including thermal stresses). (*Id.* at 22.) In sum, the Applicants' non-inclusion of the thermal stress component in the design of supports utilizing 1½-inch Richmond inserts was not desirable where the manufacturer's recommended safety factor was not also being utilized.

The SIT also found that the Richmond Screw Anchor Company's published allowable shear values for the 1½-inch diameter Richmond insert were extrapolated from shear tests on the 1¼-inch diameter insert. Although the published allowable values are theoretically valid, standard industry practice requires that testing be performed to confirm the values. In addition, the shear tests conducted on the ¾, 1, and

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<sup>157</sup> CASE Exhibit 659 at 4; Tr. 3154 (Walsh).

<sup>158</sup> SIT Report at 18; *see also id.* at 19-21.

<sup>159</sup> *Id.* at 18.

<sup>160</sup> Tr. 6411-12, 6436 (Tapia).

<sup>161</sup> Staff's Findings at 37-39.

1¼-inch inserts do not fully model the configuration of the anchor assembly used with a 1-inch thick washer between the wall and the support frame. This washer introduces a bending moment in the bolt which is not reflected in the shear test results. (SIT Report at 19-20.)

Applicants have stated that ACI 349-80, "Code Requirements for Nuclear Safety Related Concrete Structures," an industry standard not adopted by the NRC as a regulatory requirement, allows a factor of safety of two for concrete inserts. However, the ACI standard specifies load factors and capacity reduction factors and requires consideration of the forces caused by thermal effects under accident conditions. In addition, the ACI standard requires a testing program far broader than that which has been carried out for the Richmond inserts. (SIT Report at 20.) For these reasons, the Board agrees with the SIT that ACI 349-80 does not permit Applicants to utilize a factor of safety of two in these circumstances.

The Board concurs in the SIT's original determination that because of the uncertainties introduced by the test modeling, considered together with the limited test data available, the use of a factor of safety of three at another nuclear power plant utilizing Richmond inserts, and the strict requirements of ACI 349-80 before a safety factor of two may be employed, that an insufficient basis existed for the use of the factor of safety of two for the 1½-inch Richmond insert. This was especially true since Applicants disregard loads resulting from thermal expansion of the attached support, and bending moments introduced by the 1-inch thick washer. (SIT Report at 19-21.)

We are concerned that applicant had inadequate reason to apply a safety factor of two to the Richmond insert, in the absence of tests. We have no reason to believe that this problem, identified by the SIT, would have been found in the normal design process. This design problem contributes to our lack of confidence in design processes at Comanche Peak.

## **2. Axial Torsion in Richmond Inserts**

CASE also is concerned about the ability of the Richmond to resist axial torsion. The concern is important because the Richmond was tested without being connected to a steel member that could induce torsion into the bolt. Consequently, the safety of the Richmond depends in part on the test described in subsection 1, above, and in part on the engineering analysis of the effects of torsion on the bolt.

The nature of this problem may be understood by reference to Figure 1. The figure shows three cross-sections of a Richmond. The top view shows the upper section of the bolt, the nut that is threaded on the bolt, the upper washer and an end-view of a tube-steel member that is being bolted to the wall. The middle view shows the lower washer. The bottom view shows the bottom portion of the bolt as it enters the concrete, represented by a cross-hatched area. Since the views are

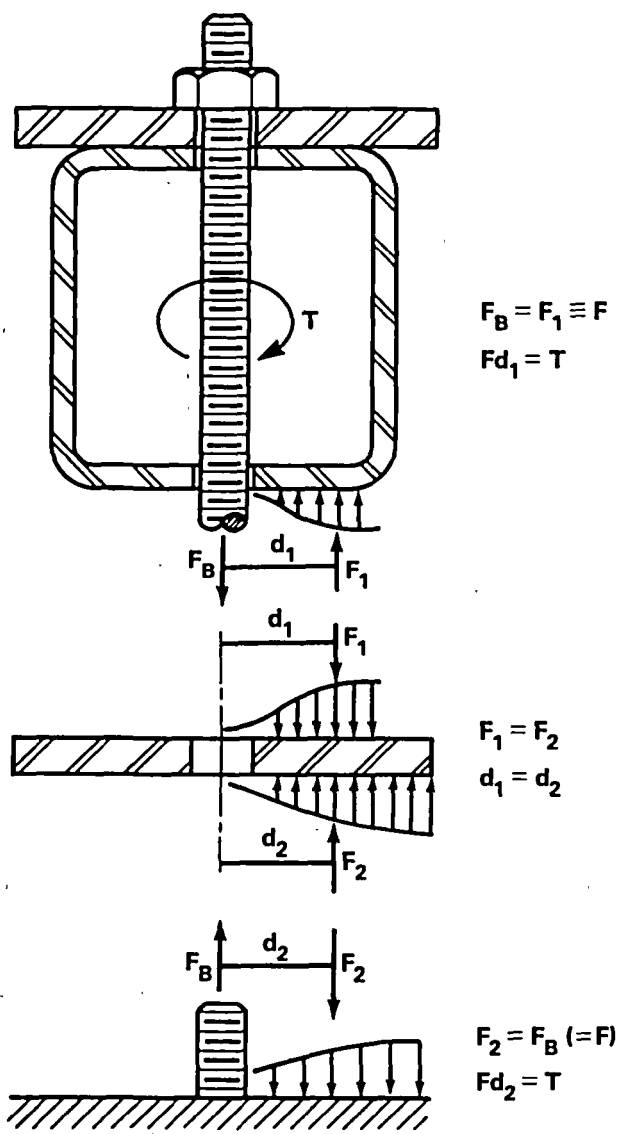


FIGURE 1

schematic, it is not important that the length of the bolt in the top view and in the bottom view exceed the width of the lower washer. In practice, the bolt would be made snug-tight, so that there would be no space separating the steel member, the lower washer and the concrete wall.

Here, with emphasis added to reflect points of divergence from the views of Mr. Doyle, is how Dr. Chen describes this concern:<sup>162</sup>

To calculate the tension force in the bolt of the Richmond insert assembly resulting from torsion in the tube steel, the Applicants use the formula  $T = Fd$ . In this computation  $d$  is taken as 2/3 of one half of the width of the washer. This is an acceptable method for computing the bolt force if a linear distribution of forces along the bottom of the lower washer is assumed.<sup>163</sup> Mr. Doyle questioned the accuracy of this method. He noted that the flat surface of the tube steel was smaller than the bottom of the washer, and indicated that the distance to use in computing the moment should be 2/3 the distance from the bolt to the edge of the flat portion of the tube steel. He stated that this was smaller than the  $d$  used in Applicants' calculations and would thus result in a larger  $F$  for a given moment. Thus, the tension in the bolt would be larger than that calculated by Applicants. The Board stated that it wished to have the SIT's evaluation of this newly-identified issue (Tr. 6831); accordingly this was an open item at the hearing.

\* \* \*

In [Figure 1] . . . torsion in the tube steel ( $T$  in the figure) is resisted ultimately by forces of compression in the concrete and by a balancing tension in the bolt. Because of the relative stiffness of the lower washer in comparison to the tube steel and the fact that the bolt is "snug," rotation of the assembly will occur primarily about the edge of the tube steel. Hence, the compressive force on the concrete will extend fully to the edge of the washer. Therefore, a linear distribution is an appropriate description of this compressive load. For such a distribution the resultant for purposes of computing the moment can be represented by a concentrated load ( $F_1$ ) at 2/3 the distance from the bolt centerline to the edge of the lower washer ( $d_2$ ).

An equal and opposite compressive force acts on the bottom surface of the lower washer. This force must be resisted by an equal and opposite force on the top surface of the washer. This force is in turn the result of the downward force exerted by the tube steel. Since the assembly is in equilibrium the forces on the lower washer must be equal,  $F_2$  must equal  $F_1$ , and the moments must be equal, i.e.,  $F_1 \times d_1$  must equal  $F_2 \times d_2$ . Since the surface over which the force from the tube steel acts is smaller than the top surface of the washer, the force distribution on the top surface cannot be linear. This non-linear distribution between the bottom of the tube steel and the top surface of the lower washer is shown in Figure 1. Thus, the moment of the non-linear distributed forces will be equal to the moment of forces linearly distributed at the bottom of the washer:  $F_1 \times d_1 = F_2 \times d_2 = F \times 2/3$  of  $1/2$  the width of the washer.<sup>164</sup>

<sup>162</sup> Chen Affidavit at 8-11.

<sup>163</sup> [Footnote 2 omitted.]

<sup>164</sup> [Footnote 3 omitted.]

• • •

Because of the relative stiffness of the lower washer as compared to the tube steel, and because the bolt is "snug," *the assembly will tend to pivot about the edge of the washer and there will be a linear distribution of forces along the lower surface of the washer.* Accordingly, the resultant is accurately represented by a concentrated load at  $2/3$  the distance from the bolt centerline to the edge of the lower washer.

Mr. Doyle disagrees with Dr. Chen's representation in Figure 1 of a triangular distribution of the compressive forces between the concrete and the bottom of the washer. He further argues that "[r]egardless of how snug the assembly is installed, the fact remains that there is no continuity between the tube/bolt and lower washer"; hence, "the transfer of the moment (torque) into a couple can only occur . . . (from the reaction) at the upper surface of the washer at the tangent on the tube and the bolt."<sup>165</sup>

We agree with Mr. Doyle.<sup>166</sup> We are convinced that (1) Dr. Chen's assumed distribution of forces on the bottom of the washer is incorrect, and (2) that the use of such a force distribution is of no value in determining the tension in the bolt resulting from a torque on the tube.

We conclude that the applicant and staff have erred in calculating the tension in the bolt. It further appears that this is a type of error that is not caught by the applicant's iterative design process. We are not able to decide whether the error will significantly affect the design of the pipe supports. If the potential difference in the load on the bolt were to amount to a factor of two, as stated (without contradiction in the record) by Mr. Doyle,<sup>167</sup> bolt-allowable stresses might well be exceeded.

This state of the record reflects adversely on the adequacy of the design of Comanche Peak.

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<sup>165</sup> Doyle Affidavit at 8. See also Tr. 6894-6911 and surrounding testimony for a full discussion of this point.

<sup>166</sup> We discount the testimony of Mr. Reedy, who attempted to justify applicant's analysis primarily because it complies with industry practice that is less precise than the aeronautical engineering to which Mr. Doyle is accustomed. Mr. Reedy admitted, however, that he has no knowledge of how the industry analyzes this particular problem outside of Comanche Peak itself. Tr. 6905-31, especially Tr. 6921-22. We find Mr. Reedy's testimony about industry practice to be largely irrelevant to determining the correct length of the moment arm. In light of the lack of importance he placed on the problem and his failure to explain his reasons, we reject his assurance that "the moment arm will finally reach the transfer point that the Staff said they would use as their assumption." Tr. 6911. We note that Mr. Reedy never responded to Mr. Doyle's testimony that because this is not a welded connection there will be a "minute but existing elongation in the bolt," causing a gap between the tube steel and the washer. Tr. 6900-01.

<sup>167</sup> Tr. 6903 (Doyle).

## I. Organizational and Design Interfaces

At various places in this opinion, we have expressed concern that members of the STRUDL group were unable to report design nonconformances and that certain design problems — such as the assurance that there is stability in pipe supports — may not have been clearly assigned to any one engineering organization. With the exception of these specific findings, however, we find that the CASE concerns about organizational and design interfaces are not justified and we adopt the following Staff Findings on this subject:<sup>168</sup>

Messrs. Walsh and Doyle expressed their concern that because the iterative design process is so complex, the interfaces between the Applicants' various design groups are inadequate. As evidence of the allegedly inadequate interfaces, Messrs. Doyle and Walsh stated that each of the three pipe support organizations were using different design approaches, and that another approach was used by the onsite civil/structural design group charged with the design of cable tray and conduit supports. For example, they noted that each of the organizations appeared to be using different section property values for tube steel members (CASE Exhibit 654, p. 5), and different design criteria for the consideration of frictional loads between pipes and supports (CASE Exhibit 659H, p. 5). Messrs. Doyle and Walsh seem to feel that had the design basis inputs and interfaces been adequate, these differences would not have occurred. They further state that since such differences have occurred, the Applicants have violated NRC regulations, as well as standards endorsed by the NRC, including ANSI N45.2, "Quality Assurance Program Requirements for Nuclear Power Plants." (See, e.g., Tr. 2973, 3706, 3852, 3864, 3925, 6984-85). Messrs. Walsh and Doyle also stated that they believed that internal interfaces within the SSAG [Site Stress Analysis Group] were inadequate, since there was no clearly delineated line of communication and responsibility in the Applicants' engineering guidelines, in violation of ANSI N45.2.11 (Tr. 6984-87, 6989).

The Board disagrees with Messrs. Doyle's and Walsh's conclusions about the Applicants' organizational and design interfaces in the pipe support design area. It is true that there are differences in design approaches between the Applicants' three pipe support design organizations. These differences appear to be the outgrowth of the Applicants' utilization of three separate pipe support design organizations.<sup>169</sup> An early decision was made by the Applicants that pipe support designs would be contracted out to companies who are in the business of designing and fabricating pipe support components. In order to satisfy ASME Code requirements and to set a basis for competitive bidding between the companies, it was necessary to provide them with the overall design criteria to be met. The Gibbs and Hill document which accomplishes this objective was Specification MS-46A. Contracts for the design of pipe supports at CPSES [Comanche Peak] were awarded to ITT-Grinnell and NPSI. In addition, Applicants created what became the PSE, which also utilized Specification

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<sup>168</sup> Staff's Findings at 17-20.

<sup>169</sup> [Footnote 18 in original:] The Applicants also employ a fourth organization for the design of structural supports for cable trays and conduits (NRC Staff Exhibit 207, p. 12).



MS-46A. Since neither Specification MS-46A nor the ASME Code dictate in detail the means by which an engineer is to satisfy the design criteria, differences in engineering approaches occurred between the three parallel pipe support groups. (Staff Exhibit 207 [SIT Report], p. 12; Applicants' Exhibit 142, p. 9).

The fundamental issue for this Board to resolve is whether these differences in design approaches represent a safety or engineering concern, or if they violate any NRC regulations, Staff guidance or other NRC-endorsed standard. The Board believes that ANSI N45.2, and N45.2.11 in particular are relevant in resolving this issue. The overall purpose of ANSI N45.2.11 is to assure that each design organization has a clear, documented scope of responsibility and that there are documented paths for communication when the responsibility shifts from one organization to the other or is shared by both. N45.2 is a general requirement document essentially equivalent to Appendix B of 10 C.F.R. 50 while N45.2.11 is specific to those<sup>170</sup> design controls requirements contained in Criterion III of Appendix B and N45.2. The NRC has endorsed N45.2 via Regulatory Guide 1.28, and endorsed N45.2.11 via Regulatory Guide 1.64. (Staff Exhibit 207, p. 12).

The evidence establishes that each of the three pipe support design organizations has its own specific scope of responsibility since each has been assigned the responsibility for a specific group of supports. (Staff Exhibit 207, p. 13; Applicants' Exhibit 142, p. 9). There is no need for cross-communication between the three groups since they share no common, in-line design responsibility. Furthermore, the lines of communication between the Applicants, Gibbs and Hill, and each pipe support design organization are clear and documented. (*Id.*) There is also no need for internal interfaces within a design or support organization, under ANSI N45.2.11. (*See, e.g.,* Tr. 6987-89). Even if we believed that interfaces between the SSAG, and the STRUDL subgroup were necessary under ANSI requirements, we seriously doubt whether there would be any safety significance with regard to CPSES, in light of the clear evidence that the pipe support design groups are well aware that they are ultimately responsible for assuring that pipe supports meet all applicable NRC and ASME Code requirements (Tr. 6989-92).

The Board concludes that the Applicants have adequately defined and documented the responsibilities and paths of communications between Gibbs & Hill and the pipe support design groups. No NRC regulation has been violated, and the programmatic objectives of Subsection NA of the ASME Code, N45.2 and N45.2.11 have been satisfied. (Staff Exhibit 207, p. 13.)

In reaching these conclusions, we do not wish to minimize the difficulty applicant may have created, for design control purposes, by adopting this multiple organization approach. However, we see no prohibition of the approach, providing that applicant's design quality assurance program is able to accommodate these differences. Obviously, the difficulty for

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<sup>170</sup> The Board changed this word in the staff document because of our belief that Criterion III is not the only design control requirement found in Appendix B.

quality assurance is somewhat increased; but the approach is not prohibited.

## V. CONCLUSION

This Board has faced the difficult task of analyzing a complex record containing many technical assertions about civil engineering, a field in which none of the members of this Board is specially trained. Furthermore, we would note that even for a qualified civil engineer, just a few of these issues can require extensive analysis over a period of months.<sup>171</sup>

Nevertheless, we have carefully analyzed those aspects of the record that have been most significant or that appeared on initial impression to be the most troubling. This analysis has persuaded us that the record before us casts doubt on the design quality of Comanche Peak, both because applicant has failed to adopt a system to correct design deficiencies promptly and because our record is devoid of a satisfactory explanation for several design questions raised by intervenors. Given the limited time frame in which Mr. Walsh and Mr. Doyle had the opportunity to make observations of the Comanche Peak design program, the lack of an adequate explanation for their allegations raises serious questions about the adequacy of the design of the remainder of the plant.

At this juncture, we think it wise to pause and consider the seriousness of the design problems we have seen, for an appreciation of the seriousness of those problems is essential in order to attach proper consequences to them in this proceeding.<sup>172</sup> We consider the absence of a program to correct design deficiencies promptly to be a serious deficiency, mitigated only slightly because it was acquiesced in by the Nuclear Regulatory Commission's staff. However, the principal consequence of

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<sup>171</sup> Mr. Tapia and Dr. Chen took over four months to address the open items left from our May hearing.

<sup>172</sup> The relationship between the seriousness of a violation and the consequences of that violation was recently discussed in the following language in *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 & 2), LBP-83-77, 18 NRC 1365 (1983) at 1368 n.5 :

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

this deficiency is that applicant, the staff and this Board must now be especially careful to determine that quality assurance standards for design have been met at the conclusion of the construction process. For this purpose, we intend to continue to conduct an efficient proceeding, mindful of the need not to impose undue costs or delays on applicant, but we will not be especially concerned about meeting applicant's construction targets. A consequence of applicant's chosen method of assuring design quality is that this Board's task with respect to the pending quality assurance contention has been partially deferred to a later stage of the design process. We consider care in performing our job to be of paramount importance.

With respect to the design deficiencies we have noted, we would first caution that there were aspects of applicant's case that we would have decided in a fashion that was favorable to applicant, and the absence of a discussion of those issues does not necessarily indicate that we have doubts. Our decision to stop where we did was based on our conclusion that there were enough deficiencies that we could not be satisfied by the quality of design reflected on our record.

We acknowledge that almost all of the specific design deficiencies we have noted may, on further proof and analysis, be shown to be of little or no consequence. We recognize that applicant, faced a difficult task in responding to the numerous, detailed comments made by CASE. It may well be that the absence of proof that would satisfy this Board was a consequence of a litigation strategy that relied on applicant's ability to persuade this Board to accept the testimony of applicant and staff witnesses because of their more impressive credentials. In describing the kind of Proposed Findings we required of the parties, we attempted to stress the need for logical explanations that covered all the material in our record and that explained why we should reach the conclusion sought by the party. In this instance, CASE heeded our advice better than applicant and staff and we therefore had no choice but to decide these issues as we have.

In assessing the next step in this proceeding, we urge applicant to abandon its belief that its difficulties with this Board are related to the lack of continuity of Board members.<sup>173</sup> If applicant were to persist in that belief, it likely would find this Board unreceptive to its reargument of old grounds. We have studied the record in this case and believe that applicant must realize that its principal difficulty has been its inability to submit rigorous, logical answers to opposing proof.

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<sup>173</sup> See Applicants' Identification of Issues and Proposal to Establish Hearing Schedule (December 3, 1983) at 2.

We shall ask applicant to propose a plan to affect the Board's level of confidence in its design process for Comanche Peak. Staff walkdowns that cover design issues may be helpful to us because of the acquired knowledge of staff,<sup>174</sup> but limited staff resources suggest the need for supplemental efforts of the nature we are about to describe. Lesser measures might, possibly, succeed in affecting this Board's views, but we urge consideration by applicant of an independent design review with each of the following characteristics:

*Independence and Qualifications.* The review organization should be composed of individuals with the combined ability to review design problems in the construction of a nuclear power plant. Consultants may be used to supplement those skills. There should be no lasting financial ties between the reviewing organization and applicant. Cygna Energy Services, which has already done a design review for applicant, appears to meet this criterion.

*Organizational Independence.* During the conduct of the review, there should be no undocumented oral discussions between applicant and the reviewing organization concerning findings.<sup>175</sup> The reviewing organization should obtain all its information from: observations of documents or hardware; written answers to written questions; or transcribed conferences open to all parties.

*Reliability.* There should be enough overlap in the work of the reviewers so that inter-reviewer reliability may be established. If reliability is low, then multiple reviews may be necessary in order to reduce the expected level of undetected errors to an acceptable level. In that way the Board will know how effective the reviewers have been in identifying the design errors in the plant.

*Sample.* One or more segments of important safety systems should be studied. If there are important design deficiencies in studied systems, the sample should be enlarged. The fact that important design deficiencies have no ultimate consequences, for reasons not considered by the designers, should initially be given little weight with respect to expanding the sample. However, after several systems have been reviewed, the use by the designers of

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<sup>174</sup> We have no opinion about whether an Integrated Design Inspection Program (IDIP) report should be prepared for Comanche Peak. See *Union Electric Co.* (Callaway Plant, Unit 1), ALAB-750, 18 NRC 1205, 1207 (1983).

<sup>175</sup> See, e.g., Teledyne Engineering Services, Technical Report TR-5633, *Executive Summary of Final Report: Independent Design Review for the Shoreham Nuclear Power Station* (June 30, 1983) at 2.

adequate safety margins to accommodate design errors shall be considered with respect to the need to further expand the sample.

*Scope.* In addition to design review functions, the independent reviewers should respond, in detail, to each allegation of CASE concerning hardware design problems. This response should indicate the criteria that are applied, where they are derived from and how each criterion is met. The review should cover those problems considered in this opinion by the Board, which may be persuaded to modify its present determinations based on carefully reasoned presentations of the design review organization.

*Documentation and Presentation.* Each analysis of an observed potential deficiency should be documented in the report. There should be no vague assertions such as "we have been assured." Scoping calculations or other analyses should be presented. Extensive documentation (such as lists of criteria) should be accompanied by tables of contents and indexes of sufficient detail to make the material accessible to this Board. Design discussions should be accompanied by drawings that will make the discussion clear. Tables and graphs may be used to clarify the presentation.

*Review.* To facilitate timely review, the report should be prepared in phases, and drafts of discrete segments should be published. Applicant and CASE would have thirty days (and the staff would have ten additional days) within which to file, by first class mail or more expeditious method, carefully reasoned, documented objections to these segments, subject to extensions of time granted by the Board for good cause. The design review organization should respond fully to each of these comments in a report supplement, making alterations in the report if appropriate. Alterations made in response to comments will, however, be subject to the same review process.

*Hearing Process.* After final publication of the document, the parties would have thirty days (staff would have ten additional days) within which to file written exceptions. These exceptions would be limited to matters that a party has previously raised or that the party attempted to raise previously, in a timely manner, but was prevented from raising. There would then be a fifteen-day period for responses, with staff having an additional ten days.

Because this decision does not finally resolve the Walsh/Doyle issues, we have not considered it to be a partial initial decision, subject to

appeal. However, due to the importance of the matter involved and the apparent expense of complying with our suggestions for remedying the problems we have found, we would be receptive to motions to refer this decision to the Appeal Board, either before or after motions to reconsider may be filed before us. (Due to the holiday season, motions to reconsider may be filed 20 days after issuance of this decision.)

## ORDER

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

### ORDERED

1. Citizens Association for Sound Energy's (CASE's) contention concerning design quality assurance is found to be meritorious, to the extent indicated in the accompanying memorandum.

2. Texas Utilities Generating Company, *et al.*; may, within thirty days, file a plan designed to satisfy the Board concerning the issues discussed in this decision. An appropriate extension of time may be granted, particularly if a party files a motion for reconsideration of this decision within twenty days of issuance.

3. CASE has twenty days from the date of filing of the plan specified in ¶ 2 within which to respond to that plan. The staff has five additional days.

FOR THE ATOMIC SAFETY AND  
LICENSING BOARD

Peter B. Bloch, Chairman  
ADMINISTRATIVE JUDGE

Walter H. Jordan (by PBB)  
ADMINISTRATIVE JUDGE

Kenneth A. McCollom (by PBB)  
ADMINISTRATIVE JUDGE

Bethesda, Maryland

## ATTACHMENT A

### Applicants' and Staff's Witnesses and Testimony

#### I. APPLICANTS

In response to the allegations made by Messrs. Walsh and Doyle, Applicants presented at the September 1982 hearing a panel of five witnesses with expertise in pipe support design and related fields. These witnesses submitted written testimony regarding the pipe support design allegations and were cross-examined (Applicants' Exhibits 142 and 142F). In addition, oral direct testimony was presented by three of these witnesses and another individual as a panel in the May 1983 hearing.

Applicants presented Mr. Kenneth L. Scheppele as an expert in structural engineering (Applicants' Exhibit 142 at 1). Mr. Scheppele is Senior Vice President of the architect/engineer for Comanche Peak, Gibbs & Hill, Inc., and is a registered professional engineer. His qualifications in the field of structural engineering are extensive. (Applicants' Exhibit 19; Tr. 3086.)

Applicants also presented Mr. Roger F. Reedy as an expert in the development, interpretation and application of the ASME Code with regard to general requirements, materials, fabrication, examinations, design and analysis. Mr. Reedy has extensive experience in his field of expertise. He is a registered structural engineer in Illinois and a registered professional engineer (civil) in five states. He has been involved in the design of components for nuclear power plants since 1956. He has served as the responsible registered professional engineer for the design of nuclear reactor vessels, containment vessels, piping and supports. He has been chairman of the ASME Section III Code Committee since early 1977. He assisted in the development of Section III prior to its publication in 1963 and has been a member of the ASME Code Committee since 1969. He personally compiled the Code rules and Subsections NC, ND and NE for inclusion in the 1974 Code Edition, and provided guidance to the task group developing the rules for Subsection NF prior to its adoption into Section III. Mr. Reedy was a founding member of the ASME Pressure Vessel and Piping Division and Chairman of the Professional Division in 1979. In 1982, Mr. Reedy was awarded the honor of ASME Life Fellow because of his ASME Code work and design developments for multi-layered vessels. (Applicants' Exhibits 142 at 2-4; 41.)

Dr. Peter S.Y. Chang was presented by Applicants as an expert in pipe support engineering and STRUDL analysis. Dr. Chang has a Ph.D. in

Civil Engineering and is a registered professional engineer. Dr. Chang is the Chief Engineer, Pipe Support Engineering for Comanche Peak. He has eleven years of practical experience in the design and analysis of power plant structures, the last nine years being on nuclear plants. He is experienced in the application of the ASME Code, Section III, to containment vessel, pipe stress and pipe support analysis and design. Dr. Chang is experienced in the development of computer programs for modelling static, thermal, seismic and other transient loadings for nuclear power plants. His experience with the application of the STRUDL Code has included advanced lectures and seminars on STRUDL, in addition to graduate course work in topics related to STRUDL analysis. Dr. Chang served as a supervising engineer responsible for structural analysis and design for static, thermal, seismic and other loads for all safety-related buildings at another nuclear project. Since coming to Comanche Peak in 1981, he has been responsible for small-bore ASME pipe stress analysis and ASME NF pipe support design. (Applicants' Exhibits 142 at 4-5; 142A.)

Mr. John C. Finneran, Jr., presented testimony for Applicants as an expert in structural engineering. Mr. Finneran has Bachelor's and Master's Degrees in Civil Engineering and is a member of the American Society of Civil Engineers. He is a registered professional engineer. Mr. Finneran is the Pipe Support Engineering Supervisor for Comanche Peak. He has several years' experience in structural engineering in design and analysis of substation and transmission structures for power plants, and he has been a supervisor of structural engineering groups at Comanche Peak for three years. (Applicants' Exhibits 142 at 7; 142B.)

Also, Mr. Gary Krishnan was presented by Applicants as an expert in pipe stress analysis. Mr. Krishnan is the Site Stress Analysis Group Supervisor for Comanche Peak. Mr. Krishnan has Bachelor's and Master's Degrees in Mechanical Engineering. His Master's degree is in the area of stress analysis. He has eight years' experience in pipe stress analysis at nuclear facilities. He has been a Senior Engineer for Gibbs & Hill for three years, performing pipe stress analyses of safety class piping. (Applicants' Exhibits 142 at 8-9; 142C.)

Finally, Applicants presented Mr. Michael A. Vivirito as an expert in structural engineering (on a panel with Messrs. Reedy, Finneran and Chang) during the May 1983 hearings to testify in response to NRC Staff testimony and the surrebuttal testimony of CASE's witnesses. Mr. Vivirito is the Vice President - Power Engineering of Gibbs & Hill. Mr. Vivirito is a registered professional engineer and has thirty-five years' experience in structural engineering, including seventeen years' experience in the design and construction of nuclear power reactor facilities.



He is a member of the American Society of Civil Engineers and has served on numerous professional committees. (Applicants' Exhibit 154.)

## II. NRC STAFF

The NRC initially presented in the September 1982 hearings two witnesses to address the pipe support design allegations. Mr. Joseph I. Tapia and Dr. W. Paul Chen submitted prefiled testimony on this matter (identified as NRC Exhibit 201), but because they had not had an opportunity to complete their review of Mr. Doyle's allegations, the Board suspended the taking of evidence on that question until such time as the Staff was prepared to proceed (Tr. 5407, 5410). Upon completion of its review of the pipe support design allegations, the Staff issued an inspection report (I&E Report 82-26/82-14, cover letter dated February 15, 1983). That report was received into evidence at the May 1983 hearings (NRC Exhibit 207). The Staff also submitted the testimony of Mr. Tapia and Dr. Chen regarding pipe support design, and supplemental testimony of Messrs. Tapia, Spottswood Burwell, Robert G. Taylor and Drs. Chen and Jai Raj N. Rajan on the same topic, as well as with respect to the NRC Construction Appraisal Inspection Team ("CAT") report for Comanche Peak (NRC Staff Testimony and Supplemental Testimony, following Tr. 6402). In addition, the Staff presented the testimony of Mr. A.B. Beach, as a member of the CAT, regarding the pipe support findings of the CAT (following Tr. 6283).<sup>1</sup>

Mr. Tapia is the Reactor Inspector in the Engineering Section of the Division of Resident, Reactor Projects and Engineering Programs, NRC Region IV. He had held this position since 1976. Mr. Tapia has Bachelor's and Master's Degrees in Civil Engineering. Mr. Tapia is a member of the American Society of Civil Engineers; the International Society of Soil, Mechanics and Foundation Engineering; and the American Concrete Institute, serving as a member of that Institute's Committee on Quality Assurance Systems for Concrete. (NRC Exhibit 8.)

Dr. Chen is the Manager of the Stress Analysis Unit of the Systems Engineering Department of the Energy Technology Engineering Center, a U.S. Department of Energy Laboratory. Dr. Chen has Bachelor's and Master's Degrees in Civil Engineering and Applied Mechanics, and a

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<sup>1</sup> The Construction Appraisal Team is an NRC-commissioned team of inspectors who are charged with conducting reviews of the adequacy of construction at facilities nearing completion. This team presented testimony at the June 1983 hearing regarding its findings, and our decision on the CAT Report will be issued at a later time. We address in this decision only those aspects of the CAT Report (NRC Exhibit 206) that concern pipe supports.

Ph.D. in Theoretical and Applied Mechanics. Dr. Chen is responsible for the technical review of portions of the FSAR, including the pipe support stress analysis performed by Applicants. Dr. Chen has extensive experience in areas relating to material properties and stress analysis. He is responsible for performance of ASME compliance analysis of piping and components for ETEC. (Chen Statement of Qualifications, attached to NRC Staff Testimony following Tr. 6402.)

Mr. Burwell is the NRC Operating License Project Manager for Comanche Peak. He is responsible for managing and participating in the safety and environmental reviews, analyses and evaluations associated with licensing actions at Comanche Peak. Mr. Burwell has Bachelor's and Master's Degrees in Mechanical Engineering, and is a registered professional engineer. Mr. Burwell has extensive experience in the design and construction of components for nuclear power reactors. He has worked at the NRC since 1969. (Burwell Statement of Qualifications, attached to NRC Staff Supplemental Testimony, following Tr. 6402.)

Dr. Rajan is the mechanical engineer responsible for reviewing and evaluating safety analysis reports with regard to the dynamic analysis and testing of safety-related systems and components, and the criteria for protection against the dynamic effects associated with postulated failures of fluid systems for nuclear facilities. Dr. Rajan has Bachelor's Degrees in Physics, Mathematics and Chemistry and Civil Engineering; a Master's Degree in Applied Mechanics and a Ph.D. in Fluid Mechanics. He has extensive experience in the design, analysis, testing and evaluation of fluid piping systems and power fluid systems of nuclear reactors. He has contributed to published papers in various professional journals, and is a part-time professor in the fields of mechanics, materials, fluid mechanics and applied mechanics. (Rajan Statement of Qualifications, attached to NRC Supplemental Testimony, following Tr. 6402.)

Mr. Taylor is the Resident Reactor Inspector at Comanche Peak, a position he has held since 1978. He is responsible for conducting and coordinating all safety-related inspection efforts by the NRC Region at the site. Mr. Taylor is a registered professional engineer, specializing in quality control engineering. Mr. Taylor has thirty years of experience in the quality engineering field, including fifteen years of experience in quality assurance and reactor inspection in the nuclear power reactor field. Mr. Taylor joined the NRC in 1976 and served as the reactor inspector at two other power reactors prior to being assigned to Comanche Peak. (NRC Exhibit 9.)

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

## OFFICE OF INSPECTION AND ENFORCEMENT

Richard C. DeYoung, Director

In the Matter of

Docket No. 50-358  
(10 C.F.R. § 2.206)CINCINNATI GAS & ELECTRIC  
COMPANY  
(William H. Zimmer Nuclear Power  
Station)

December 16, 1983

The Director of the Office of Inspection and Enforcement denies a petition submitted by Thomas Devine of the Government Accountability Project, on behalf of the Miami Valley Power Project, requesting that the Commission take certain actions with respect to the William H. Zimmer Nuclear Power Station.

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

By letter to the Nuclear Regulatory Commission dated May 25, 1983, Thomas Devine of the Government Accountability Project, on behalf of the Miami Valley Power Project (hereinafter referred to as MVPP or the petitioner), requested that the Commission take certain actions with respect to the William H. Zimmer Nuclear Power Station. At the time, a partial denial of an earlier petition filed by MVPP was pending before the Commission for its review under 10 C.F.R. § 2.206(c). *Cincinnati Gas & Electric Co.* (William H. Zimmer Nuclear Power Station), DD-83-2, 17 NRC 323 (1983). Although it declined to disturb the Director's Decision then pending, the Commission referred MVPP's May 25th letter to the NRC staff for treatment as a new request for

action pursuant to 10 C.F.R. § 2.206 of the Commission's regulations. Notice of the request was published in the *Federal Register* on July 6, 1983. 48 Fed. Reg. 31,119. On August 10, 1983, the Cincinnati Gas & Electric Company (CG&E), the licensee for the Zimmer facility, filed comments opposing MVPP's petition.

## I.

On November 12, 1982, the Commission suspended construction of the Zimmer project pending the satisfaction of certain conditions which required rehabilitation of the licensee's management and execution of its responsibilities under the Commission's requirements. Order to Show Cause and Order Immediately Suspending Construction, CLI-82-33, 16 NRC 1489 (1982). The Commission's order required an immediate halt to safety-related construction on the Zimmer station and required the licensee to show cause why the suspension should not continue pending review and implementation of proposals to improve the licensee's management of the project, to verify the quality of construction work and to ensure that future construction would conform to the Commission's requirements. The licensee consented to the order and, accordingly, took steps to comply with its provisions.

The order required the licensee to obtain an independent review of the management of the Zimmer project, and specified several management alternatives to be considered in conducting this review. Upon completion of the independent management review, the order required the licensee to submit its recommended course of action, based upon the findings of the review, to the Regional Administrator of NRC Region III for his approval. *See* 16 NRC at 1497-98. With NRC approval, CG&E retained Torrey Pines Technology to conduct the independent review of the management of the Zimmer project. *See* Letter from James G. Keppler, Regional Administrator, NRC Region III, to William H. Dickhoner, President, Cincinnati Gas and Electric Co. (April 15, 1983). Torrey Pines completed its management review and submitted a report to the NRC and CG&E in August 1983. After reviewing the Torrey Pines report, CG&E submitted to the Regional Administrator for his approval a proposed course of action for completion of the Zimmer project. *See* Letter from W.H. Dickhoner, President, Cincinnati Gas and Electric Co., to James G. Keppler, Regional Administrator, NRC Region III (Oct. 5, 1983), transmitting Course of Action for the William H. Zimmer Nuclear Power Station (hereinafter cited as Course of Action). The staff has reviewed the Course of Action, as modified by subsequent filings from CG&E in response to staff questions developed

from the staff's and public comments on the Course of Action, and the Regional Administrator has today approved it.

## II.

Before the Commission issued its suspension order, MVPP had filed a petition on August 20, 1982, with the Commission which requested suspension of construction and other relief. This petition was referred to the staff for consideration in accordance with 10 C.F.R. § 2.206. The Commission's order substantially granted MVPP's petition by imposing an immediate suspension of construction and by requiring an independent management review and institution of a program to verify the quality of construction as conditions of any resumption of construction. DD-83-2, 17 NRC at 324. The staff denied the petitioner's request insofar as it asked that CG&E be removed from any responsibility for reverification of the quality of construction. *Id.* at 325-26.

In its May 25, 1983 letter, MVPP asked that the Commission modify the suspension order and the Director's Decision (DD-83-2) and thereby grant further relief pertaining to the suspension of Zimmer's construction. MVPP takes issue with the Commission's order and with DD-83-2 in that both permitted the Quality Confirmation Program (QCP)<sup>1</sup> to continue at Zimmer and did not remove CG&E from control of, or responsibility for, the QCP and the quality assurance program. MVPP Request at 3. MVPP asserts that CG&E should be removed from responsibility for quality assurance activities. MVPP requested that the Commission take these three steps: (1) suspend the ongoing quality confirmation program and related activities being conducted at Zimmer; (2) remove CG&E from any decisionmaking role with respect to the recommendations of Torrey Pines, and require that the results of Torrey Pines' review be submitted directly to the NRC for approval; and (3) prohibit Torrey Pines from considering any organizational alternative that would allow the licensee to retain control of the quality verification and quality assurance programs until Zimmer is completed. MVPP Request at 7.

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<sup>1</sup> The QCP is a program which has been under way since 1981 and whose objective is to determine the quality of completed construction work at Zimmer in areas where questions as to quality had been raised.

### III.

MVPP's requests to restructure the handling and scope of Torrey Pines' management review under the Commission's order are denied.

Prohibiting Torrey Pines from considering management alternatives which allowed CG&E to retain control of the Zimmer quality verification and quality assurance programs would have unduly restricted the scope of the management review mandated by the order. The independent management review was intended to examine deficiencies in management that contributed to the Zimmer project's problems and to suggest possible strategies to remedy those management deficiencies. Thus, the Commission's order encouraged consideration of a spectrum of management alternatives and, indeed, required consideration of alternatives that would require the quality assurance program to be conducted by an experienced outside organization. CLI-82-33, 16 NRC at 1497. There is nothing inherently wrong with considering alternatives that include CG&E in a continuing role in the quality assurance of reverification programs, because such alternatives may be acceptable to fulfill the conditions of the order. In all events, consideration of an alternative is not tantamount to its approval under the order.

As to the petitioner's request that the licensee be removed from "any decisionmaking role with respect to the Torrey Pines recommendations," and that instead the NRC itself approve the recommendations, it should be noted that the Commission's order requires that the NRC approve any revised management structure. The order requires CG&E to evaluate the recommendations of the independent management review, and then "submit to the Regional Administrator the licensee's recommended course of action on the basis of this independent review. . . . The licensee's recommendations and its schedule for implementation of those recommendations *shall be subject to approval* by the Regional Administrator." CLI-82-33, 16 NRC at 1498 (emphasis added). While the licensee may propose a management structure, it is the NRC which makes the determination as to the adequacy of that proposal. NRC's role in approving the revised management structure affords sufficient control to ensure that adequate measures to correct management deficiencies are taken by the licensee under the order.

### IV.

The remainder of this decision examines the petitioner's request that CG&E be removed from the conduct of the quality assurance and quality

verification programs and that the QCP and related quality assurance activities be suspended. The petitioner identifies several new developments in support of its request: the licensee's "prejudgment" of the results of the Torrey Pines review; the existence of litigation between the utilities which own the Zimmer facility; and contradictions between NRC and licensee findings as to the quality of the as-built condition of the Zimmer plant. See MVPP Request at 3. For the reasons stated herein, this aspect of the relief requested by the petitioner is also denied.

With respect to the licensee's "prejudgment" of the management review, the petitioner alleges that CG&E devised "secret plans . . . to circumvent the independent management review process in order to avoid time delays." MVPP Request at 5. MVPP was particularly concerned that "CG&E [would] attempt to develop verification and construction completion plans while Torrey Pines Technology [was] conducting the management review to recommend the appropriate reforms" to enable CG&E to complete the Zimmer project. *Id.*

During and subsequent to the management review conducted by Torrey Pines Technology, there has been no indication that the licensee would accept the results of that inquiry in other than good faith or otherwise take action to undermine the Torrey Pines review. CG&E did not stop all activity at the Zimmer site during the review, nor did the Commission's order require it to do so. In a letter dated February 28, 1983, CG&E informed the staff of its plans to undertake preparatory work in anticipation of developing a new program to verify the quality of the plant.<sup>2</sup> See Letter from William H. Dickhoner, President, Cincinnati Gas and Electric Company to James G. Keppler, Regional Administrator, NRC Region III (Feb. 28, 1983). In this letter, CG&E also advised the staff that it intended to retain Bechtel Power Corporation as a consultant to assist it in these activities. CG&E expressly stated its recognition that the described activities would be undertaken at its risk and would be subject to possible "amendment or elaboration" based upon the results of the independent management review.

By letter dated March 10, 1983, the NRC staff acknowledged CG&E's letter and concurred in CG&E's assessment that the enumerated activi-

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<sup>2</sup> These preparatory activities included:

1. Review or development of a Project Procedures Manual;
2. Review of documentation programs;
3. Review of existing training programs and initiation of additional programs, if required;
4. Establishment of programs to organize the data available on various safety-related construction matters;
5. Review of the status of the Final Safety Analysis Report;
6. "Walkdown" of the plant to determine its physical "as built" condition; and
7. Analysis of existing computer programs and development of new ones, as required.

ties were not prohibited by the Commission's order. The staff emphasized, however, that these activities could not be permitted to curtail in any way the reorganization options open to consideration by the independent management reviewer. An enumeration of additional activities undertaken by CG&E prior to receipt of Torrey Pines' recommendations was contained in a letter from the licensee to the project manager of the Torrey Pines review. See Letter from J. Williams, Jr., Cincinnati Gas and Electric Co., to A.J. Neylan, Torrey Pines Technology (June 30, 1983).<sup>3</sup>

None of these activities were secret, but were instead made known to the staff and were placed on the public record. It is unclear whether the petitioner's reference to the circumvention of the independent management review encompasses the preparatory activities; nonetheless, there appears to be no basis for viewing these activities as such. It was not unreasonable for CG&E to initiate activities to strengthen its organization and to enable it to "react promptly and comprehensively" to Torrey Pines' recommendations when they were made. See Williams Letter of June 30, 1983, at 5. So long as the activities did not compromise the independence of Torrey Pines' management review nor involve safety-related construction, CG&E was not prohibited under the Commission's order from undertaking such work. Based upon a review of the Torrey Pines report, correspondence between Torrey Pines and CG&E, discussions between the NRC staff and Torrey Pines, and NRC inspections, there is no indication that CG&E compromised Torrey Pines' independence, otherwise undermined the results of its review, or continued safety-related construction.

As another development supporting its request, MVPP points to litigation which has been instituted against CG&E by one of its partners in the Zimmer project, the Dayton Power and Light Company (DP&L). As characterized by the petitioner, this litigation raises issues concerning

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<sup>3</sup> This letter was written at the request of Mr. Neylan for Mr. Williams to put in writing some of his ideas and philosophy regarding the future conduct of the Zimmer project. Mr. Williams enumerated steps that he had commenced to effect "a complete reorganization and strengthening of the project staff within CG&E." See Letter at 1. Mr. Williams stated that he recognized that further restructuring of the CG&E organization might be necessary as a result of Torrey Pines' recommendations, but that he believed the steps he had taken would be essential in any restructured organization proposed by CG&E as a result of the Torrey Pines review. *Id.* at 3. Mr. Williams also assured Mr. Neylan that the "tentative plans" outlined in his letter constituted only his thinking at that time and that he awaited the report and recommendations of Torrey Pines, which would receive CG&E's "most thoughtful consideration." *Id.* at 5.



the financial obligations between the Zimmer partners.<sup>4</sup> The petitioner draws two conclusions from the pendency of this litigation. First, MVPP asserts that DP&L's claims provide further support for the petitioner's lack of faith in CG&E's corporate character and competence. Second, MVPP asserts that, as a result of the litigation, CG&E now finds itself in a "unique conflict of interest":

Each CG&E finding through the QCP or its own QA program weakens its legal position if the results evidence previous mismanagement or neglect, or require expensive and time-consuming corrective action. The stakes at Zimmer are too serious to gamble that CG&E is so objective [that] it will make disclosures that could defeat its lawsuit.

#### Request at 6.

With respect to MVPP's first conclusion, the eventual results of the arbitration might include facts or findings on CG&E's corporate character or competence which might be relevant to the NRC's ongoing consideration of CG&E's application for an operating license or indicate a need for further enforcement action. The history to date of this project clearly raises questions concerning CG&E's performance. For that reason the Commission's order was issued. The order is designed to remedy the past management problems. Should CG&E fail to rehabilitate itself under the order, it faces revocation of its construction permit and denial of an operating license.

Other than citing the existence of the litigation itself, the petitioner has not set forth an adequate basis for the assumption that CG&E might ignore its obligation to report to the NRC deficiencies or problems identified at the Zimmer facility. The licensee must report certain construction deficiencies under the NRC's regulations in 10 C.F.R. § 50.55(e) and 10 C.F.R. Part 21. Moreover, the Commission's order requires the licensee to address the means of ensuring that construction

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<sup>4</sup> The petitioner identifies the issues as whether:

1. DP&L is obligated to continue to pay all costs billed to it in view of the history and current status of the project, and in view of CG&E's inability or refusal to specify a completion date or a defined completion cost, or develop a satisfactory scheduled program;
2. CG&E had sufficient knowledge that actions against suppliers for failure to comply with contractual obligations should have been initiated or other available remedies pursued;
3. DP&L's percentage of undivided interest in Zimmer and its corresponding entitlement to capacity of Zimmer as stated in the Basic Generating Agreement should be modified;
4. The rights, obligations and duties of the parties under the Basic Generating Agreement and the Zimmer Operating Agreement should be modified; and
5. DP&L should be awarded damages resulting from CG&E's performance under the Basic Generating Agreement.

MVPP Request at 5-6. MVPP also notes that CG&E has sought a stay of the arbitration proceedings instituted by DP&L and a declaratory judgment that the issues raised are not subject to arbitration, and has further announced that it would "prepare for and defend against [the] claims" raised by DP&L. *Id.* at 5-6.

quality is verified and that the Quality Confirmation Program has adequately identified potential construction deficiencies at the areas in which it has been conducted. See CLI-82-33, 16 NRC at 1498. The petitioner's contention is premised essentially on the assumption that the licensee will deliberately ignore or fail to meet its reporting obligations in order to gain an advantage in the arbitration. MVPP provides no evidence which would warrant the Commission to indulge in such an assumption for this or any other licensee. While a concerted effort to avoid its reporting responsibilities might afford a licensee some short-term gain, the licensee and its responsible officials risk potentially severe criminal and civil sanctions for such conduct. MVPP's reasoning on this point is insufficient to support its request for relief. Cf. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-78-1, 7 NRC 1, 18-19 (1978); *Maine Yankee Atomic Power Co.* (Maine Yankee Atomic Power Station), CLI-83-21, 18 NRC 157 (1983) (48 Fed. Reg. 38,702 (1983)), affirming DD-83-2, 17 NRC 327 (1983).

The more significant development cited by the petitioner in support of its request concerns contradictions between NRC and CG&E assessments of the quality of the as-built condition of Zimmer. The petitioner compares the findings of a special NRC inspection team (hereinafter referred to as the NET team)<sup>5</sup> to the licensee's answers in response to a staff demand for information.<sup>6</sup> According to the petitioner, the contradictions in the documents "cast serious doubt on CG&E's judgment" and "demonstrate the inherent inadequacy of the QCP's patchwork approach to checking the quality of Zimmer." MVPP Request at 3-4.

The petitioner's assertion that CG&E's ability to assess the quality of construction at Zimmer is called into question by the NET team findings appears to be unfounded. These documents are not comparable. The licensee's response addressed specific allegations raised by MVPP in its August 1982 petition 10 C.F.R. § 2.206. In contrast, the NET team was assembled by NRC to provide an independent evaluation of the extent of hardware problems at Zimmer.

Although the NET team developed its findings subsequent to the submittal of the CG&E response, it did not rely upon the answers provided by CG&E. Rather, the NET Report was based on the NRC review team's independent inspection of the facility. The CG&E response was directed to specific allegations. In contrast, the NET Report took a

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<sup>5</sup> The NRC inspection team findings referenced by the petitioners are contained in the *Report of the NRC Evaluation Team on the Quality of Construction at the Zimmer Nuclear Power Station*, NUREG-0969 (April 1983).

<sup>6</sup> On September 24, 1982, the staff transmitted, pursuant to 10 C.F.R. § 50.54(f), a Demand for Information to the licensee concerning the Zimmer facility. The licensee responded on February 28, 1983.

broader view of the facility in an attempt to ascertain the extent of Zimmer's hardware problems. In view of these fundamental differences, the CG&E response and the NET Report cannot be meaningfully compared.

Moreover, in comparing CG&E's response with statements in the NET Report identified by the petitioner, contradictions do not appear to be evident. For example, MVPP identifies a passage from CG&E's response which states that a determination as to whether the as-built condition of Zimmer reflects a proper design can be made based upon the QCP and an independent design review,<sup>7</sup> and that design document changes are being reviewed as part of the QCP to assure that they have been properly considered. MVPP Request at 4; *see also* CG&E Response to Demand for Information at 36, 38. The petitioner contrasts this response to a conclusion from the NET Report that "an independent design audit is recommended to resolve the issue of design adequacy satisfactorily . . . in addition to the QCP efforts . . . in the design area." MVPP Request at 3-4, *quoting* NET Report at 224. Both statements indicate support for an independent design review or audit. While there may be differences in specific aspects of CG&E and the NET Report findings, the recommendation as to the independent design review is essentially the same. Although not required by the Commission's November 1982 order, CG&E has proposed an independent design review as part of its course of action. Accordingly, there does not appear to be any basis for drawing CG&E's judgment into question.

The petitioner asserts that the NET Report findings "demonstrate the inherent inadequacy of the QCP's patchwork approach to checking the quality of Zimmer." MVPP Request at 4. MVPP bases its conclusion on the fact that the QCP had not identified all of the deficiencies identified in the NET Report, including findings of structural steel bolting deficiencies. As to the structural steel and masonry wall safety-related bolted connections referenced by the petitioners, CG&E has specifically identified these problems as items which will be reviewed under its plan to verify the quality of the Zimmer project's construction. Moreover, CG&E has formulated a specific plan to deal with the findings of the NET Report. *See* Course of Action, Attachment 3.

The failure of the QCP to duplicate findings discovered by the NET team does not demonstrate, in and of itself, the inherent inadequacy of that program. The QCP has been successful in identifying a number of problems with the Zimmer project. In any event, the QCP will not be the only program relied upon to verify the adequacy of construction at

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<sup>7</sup> The independent design review subsequently outlined in a letter from CG&E to the staff dated October 26, 1983 and the detailed plan will be submitted to the NRC staff for approval.

Zimmer. Since issuance of the Commission's order, the licensee has continued the QCP at its own risk. As discussed more fully below, the results of the QCP are subject to verification under the plan to verify the quality of construction required by the Commission's order. Should significant deficiencies be found with the results of the QCP, those areas of the Zimmer facility verified under the QCP will be subject to reverification. The Commission was well aware of potential inadequacies in the QCP when the November 1982 order was issued. For this reason, the Commission's order required CG&E to develop a revised plan to verify the quality of construction which included consideration of whether the scope and depth of the QCP should be expanded. See CLI-82-33, 16 NRC at 1498. Given the nature of the QCP and the order's requirement to develop a comprehensive quality verification program that includes consideration of the adequacy of the QCP, suspension of the QCP is not required now in the interest of public health and safety.

CG&E's strategy to resolve the problems at Zimmer has evolved in important respects since the submittal of MVPP's petition, particularly as a result of the requirements of the Commission's order. It is evident from the Course of Action that substantial changes have been and will be made to CG&E's management to improve its ability to construct the Zimmer plant in accordance with the Commission's requirements. CG&E has proposed as part of its Course of Action to complete construction of the Zimmer facility, both an independent design review and a "Plan to Verify the Quality of Construction" (PVQC). In Section IV.B(2)(a) of its November 1982 order, the Commission required CG&E to submit an "updated comprehensive plan to verify the quality of construction of the Zimmer facility . . . ." The Commission further directed that: "[i]n preparing this updated comprehensive plan, the licensee shall review the ongoing Quality Confirmation Program to determine whether its scope and depth should be expanded in light of the hardware and programmatic problems identified to date." 16 NRC at 1498.

Although the details of the PVQC have not been submitted, the scope and organizational structure for the conduct of the plan is contained in the proposed Course of Action. See Course of Action at 21-30. The staff will review the PVQC when submitted by the licensee in accordance with Section IV.B(2) of the order. The PVQC is subject to the approval of the Regional Administrator, under the order. 16 NRC at 1498. Based upon a review of the outline of the PVQC in the Course of Action, the PVQC appears to be sufficient to resolve MVPP's concern with the conformance of the as-built condition of Zimmer to its design. The validation of design documents by Sargent and Lundy will include a compari-

son "to the as-constructed condition through visual and, as appropriate, physical inspections, as described in the COA." Letter from Joe Williams, Jr., Senior Vice President, Cincinnati Gas and Electric Co. to James G. Keppler, Regional Administrator, NRC Region III (November 21, 1983). The licensee has also stated that the PVQC will include "[p]hysical inspections of safety-related systems, structures or components . . . as necessary and appropriate to inspect nonvisual attribute requirements of design drawings and specifications." Areas to be physically inspected include items identified by the NET team and "in public allegations now on file." Letter from Joe Williams, Jr. to James G. Keppler, Attachment at 2-3 (November 18, 1983).

The NRC itself remains substantially involved in oversight of the activities at Zimmer. As noted above, the Commission's order, in addition to requiring that the Region III Administrator approve the licensee's course of action, also requires that the PVQC be subject to his approval. CLI-82-33, 16 NRC at 1498. The staff will also continue its routine inspection activities at the site. Moreover, the Commission's order requires that the PVQC "include an audit by a qualified outside organization, which did not perform the activities being audited, to verify the adequacy of the quality of construction . . ." *Id.* The requirement that a qualified, outside organization audit the PVQC and the NRC's own inspection presence at Zimmer should also help assure that the licensee and its agents adhere to the plan it has proposed to verify the quality of construction. Any inadequacies in the licensee's ongoing quality confirmation program should also be resolved by implementation of the licensee's Course of Action.

Based upon the staff's review of the matters set forth in MVPP's petition and its review of the Course of Action proposed by CG&E, I find that there is no basis at this time to suspend the QCP or to remove CG&E from responsibility for quality assurance and verification efforts. Accordingly, the petitioner's request is denied.

Richard C. DeYoung, Director  
Office of Inspection and  
Enforcement

Dated at Bethesda, Maryland,  
this 16th day of December 1983.



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Nunzio J. Palladino, Chairman**  
**Victor Gilinsky**  
**Thomas M. Roberts**  
**James K. Asselstine**  
**Frederick M. Bernthal**

**In the Matter of**

**Docket No. PRM-60-1**

**STATES OF TEXAS, WISCONSIN,  
MINNESOTA, NEVADA, AND UTAH**

**December 9, 1983**

The Commission denies a petition for rulemaking by several States who proposed that the NRC adopt certain formal procedures for Commission concurrence in siting guidelines proposed by the Department of Energy for high-level radioactive waste repositories. The Commission finds that the proposed procedures are not required by the Administrative Procedure Act or the Nuclear Waste Policy Act of 1982 and that petitioners' concerns are addressed adequately by the opportunity to publicly address the Commission on DOE's siting guidelines.

**NUCLEAR WASTE POLICY ACT: NRC CONCURRENCE IN  
DOE SITING GUIDELINES (STATUTORY RESPONSIBILITY)**

Neither the Nuclear Waste Policy Act nor the Administrative Procedure Act requires the Commission to adopt any particular procedures in determining whether to concur in DOE's siting guidelines.

## **NUCLEAR WASTE POLICY ACT: NRC CONCURRENCE IN DOE SITING GUIDELINES (STATE ROLE)**

Nothing in the Nuclear Waste Policy Act suggests that States have a special role in the NRC concurrence process that would mandate the use of formal procedures

## **NUCLEAR WASTE POLICY ACT: NRC CONCURRENCE IN DOE SITING GUIDELINES (RULEMAKING)**

NRC concurrence in DOE siting guidelines is not rulemaking under the Administrative Procedure Act.

## **NUCLEAR WASTE POLICY ACT: NRC CONCURRENCE IN DOE SITING GUIDELINES (AMENDMENTS TO GUIDELINES)**

Under the Nuclear Waste Policy Act, DOE must obtain NRC concurrence in any proposed amendments to the DOE siting guidelines.

# **DENIAL OF PETITION FOR RULEMAKING**

## **I. BACKGROUND**

On September 2, 1983, Mr. Ken Cross, an Assistant Attorney General for the State of Texas, on behalf of the States of Texas, Wisconsin, Minnesota, Nevada and Utah ("Petitioners"), petitioned the Commission to adopt a proposed rule that would have established procedures for public participation in the Commission's concurrence in DOE's siting guidelines for high-level radioactive waste repositories.

The Commission is mindful of the importance of its role to concur in the DOE siting guidelines and recognizes the Petitioners' interest in the guidelines. However, the Commission believes that the opportunity for oral presentation to the Commission will provide an adequate opportunity for Petitioners to express their concerns and for the Commission to understand those concerns.



The benefits of oral presentation include the discipline imposed on the participants to focus their concerns and the opportunity for give-and-take between the participants and the Commissioners. Additional opportunity for written comment as Petitioners propose might enlarge the body of information before the Commission; however, this fact must be weighed against the time it would take to complete the procedures in this case because the NWPA objectives include timeliness. On the basis of its experience with rulemakings, the Commission believes that the procedures could not be completed in less than 9-12 months.

Therefore, given the opportunity for oral and written presentation to the Commission, the record of public participation before DOE, and the interest in a timely (and fair) concurrence process, the Commission denies the petition.

## II. THE PETITION

The text of Petitioners' proposed rule appears at 48 Fed. Reg. 48,473-74 (1983).<sup>1</sup> Essentially, Petitioners proposed that the Commission adopt the following steps in its process for concurring in DOE's siting guidelines:

1. A DOE request for NRC concurrence on proposed guidelines would be supported by: (a) a description of the technical rationale behind the guideline objectives; (b) a full description of DOE's decision process; and (c) a list of issues for which DOE wishes Commission review.

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<sup>1</sup> Attached to the comment submitted by the Department of Energy and Transportation of the State of Mississippi is a copy of a letter to the Commission dated September 13, 1983 giving notice of that State's intent to join the State of Texas as a co-petitioner and suggesting a modification to the proposed rule to add a public hearing on any NRC draft analysis of DOE's guidelines. The Commission has no record of receiving that letter before it received Mississippi's comment (dated November 1, 1983). Thus, the Commission received Mississippi's proposal too late to treat it as part of the petition. Moreover, the State of Mississippi did not inform the Commission that the NRC's October 19, 1983 notice of receipt of the Petitioners' petition for rulemaking made no mention of the State of Mississippi's September 13, 1983 letter. In any event, the Commission believes that publication of the State of Mississippi's proposal would not have significantly affected the comments received. Indeed, the Southwest Research Information Council, Serious Texans Against Nuclear Dumping and People Opposed to Wasted Energy Repository commented on the State of Mississippi's proposal. In considering these comments, the Commission treated Mississippi's proposal as a comment on the petition. The Commission's decision to deny the Petitioners' petition does not depend on the fine-tuning of procedural proposals. Rather, it is based on the Commission's determination that the proposed procedures are not legally required and would result in delay contrary to the public interest. Under these circumstances, the Commission determined that Mississippi's suggestion could be addressed without publication, especially in light of the Commission's having the benefit of comments supporting that suggestion. Because the State of Mississippi's proposal would have added even more procedures to the NRC's concurrence process, those additional procedures must also be rejected for the same reasons.

2. NRC would publish notice of receipt of DOE's request along with an NRC staff review of that request. Copies would also be provided to affected States and Indian tribes.
3. Subsequently, the NRC staff would publish for comment a draft analysis of the proposed guidelines. Affected States and Indian tribes would also be asked to comment.
4. After a comment period of at least sixty days, the NRC staff would publish a final analysis of the guidelines and provide copies directly to the affected States and Indian tribes. The Commission could then offer a discretionary public hearing on the staff's final analysis.
5. The Commission would then decide on whether or not to concur in DOE's proposed guidelines.

These procedures would also apply to any DOE proposals to revise the siting guidelines.

#### **A. Bases for Request**

DOE has notified three of the petitioners, the States of Texas, Nevada and Utah, that they have within their borders one or more potentially acceptable sites for the first high-level radioactive waste repository. These States believe that this circumstance provides them with an interest in a formalized mechanism by which they can participate in the NRC concurrence process. DOE has informed the other two petitioners, the States of Wisconsin and Minnesota, that they are potential candidates for a second waste repository. Accordingly, these States are also interested in participating in the NRC's concurrence in DOE's guidelines and in any proposed amendments to those guidelines.

Petitioners discussed three reasons supporting their belief that the NRC should adopt the proposed formalized concurrence procedure: (1) the procedures will promote NRC's distinctive role under the Nuclear Waste Policy Act of 1982 (NWPA); (2) NRC concurrence is rulemaking or its equivalent; and (3) the procedures are familiar and useful.

##### ***1. The Procedures Will Promote NRC's Role Under NWPA***

Petitioners contend that the NRC's concurrence role under the NWPA indicates a congressional intent to attach special significance to NRC's concurrence in DOE's siting guidelines. Petitioners believe that their proposed rule will promote that congressional intent. Petitioners also contend that their proposed rule is a necessary and desirable means for promoting the NRC's distinctive role in developing the guidelines.

They argue that by providing for public participation in the concurrence process, the proposed rule will help to ensure that the siting guidelines reflect NRC policies because the public will have an opportunity to point out inconsistencies between the guidelines and NRC's technical licensing regulations.

## **2. *NRC Concurrence Is Rulemaking or Its Equivalent***

Petitioners contend that the act of concurrence or non-concurrence is an act of rulemaking subject to the notice-and-comment procedures of the Administrative Procedure Act (APA). In Petitioners' view, NRC's concurrence is an act of adoption of DOE's guidelines sufficient to make them an NRC rule. Accordingly, Petitioners believe that their proposed rulemaking procedures would satisfy the NRC's obligations under the APA to conduct a rulemaking on concurrence.

## **3. *The Procedures Are Familiar and Useful***

Petitioners believe that their procedures closely resemble those in 10 C.F.R. § 60.11 for NRC oversight of DOE site characterization of high-level waste repositories. Petitioners also believe that their proposed procedures would be useful because they would apply also to any proposed amendments to the siting guidelines.

### **III. COMMENTS ON THE PETITION**

On October 19, 1983 the Commission published the text of the petition and a request for comments on it in the *Federal Register*. 48 Fed. Reg. 48,473. Although the comment period closed on November 2, 1983, the notice provided that late comments would be considered if it was practical to do so. The Commission received seventeen letters of comment in response to the notice, including one late comment that it was able to consider.<sup>2</sup>

Seven commenters opposed the proposed rule: the American Nuclear Energy Counsel ("ANEC"); the Atomic Industrial Forum's Subcommittee on High-Level Radioactive Waste ("AIF"); the Edison Electric Institute joined by the Utility Nuclear Waste Management Group

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<sup>2</sup> The Commission also received three mailgrams from private citizens in Mississippi who stated their support for the petition submitted by the Department of Energy and Transportation of the State of Mississippi. As noted above, the Commission is denying that petition as well because it requested procedures beyond those that the Commission has already determined are unnecessary and contrary to the public interest.

("EEI/UNWGMG"); Duke Power Company ("Duke"); the U.S. Department of Energy ("DOE"); Middle South Services, Inc. ("MSS"); and Carolina Power and Light Company ("CP&L").

ANEC, the AIF and MSS contended that the NWPAs does not require or support the proposed procedures. MSS stated its belief that if Congress had wanted formal rulemaking procedures for NRC concurrence it would have required such procedures. Because Congress did not so provide, MSS and ANEC concluded that such procedures would contradict Congress' intent that the guidelines be established expeditiously only 180 days after enactment of the NWPAs. EEI/UNWGMG and CP&L believe that the public meeting which the Commission has stated it will hold prior to a decision on concurrence serves to promote the NRC's distinctive role under the NWPAs as well as the Petitioners' need to present their views directly to the Commission.

Most commenters opposing the petition noted that the Commission, in response to a similar petition filed by the Yakima Indian Nation, had already rejected the contention that concurrence was rulemaking for the purposes of the APA. They also contended that a separate NRC rulemaking on concurrence would be redundant, time-consuming and wasteful of resources. DOE noted that its extensive public comment process on the guidelines has already aired the issues which the Commission will consider in determining whether to concur in those guidelines. And Duke noted that DOE has provided all those public comments to the Commission. Accordingly, these commenters concluded that Petitioners' proposed procedures were neither necessary nor desirable because they were redundant.<sup>3</sup>

Ten commenters supported the proposed rule: the Yakima Indian Nation; the State of Mississippi Department of Energy and Transportation; the Natural Resources Defense Council ("NRDC"); Hector & Associates representing Serious Texans Against Nuclear Dumping and People Opposed to Waste Energy Repository ("STAND/POWER"); POWER; the Southwest Research and Information Center ("SRIC"); the Nebraska Energy Office; Citizen Alert; the State of Wisconsin Department of Justice; and the Texas House-Senate Joint Study Committee on Hazardous Waste Disposal. Several of these

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<sup>3</sup> DOE also stated that NRC concurrence is required by the end of 1983 if DOE is to meet the statutory deadline of January 1, 1985 for recommending three sites to the President for characterization. While the Commission recognizes DOE's legitimate desires to conform to time schedules in the NWPAs, DOE's position is not properly included in the bases for the Commission's decision. The Commission's decision here cannot be based on the assumption that it will concur in DOE's guidelines by any particular time.

commenters contended that concurrence is rulemaking.<sup>4</sup> They also stated that the proposed procedures would provide a better procedural framework than a public hearing for informing the Commission of the public's concerns.<sup>5</sup> This is especially so because they believe that DOE has made numerous material changes to the proposed guidelines since the last opportunity for public comment to DOE. NRDG believes that DOE's most recent changes to the guidelines warrant an opportunity to provide written comments to the Commission. Some commenters believe that the proposed procedures would promote NRC's distinctive concurrence role under the NWPA, and would guarantee public participation in that concurrence. STAND/POWER, SRIC, and the State of Wisconsin Department of Justice urged that the establishment of these procedures now would provide a consistent procedure for the Commission's consideration of modifications to the guidelines. These commenters believe that such modifications will be necessary after EPA promulgates final repository standards under Section 112(a) of the NWPA and before the guidelines can be applied to the second repository.

#### IV. COMMISSION DECISION

For the following reasons, the Commission denies the Petitioners' request for rulemaking.

##### A. NRC's Role Under NWPA

There is no doubt that Congress' upgrading the NRC's role from consultation to concurring in the guidelines indicates a congressional intent to create a special role for the NRC in the promulgation of DOE's siting guidelines. However, Petitioners have failed to identify any basis for

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<sup>4</sup> The State of Wisconsin Department of Justice took the position that unlike the petition by the Yakima Indian Nation, adoption of the procedures proposed by this petition does not depend on the conclusion that the Commission's concurrence is rulemaking. Rather, Wisconsin stated that this petition is premised on the State's belief that formalized procedures are necessary to ensure public participation in the NRC's concurrence process. As discussed in this decision, such formalized procedures are not legally necessary, are not required in light of the Commission's previous decision to permit public participation in the concurrence process, and are not desirable because they would unnecessarily delay the concurrence process.

<sup>5</sup> SRIC and STAND/POWER also suggested that the Commission distribute directly to interested members of the public any NRC staff analysis of DOE's guidelines, and Citizen Alert suggested that the NRC hold public hearings in DOE target States. As discussed above at note 2, the Commission's decision does not depend on fine-tuned procedural proposals. Rather, the Commission has found contrary to the public interest any elaborate procedures that would unduly delay its decision on whether to concur in DOE's guidelines. Moreover, the Commission has recently requested prospective participants in the public meeting on the guidelines to identify their representatives. 48 Fed. Reg. 50,432 (1983). Any persons who will not be able to attend that meeting will still have an opportunity to express their views by submitting them to those representatives.

their belief that their proposed rule will promote that congressional intent. If Congress had wanted the concurrence process to be a public rulemaking, it could have easily so required.<sup>6</sup> Rather, Congress gave DOE 180 days to develop siting guidelines and to obtain the NRC's concurrence in them. This schedule expresses a clear congressional intent that the guidelines were to be completed expeditiously. Since concurrence is only the final stage of the lengthier process of developing the guidelines, Congress could not have intended the NRC's concurrence process to be a lengthy public proceeding.

The Petitioners also appear to believe that their request for formal procedures is supported by the special role of potential host States under the NWPA. That Act does give potential host States special consideration in specific steps of the repository development process. But nothing in the NWPA suggests that these States have a special role in the NRC concurrence process that would mandate the use of formal procedures.

Petitioners further suggest that their proposed procedures will help to ensure that the guidelines reflect NRC policies and are consistent with NRC rules. The Commission believes that the primary purpose of public comments is to help the NRC formulate its policy rather than to determine consistency of the guidelines with NRC regulations. However, as discussed below, at the public meeting the Commission will also entertain comments on the consistency of DOE's siting guidelines with the NRC's requirements in 10 C.F.R. Part 60. Because both of these purposes can be accommodated at the public meeting, there is no need for the lengthier, more formal concurrence procedures proposed in the petition.

For these reasons, the Commission finds that nothing in NWPA supports Petitioners' proposal.

## **B. NRC Concurrence as Rulemaking**

The NRC has already considered and rejected this proposition in its response to the petition by the Yakima Indian Nation. CLI-83-26, 18 NRC 1139 (1983); 48 Fed. Reg. 39,536 (1983). Neither the Petitioners nor any commenter has provided any additional support for this proposition. Accordingly, the Commission finds no basis for reconsidering its previous decision rejecting this proposition as unfounded.

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<sup>6</sup> See, for example, Section 404 of the Department of Energy Organization Act of 1977, 42 U.S.C. § 7174.

### C: Familiarity and Usefulness of the Procedures

Petitioners' contention that the proposed procedures are familiar does not support the adoption of those procedures in the absence of a showing of necessity or utility.<sup>7</sup> These procedures are not the only means for public participation in the concurrence process; other less time-consuming and less complex procedures, such as the established public meeting, provide adequate opportunity for public participation. As for utility, Petitioners' argument is that these procedures could be applied to any proposed amendments to the siting guidelines. The Commission believes it would be premature to establish procedures now for NRC concurrence in any amendments to the guidelines. Before doing so, the Commission would want to evaluate the effectiveness of the procedures used in determining whether to concur in the guidelines. If and when DOE proposes amendments to the guidelines, the Commission will then determine what procedures may be appropriate for its concurrence process.

Finally, the Commission believes that the forthcoming public meeting on the proposed guidelines and written comment period on the Commission's proposed concurrence decision will provide an adequate forum for public participation in the Commission's concurrence process. Neither the Petitioners nor the commenters have provided any basis for reaching a contrary conclusion. Even if, as some commenters claim, DOE has materially changed the guidelines since last soliciting public comment, the participants in the Commission's meeting will have time to study DOE's final proposed guidelines before meeting with the Commission. In addition, the NRC, in a companion *Federal Register* notice setting the schedule for the public meeting with the Commission, has identified the issues that the NRC staff believes are important to the Commission's decision. For the most part, these issues are familiar to the participants in DOE's rulemaking proceeding because the NRC has raised them before in its comments. Of course, participants may also raise any other issues they believe that the Commission should consider. Moreover, the Commission has agreed to issue for public comment its proposed decision regarding concurrence in the DOE guidelines. Thus, the public will have ample opportunity to bring to the Commission's attention any perceived problems with DOE's final version of the guidelines and to ad-

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<sup>7</sup> Petitioners' proposal is also undesirable because it would interfere with the staff's role as advisor to the Commission by requesting third-party comment on its recommendations. But the staff has the principal expertise to evaluate DOE's proposals and the Commission intends to use the staff's evaluation as a basis for its decision. Thus, the Commission believes that the staff should remain an integral part of the agency decisionmaking team and should participate directly in advising the Commission on whether to concur.

dress the issues uniquely of concern to the Commission in its concurrence role.

#### **D. Denial**

After carefully considering the petition and comments on it, the Commission, for the reasons stated above, hereby denies the petition for rulemaking in Docket No. PRM 60-1. The Commission believes that it can best implement Congress' intent for the expeditious promulgation of siting guidelines and provide for public participation by providing the informal public meeting announced in response to the Yakima Petition.

A copy of the petition for rulemaking and copies of the letters of comment and of the Commission's letter of denial are available for public inspection at the Commission's Public Document Room at 1717 H Street, NW, Washington, D.C.

Although Commissioner Asselstine agrees with the denial of the petition, he would have preferred a somewhat different approach for obtaining public comments than that adopted by the Commission. Commissioner Asselstine would have required the NRC staff to prepare and make available for public comment the staff's evaluation of the DOE guidelines and its recommendation on the Commission's concurrence decision *before* the Commission's public meeting. He believes that this approach would have provided a more focused basis for comments by the participants in the public meeting and would have provided a more meaningful opportunity for public participation in the NRC concurrence process.

Commissioner Gilinsky concurs in the result and agrees with Commissioner Asselstine's comment.

For the Commission

SAMUEL J. CHILK  
Secretary of the Commission

Dated at Washington, D.C.,  
this 9th day of December 1983.



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1. The first part of the report deals with the general situation of the country and the progress of the work during the year. It is found that the work has been carried out in accordance with the programme of work approved by the Council of the League of Nations in 1910. The progress made during the year is described in detail in the following paragraphs.

2. The second part of the report deals with the work done in the various countries. It is found that the work has been carried out in accordance with the programme of work approved by the Council of the League of Nations in 1910. The progress made during the year is described in detail in the following paragraphs.

3. The third part of the report deals with the work done in the various countries. It is found that the work has been carried out in accordance with the programme of work approved by the Council of the League of Nations in 1910. The progress made during the year is described in detail in the following paragraphs.

4. The fourth part of the report deals with the work done in the various countries. It is found that the work has been carried out in accordance with the programme of work approved by the Council of the League of Nations in 1910. The progress made during the year is described in detail in the following paragraphs.

5. The fifth part of the report deals with the work done in the various countries. It is found that the work has been carried out in accordance with the programme of work approved by the Council of the League of Nations in 1910. The progress made during the year is described in detail in the following paragraphs.

6. The sixth part of the report deals with the work done in the various countries. It is found that the work has been carried out in accordance with the programme of work approved by the Council of the League of Nations in 1910. The progress made during the year is described in detail in the following paragraphs.

7. The seventh part of the report deals with the work done in the various countries. It is found that the work has been carried out in accordance with the programme of work approved by the Council of the League of Nations in 1910. The progress made during the year is described in detail in the following paragraphs.

8. The eighth part of the report deals with the work done in the various countries. It is found that the work has been carried out in accordance with the programme of work approved by the Council of the League of Nations in 1910. The progress made during the year is described in detail in the following paragraphs.

9. The ninth part of the report deals with the work done in the various countries. It is found that the work has been carried out in accordance with the programme of work approved by the Council of the League of Nations in 1910. The progress made during the year is described in detail in the following paragraphs.

10. The tenth part of the report deals with the work done in the various countries. It is found that the work has been carried out in accordance with the programme of work approved by the Council of the League of Nations in 1910. The progress made during the year is described in detail in the following paragraphs.

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