

# **NUCLEAR REGULATORY COMMISSION ISSUANCES**

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

**July 1, 1989 - December 31, 1989**

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## PREFACE

This is the thirtieth volume of issuances (1 - 811) of the Nuclear Regulatory Commission and its Atomic Safety and Licensing Appeal Boards, Atomic Safety and Licensing Boards, and Administrative Law Judges. It covers the period from July 1, 1989 to December 31, 1989.

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 Administrative Law Judges appointed pursuant to the Administrative Procedure Act, who preside 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 Judges--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:**

**Kenneth M. Carr, Chairman**  
**Thomas M. Roberts**  
**Kenneth C. Rogers**  
**James R. Curtiss**

**In the Matter of**

**Docket Nos. 50-352-OL-2**

**50-353-OL-2**

**(Severe-Accident-Mitigation  
Design Alternatives)**

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

**July 7, 1989**

In response to Applicant's request that the Commission authorize low- and full-power operation for Limerick Unit 2, the Commission finds that the recent decision by the U.S. Court of Appeals for the Third Circuit ordering the agency to consider certain severe-accident-mitigation design alternatives ("SAMDAs") for mitigating severe accidents does not preclude Commission authorization of a low-power license. The Commission believes that the Licensing Board's earlier full-power authorization and the existing final environmental impact statement adequately support issuance of a low-power license once necessary NRC Staff safety findings pursuant to 10 C.F.R. § 50.57 have been made. The Commission defers ruling upon full-power operation until it conducts its immediate effectiveness review in accordance with 10 C.F.R. § 2.764(f)(2).

**OPERATING LICENSE: LOW-POWER LICENSE (EFFECT OF  
FULL-POWER AUTHORIZATION)**

In the event that full-power authorization is issued by a licensing board prior to any request for low-power authorization, that determination normally will

be effective to support low-power operation if the applicant requests permission from the NRC Staff, without review by the Commission. 10 C.F.R. § 2.764(f)(2). A licensing board's grant of full-power authorization subsumes any need to seek separate licensing board authorization for low-power operation.

## **OPERATING LICENSE: LOW-POWER LICENSE**

A licensing board decision authorizing an operating license for full power can be deemed effective to authorize issuance of a low-power license (one for operational testing at less than 5% of rated power), despite the pendency of a court-ordered licensing board remand, provided that the issue on remand is not relevant to low-power operation.

## **MEMORANDUM AND ORDER**

Pending before the Commission is the motion of applicant Philadelphia Electric Company ("PECO") for clarification of the licensing status of the Limerick Generating Station, Unit 2. In its motion, PECO requests that the Commission authorize the NRC Staff to grant low-power and full-power operating licenses for Limerick Unit 2 pending completion of an ongoing adjudicatory proceeding. That proceeding was convened by the Commission in response to a recent decision by the U.S. Court of Appeals for the Third Circuit ordering the agency to consider, in the context of the National Environmental Policy Act ("NEPA"), certain severe-accident mitigation design alternatives ("SAMDAs") for the Limerick facility.

For the reasons stated herein, we find that licensing authorization can be granted for low-power operation pending completion of a hearing on the impacts of SAMDAs for mitigating severe accidents. Under the circumstances here, the Atomic Safety and Licensing Board's authorization for full-power operation of Limerick Unit 2, LBP-85-25, 22 NRC 101, 116 (1985), and the existing final environmental statement ("FES") for the Limerick facility, NUREG-0974 (April 1984), without further supplementation, adequately support issuance of a low-power license once necessary NRC Staff safety findings have been made. Low-power operation carries with it a much lower risk than full power of the type of severe accident that the SAMDAs being addressed are intended to mitigate. Moreover, a cost/benefit analysis for low-power operation reveals that the benefits far outweigh the minimal environmental costs that may be involved and, in any event, establishes that low-power operation will not foreclose the adoption of any of the SAMDAs at issue. Accordingly, the NRC Staff, upon

making the appropriate findings pursuant to 10 C.F.R. § 50.57, may issue a low-power license.

Finally, because in this instance a determination regarding full-power authorization is one properly to be made in the context of the Commission's immediate effectiveness review for Limerick Unit 2, we defer ruling upon that issue until we conduct that review in accordance with 10 C.F.R. § 2.764(f)(2).

## I. BACKGROUND

Applicant's motion comes in the wake of the decision by the U.S. Court of Appeals for the Third Circuit in *Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719 (3d Cir. 1989) (hereinafter cited as *LEA*). In *LEA*, the Third Circuit held that the agency had erred in dismissing a contention by intervenor Limerick Ecology Action ("LEA") that sought to obtain consideration of SAMDAs for the Limerick Generating Station. The court instead declared that as part of its NEPA responsibilities, the Commission had to give consideration to SAMDAs for the Limerick Generating Station. The court remanded the matter to the agency for further proceedings.<sup>1</sup>

In its motion, PECO asserts that the Commission should declare that authority over the issuance of the operating license for Limerick Unit 2 was not delegated to the Licensing Board as a result of the Commission's May 5, 1989 order remanding the issue of SAMDA consideration. According to PECO, the Third Circuit's decision, by its own terms, had no impact upon the effectiveness of the Licensing Board's initial decision authorizing issuance of an operating license for Limerick Unit 2. Moreover, PECO reads the Commission's May 5 order as a determination that the Licensing Board's authorization for issuance of a full-power license for Unit 2 remains valid. As a result, PECO concludes, the Commission should direct the NRC Staff to issue an operating license once the Staff has made the requisite findings under section 50.57. In addition, the Applicant requests that the Commission grant an exemption from any applicable regulatory requirements in 10 C.F.R. Part 50 and Part 51 that would be necessary to permit operation pending the outcome of the ongoing remand adjudication.

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<sup>1</sup> Although the agency sought rehearing and rehearing en banc of this decision, that request was denied on April 25, 1989. Thereafter, on May 5, 1989, the Commission entered an order that directed the Chairman of the Atomic Safety and Licensing Board Panel to convene a licensing board to conduct further proceedings on the issue of SAMDA consideration, consistent with the court's directive.

In its May 5 order, the Commission indicated that further litigation should be limited to those mitigation alternatives identified by the Atomic Safety and Licensing Appeal Board in ALAB-819, 22 NRC 681, 693-94 (1985), as being supported with the required basis and specificity. LEA thus has the same opportunity to obtain consideration of specific SAMDAs as it would have had if its SAMDA contention had been fully litigated before the Licensing Board when it was submitted. If LEA now wishes to have other SAMDAs considered, it can do so by satisfying the requirements governing late-filed contentions.

Intervenor LEA and the Commonwealth of Pennsylvania ("Commonwealth") oppose PECO's motion. They assert that the effect of the Third Circuit's decision was to nullify the authorization granted by the Licensing Board. Moreover, they assert that the Commission's regulations in Part 51 specifically require that the agency must rectify the inadequacy in its NEPA statement identified by the Third Circuit prior to providing licensing authorization. They also assert that the grant of an exemption from the requirements of Parts 50 and 51 requested by the Applicant would be contrary to law and not in the public interest and thus should be denied.

The NRC Staff has asserted that case law governing the issuance of judicial stays in instances when an agency may be in violation of NEPA's requirements as well as Commission precedent would permit the agency to authorize operation of Limerick Unit 2 while the agency brings itself into compliance with NEPA and the Third Circuit's order. The NRC Staff also suggests that an exemption from several of the agency's NEPA regulations may be necessary prior to authorizing full-power operation of Limerick Unit 2, but that an exemption would be authorized by law and would be in the public interest.

In reviewing the positions of the parties, the Commission notes that they have not made any differentiation between operation at low power (i.e., less than 5% of rated power) and full-power operation. For the reasons stated herein, we have chosen to treat these two modes of operation separately.

## II. LOW-POWER OPERATION

The Commission's rules provide that upon application a low-power license may be authorized by a licensing board and issued by the NRC Staff prior to the completion of the Board's initial decision on full-power authorization (10 C.F.R. § 50.57(c)), and that such low-power authorization becomes effective without any "immediate effectiveness" review by the Commission (10 C.F.R. § 2.764(f)(2)). However, in the event that full-power authorization is issued by a licensing board prior to any request for low-power authorization, that determination normally will be effective to support low-power operation if the applicant requests permission from the NRC Staff, without review by the Commission. *Id.* Essentially, a licensing board's grant of full-power authorization subsumes any need to seek separate licensing board authorization for low-power operation.

In the unusual circumstances of this case, however, the question arises whether the Licensing Board's decision of July 22, 1985, authorizing an operating license for Limerick Unit 2 should be deemed effective to authorize issuance of a low-power license (one for operational testing at less than 5% of rated power) in light of the Third Circuit's action holding that exclusion of

LEA's SAMDA contention was unlawful. For the reasons set forth below, the Commission finds that the existing Licensing Board authorization was and is effective to permit issuance of a low-power license by the NRC Staff once it concludes that all other requirements of section 50.57 have been met.

Neither the Third Circuit, the Commission, nor the Licensing Board has acted (or has received a request to act) to stay or rescind the authorization granted by the Licensing Board for full-power operation of the Limerick facility. Accordingly, as was explained *supra*, it continues to be a valid authorization for low-power operation. And, under the Commission's rules, that authorization as it relates to low-power operation is effective without further Commission action.

Moreover, after careful consideration of the Third Circuit's determination, we have found nothing that leads us to conclude that it compels rescission of the Licensing Board authorization's effectiveness as it relates to low-power operation. As we explain below, the Third Circuit's decision regarding SAMDA consideration in no way impinges upon the validity of the existing FES as it relates to low-power authorization. There thus is no need to intervene to delay the effectiveness of the existing Licensing Board authorization based upon that FES, at least insofar as it authorizes low-power operation.<sup>2</sup>

LEA and the Commonwealth take the position that the court's finding of a NEPA deficiency has invalidated the agency's prior determinations regarding Limerick to the extent that the Licensing Board's initial decision authorizing full-power operation is void and no further action can be undertaken until a NEPA supplement is issued by the NRC Staff and found sufficient by the Licensing Board. Nonetheless, as the NRC Staff points out, the Third Circuit did not take issue with any of the agency's findings on NEPA environmental issues or Atomic Energy Act safety matters save one: its failure to analyze under NEPA the additional matter of the alternative of further mitigation of the consequences of severe accidents through certain facility design changes. Left standing by the court are the NRC Staff's assessments in the final FES that the risks of a severe accident itself are small (NUREG-0974 at 6-3); that operation of the Limerick Generating Station would have a minimal environmental impact for full-power operation (*id.* at 6-4); and that for full-power operation, there was an overall favorable balance of the benefits of the plant versus the environmental costs that could result (*id.*). Thus, the basic NEPA framework supporting Limerick facility operation, including low-power testing, remains in place.<sup>3</sup>

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<sup>2</sup> The Third Circuit's decision with regard to the Graterford prisoners likewise does not affect the authorization for low-power operation since it dealt only with an offsite emergency planning issue, a matter not relevant to low-power operation under the Commission's regulations. 10 C.F.R. Part 50, Appendix E, § I.

<sup>3</sup> Previously we have observed that in the usual case NEPA does not require any separate environmental analysis of a proposal to issue a low-power operating license. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-84-9, 19 NRC 1323, 1326 (1984). As an intermediate step to the full-power license that has very small impacts of its own, low-power operation for NEPA purposes is subsumed in the environmental evaluation for

(Continued)

In the face of an environmental analysis valid in all respects save one, the issue with regard to low power is whether that deficiency is relevant to low-power operation or, stated another way, whether the existing FES will support low-power operation without further supplementation. The answer to this question, in turn, depends on the degree to which severe accidents, and the SAMDAs that are intended to mitigate such accidents, are implicated in low-power operation.

During low-power operation, the already small risk of a severe accident at a boiling water reactor such as the Limerick facility is reduced still more. See 53 Fed. Reg. 36,955 (Sept. 23, 1988); SECY-84-156. Even for those accident sequences that, if unmitigated, could lead to a radioactive release, such as a large-break loss-of-coolant accident, the probability at low power is lower than at full power by a factor of between 1000 and 100,000, depending upon the event involved, and the consequences are significantly less severe. SECY-84-156, Enclosure 1. This is so because operators have more time available to restore safety systems or take corrective action, because the fission product inventory during the period of low-power operation is much less than during full-power operation, and because the required capacity for existing mitigation systems on the facility is much reduced. *Id.*; 53 Fed. Reg. at 36,955, 36,956. Thus, this additional substantial reduction in what is already acknowledged to be a small risk of severe accidents establishes that the court's requirement for SAMDA consideration is, in the context of low-power operation, directed at an insignificant risk. As a consequence, the mandate to consider SAMDAs has no impact upon the validity of the existing NEPA findings in the FES, which fully support low-power operation without further supplementation.

Nonetheless, it might be asserted that if low-power operation would increase the environmental cost of SAMDA implementation to a degree sufficient to outweigh the benefit of going ahead promptly with low-power testing or would otherwise foreclose subsequent SAMDA installation, in the circumstances of the court's remand that might be reason to postpone low-power operation. While it is not apparent that an additional formal cost/benefit analysis is necessary for low-power operation in this regard, the Commission nonetheless finds after analyzing the circumstances here that these effects will not occur.

On one side of the balance are (1) the occupational exposures due to activation of materials in the reactor coolant system and contamination of reactor coolant surfaces and (2) the possible slight increase of risk to the public that in principle could arise from operation at low power without mitigation alternatives for the short period, as little as 3 to 4 weeks, while testing is under way. On the latter point, the parties have presented nothing that suggests that any slightly increased

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full-power operation. *Id.* Essentially, it "presents no environmental impacts different in kind from those considered in an EIS for full power." *Id.* See also *Cuomo v. NRC*, 772 F.2d 972, 975 (D.C. Cir. 1985).

risk to the public over the limited period of time necessary for low-power testing warrants any significant expense to reduce the risk. With respect to the issue of occupational exposure, on the basis of the NRC Staff's analysis presented in its response to PECO's notice, it appears that after full-power operation has begun the refueling outage installation of the SAMDA with the most occupational exposures would result in an incremental exposure of approximately 1352 person-rem.<sup>4</sup> However, in the case of low-power operation, the radioactive contamination and activation of reactor system components during the relatively short duration of operation would result in occupational exposures that would be reduced by at least 75%.<sup>5</sup> This would place the incremental exposure relating to SAMDA installation after low-power operation at approximately 338 person-rem,<sup>6</sup> which is comparable to the occupational exposure incurred as a result of other major work performed during a typical boiling water reactor refueling outage.

On the other side of the balance is the cost of delay of at least 3 to 4 weeks for full-power operation that must be endured if low-power testing has not been started when Limerick Unit 2 is ready for full-power startup. PECO apparently will be ready for full-power operation of Unit 2 within the next 30 to 60 days and the adjudicatory proceeding on SAMDAs is reasonably likely to extend well beyond that time frame. On the basis of PECO estimates contained in its motion and supporting documents (which LEA and the Commonwealth do not seriously dispute), the cost of a 1-month delay in full-power operation while low-power testing is ongoing could be in excess of 40 million dollars.<sup>7</sup>

Added to this is the additional risk of serious delay that may result if low-power testing is not authorized and thereby precludes the early detection and correction of facility problems. In addition to providing facility operators with the opportunity to become familiar with the plant's operating characteristics,

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<sup>4</sup> In its affidavit in support of its response to PECO's motion, the NRC Staff references the installation time estimates for a direct water-cooled bed rubble core retention device, found on page 3-48 of NUREG/CR-4025; the costs of proceeding with installation of that device after full-power operation, found on page 3-49; and a dose rate of 40 millirem per hour found to be typical of the drywell diaphragm floor where much of the work on that core retention device would be performed. For these sources, it appears that approximately 33,792 person-hours would be required for installation, which at 40 millirem per hour results in a total incremental exposure of 1352 person-rem.

<sup>5</sup> In its affidavit in support of its response to PECO's motion, the NRC Staff states that after low-power testing, radioactive dose rates would be expected to be lower. The affidavit also states that after the second refueling outage at Limerick Unit 1, which was over 1 year after the beginning of full-power operation, the drywell diaphragm floor dose rate was about 10 millirem per hour. Given the substantially shorter period of time involved for low-power testing and the corresponding smaller amount of fission or activation products that would be produced, this 10-millirem per hour figure, which is one-quarter of the full-power dose rate adopted by the NRC Staff, represents a conservative upper boundary for dose rates to be expected as a result of low-power operation.

<sup>6</sup> Given the average risk of inducing a fatal malignancy of  $10^{-4}$  per rem (International Committee on Radiation Protection, Pub. 26, ¶ 60), this corresponds to a 0.03 premature cancer death in the work force involved.

<sup>7</sup> This would include almost 12 million dollars in increased fuel costs, approximately 30 million dollars allowance for funds used during construction, and approximately 5 million dollars for operational, security, and maintenance costs.

low-power testing also provides an opportunity to identify problems in equipment that cannot otherwise be tested except through plant operation at some, albeit low, power level. This is particularly important because it can lead to the identification of problems that may take weeks or months to correct before full-power operation would be allowed. In this instance, that could save millions of additional dollars that will be lost if low-power testing, and the opportunity to discover and correct problems, is delayed until the completion of the adjudicatory process.

In summary, whether to postpone low-power testing prior to completing NEPA consideration of SAMDAs primarily involves balancing costs of delay, which can be reasonably estimated to be tens of millions of dollars, against potential occupational exposures on the order of 338 person-rem in the event that a decision is made to install any particular SAMDA after the reactor has been contaminated by low-power operation. This amount of occupational exposure, spread out over a work force of appropriate size to ensure that NRC limits on individual exposure in 10 C.F.R. Part 20 are not exceeded, is comparable to exposures routinely incurred in the operation of power reactors. See Limerick FES, NUREG-0974 at 5-42. This does not mean that such an exposure is automatically acceptable, but where, as here, eliminating it is likely to cause delays costing many millions of dollars, the exposure may reasonably be incurred.<sup>8</sup>

Under these circumstances, the balance favors the prompt issuance of a low-power authorization for Limerick Unit 2.<sup>9</sup> Moreover, it is apparent that the low-power operation of the facility will not foreclose the adoption of any of the design alternatives that reasonably may be considered as part of the agency's remand proceeding. As both PECO and NRC Staff have indicated in their filings, the operation of Limerick Unit 2 would not make physically impossible the implementation of any of the mitigation design alternatives identified by any of the parties for consideration in the remand proceeding. Also, the utility has agreed that for purposes of evaluating any SAMDAs in the remand proceeding, the cost/benefit ratio should be viewed as of the time of initial licensing without regard to any incremental costs that might be associated with the implementation of a SAMDA after operation has begun. Further, based upon the NRC Staff's

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<sup>8</sup> Using as guidance the numerical value of \$1000 per person-rem of averted radiation exposure per NUREG/CR-3568, entitled "A Handbook for Value-Impact Assessment," would indicate that a \$338,000 expenditure would be justified to avoid 338 person-rem of cumulative exposure. A single day of delay in full-power operation of a large nuclear plant like Limerick Unit 2 could cost much more than this.

<sup>9</sup> As we have noted, the impact of incremental occupational exposures is small. Also, while the temporary loss of potential incremental environmental benefits of SAMDAs (incremental decreases in the risk of accidents) cannot in the current state of the art of probabilistic risk assessment be precisely quantified, it is clearly small as well since the entire residual risk of operation even at full power is very small, given the Licensing Board's unchallenged finding that Limerick Unit 2 will provide adequate protection of the public health and safety. Therefore, small differences in either side of the cost/benefit balance for any potential SAMDA would not make any difference in the result.

analysis of the SAMDA with the potential for the most severe implementation occupational exposures, described *supra*, such exposures

seemingly would not skew the NEPA balancing analysis in such a manner as to foreclose any reasonable alternatives.<sup>10</sup> Thus, low-power operation would not act to foreclose any reasonable SAMDA.<sup>11</sup>

Accordingly, because any SAMDA supplementation resulting from the court's remand is not relevant to authorization of low-power operation, which is already supported by the existing FES and the Licensing Board's authorization of an operating license for Limerick Unit 2, and because any cost/benefit analysis of the particulars of Limerick Unit 2 low-power operation favors that licensing action, the Commission by way of clarification concludes that the authorization issued by the Licensing Board remains unaltered and effective with respect to low-power testing. Moreover, no exemption from any regulatory requirement is necessary for low-power operation. Therefore, upon making the necessary findings under 10 C.F.R. § 50.57, the NRC Staff may proceed to issue a license for operation of Limerick Unit 2 at power levels not to exceed 5% of rated power and that no exemption from any regulatory requirement for such low-power authorization is necessary.

### III. FULL-POWER AUTHORIZATION

In its motion, PECO also requests that the Commission authorize the NRC Staff to issue a full-power license for Limerick Unit 2. Previously, the Commission allowed the Licensing Board's authorization for Staff issuance of a full-power license to become effective only for Limerick Unit 1. CLI-85-15, 22 NRC 184 (1985). PECO's request appears to assume that, pursuant to 10 C.F.R. § 2.764, the Commission has completed its immediate effectiveness review of the Licensing Board's determination regarding Limerick Unit 2. This is not the case, however, so that a determination such as PECO requests, which would have the effect of declaring the Licensing Board's full-power authorization "effective," is premature.

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<sup>10</sup> There is the possibility of operational events during low-power operation, such as the leakage of contaminated cooling water into the drywell in amounts in excess of regulatory limits, that could increase somewhat the additional expenses involved in later SAMDA implementation. The Commission concluded that there is an insignificant possibility that these events would increase environmental impacts by an amount great enough to tilt the cost-benefit analysis described above decisively in the opposite direction or to foreclose SAMDA implementation.

<sup>11</sup> Low-power operation generally is considered to encompass four phases: (1) fuel loading and precriticality testing; (2) cold-criticality testing; (3) heatup and testing to 1% of rated power; and (4) testing at 1 to 5% of rated power. In its June 8, 1989 order (unpublished), the Commission indicated that the NRC Staff was permitted to authorize phase 1 operation. In phase 1, there is no radioactive contamination of the reactor core and so no physical foreclosure of any alternative or any environmental cost by way of incremental risk or subsequent occupational exposures. Such operation thus was entirely appropriate under the existing Licensing Board authorization and the FES.

Consistent with long-standing Commission practice, the Commission will not complete its effectiveness review for Limerick Unit 2 until shortly before Unit 2 is ready for full-power operation. It is our current understanding from the NRC Staff that Limerick Unit 2 will not be ready for such an effectiveness review for at least 30 days. Prior to that time, however, the Commission may request that the parties address additional questions relating to the issues raised in PECO's motion in the context of any effectiveness comments they may provide.

It is so ORDERED.

For the Commission<sup>12</sup>

SAMUEL J. CHILK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 7th day of July 1989.

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<sup>12</sup> Commissioner Roberts was not present for affirmation of this Order. If he had been present, he would have approved it.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Lando W. Zech, Jr., Chairman**  
**Thomas M. Roberts**  
**Kenneth M. Carr**  
**Kenneth C. Rogers**  
**James R. Curtiss**

In the Matter of

Docket No. OIA-89-02

OIA INVESTIGATION

April 24, 1989

The Commission denies a request by Mr. Stephen B. Comley to quash a subpoena that requires him to provide the NRC with tape recordings of telephone conversations that are alleged to contain evidence of misconduct of an NRC employee. The Commission reaffirms the subpoena with certain modifications.

**NRC: AUTHORITY TO INVESTIGATE (SUBPOENA)**

Congress authorized the Commission to gather information "to assist it in exercising *any authority* provided in" the AEA and "[f]or such purposes . . . authorized" the Commission to issue any necessary subpoenas. 42 U.S.C. § 2201(c).

**NRC: AUTHORITY TO INVESTIGATE (SUBPOENA)**

The Commission's express authority to "appoint" or hire employees and to make "determination[s] to dismiss" employees is found in the Atomic Energy Act, not the Civil Service Reform Act of 1978. Thus, the Commission's authority to make appropriate personnel decisions is an authority provided in

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\*CLI-89-11 was inadvertently omitted from the April issuance.

the AEA, and the NRC may issue subpoenas to support investigations relative to such decisions.

#### **NRC: AUTHORITY TO INVESTIGATE (SUBPOENA JURISDICTION)**

In circumstances where the evidence developed during an OIA investigation provides sufficient reason for the NRC to inquire further into the possibility that an NRC employee whose role it is to investigate allegations of licensee wrongdoing received information relating to potential violations of NRC regulations and did not pass that information to appropriate NRC officials, one can conclude that the allegations being investigated raise questions involving public health and safety which clearly fall within proper NRC subpoena jurisdiction.

#### **NRC: AUTHORITY TO INVESTIGATE (SUBPOENA ENFORCEMENT)**

In enforcing a subpoena that seeks supposed tape recordings of telephone conversations between an NRC employee and a member of the public which are alleged to contain evidence of misconduct on the part of the NRC employee, the Commission is simply trying to obtain records of conversations that are relevant to a lawful investigation being conducted by the Commission. Nothing in the first amendment immunizes such information from discovery.

#### **NRC: AUTHORITY TO INVESTIGATE (FIRST AMENDMENT RIGHTS)**

The District Court for the District of Columbia expressly acknowledged that the NRC can obtain information necessary to conduct its investigations, even if obtaining that information would burden a first amendment right, if the Commission has demonstrated a "lack of alternative means" to avoid an unnecessary infringement on any first amendment associational rights. *United States v. Garde*, 673 F. Supp. 604, 606-07 (D.D.C. 1987), *appeal dismissed*, 848 F.2d 1307 (D.C. Cir. 1988).

#### **NRC: AUTHORITY TO INVESTIGATE (SUBPOENAS: BURDENSONENESS)**

It is evident that by issuing a subpoena for the tape recordings of conversations between an NRC employee and an aleger, the Commission is pursuing the least burdensome, indeed, the *only* possible means to obtain information

relevant to an investigation of possible misconduct on the part of an NRC employee. The Commission has no other means to retrieve such material, which is relevant and material evidence regarding the questions at issue.

## ORDER\*

### I. INTRODUCTION

This matter is before the Commission on the motion of Mr. Stephen B. Comley to quash a subpoena *duces tecum* issued to him on March 24, 1989, during an internal NRC investigation. Mr. Comley alleges that (1) the NRC does not have statutory authority to issue the subpoena and that (2) the subpoena violates his first amendment rights. We reject both arguments and reaffirm the subpoena as modified herein.

### II. FACTUAL BACKGROUND

In August of 1988, the NRC's Office of Inspector and Auditor ("OIA") received allegations of misconduct involving an employee in the NRC's Office of Investigations ("OI").<sup>1</sup> OIA was the NRC office assigned to investigate allegations of employee misconduct, and the Director of OIA reports directly to the Commission. *See generally* 10 C.F.R. § 1.21 (1988).<sup>2</sup> Subsequently, OIA began an investigation into these allegations. In the late winter of 1988-89, the Commission removed the investigation from OIA and assigned it to a special investigator, Alan S. Rosenthal, an Administrative Judge and former Chairman of the NRC's Atomic Safety and Licensing Appeal Panel.

During the course of this investigation a tape recording of a January 14, 1987 telephone conversation between Mr. Comley and the NRC employee in question was received by the investigators. The recording contains information that at least raises the question of whether the NRC employee (1) provided information of a confidential nature to Mr. Comley and/or (2) received information from Mr. Comley that should have been, but was not, made available to other NRC

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\*This Order has been corrected to supply the phrase "of telephone conversations" inadvertently omitted from the initial order signed April 17, 1989. *See* slip op. at p. 7. In all other respects, this Order is identical to the order signed April 17, 1989.

<sup>1</sup> During the course of this Memorandum Opinion and Order, we will not refer to either the person making the allegations or the NRC employee by name because this investigation is a confidential matter which is still ongoing.

<sup>2</sup> On April 17, 1989, the functions of OIA were transferred to the newly created Office of Inspector General of the NRC. *See* Inspector General Act Amendments of 1988, Pub. L. No. 100-504, 102 Stat. 2515, signed October 18, 1988.

officials. If such actions in fact occurred, they would constitute a potential violation of several NRC regulations and a breach of certain duties of the employee in question under specific NRC Manual Chapters. See, e.g., 10 C.F.R. § 0.735-49a(b), (c), (d), and (f); 10 C.F.R. § 0.735-30(c) and (x) (10 C.F.R. Part 0, Annex A); 10 C.F.R. § 0.735-3(a)(6).

Other information obtained during the course of the investigation indicates that Mr. Comley recorded approximately 40 to 50 telephone conversations between himself and the NRC employee in question. These tape recordings are clearly relevant to ascertaining whether the NRC employee has engaged in the alleged misconduct, malfeasance, or neglect of duty which is the subject of this investigation. Accordingly, the Commission issued a subpoena to Mr. Comley seeking "any and all tape recordings or transcripts of tape recordings in your custody, control, or possession of any telephone conversations between yourself and any employee of the [NRC], including but not limited to" the NRC employee in question. Mr. Comley responded with the motion to quash which now lies before the Commission.

### III. THE COMMISSION'S STATUTORY AUTHORITY TO ISSUE SUBPOENAS

#### A. Subpoenas in Internal Investigations

In his motion to quash the subpoena, Mr. Comley argues that "the Commission has not issued the instant subpoena in connection with any of its powers under the Atomic Energy Act." Motion to Quash at 3. Mr. Comley argues that "[t]he Commission's authority to hire and, ultimately [to] discipline agency employees does not derive from the Atomic Energy Act. Rather, it derives from the Civil Service Reform Act of 1978 . . ." *Id.* at 5. He argues further that "[n]o agency, including the NRC, is given subpoena authority under the provisions of 5 U.S.C. Chapter 75 in the context of administrative disciplinary proceedings." He asserts that subpoena authority in disciplinary cases "is granted only to the Merit System Protection Board — a quasi-judicial federal agency that has jurisdiction to review actions [against certain employees]." *Id.*

Under section 161(c) of the Atomic Energy Act ("AEA"), as amended, the Commission is authorized to

make such studies or investigations, obtain such information, and hold such meetings as the Commission may deem necessary or proper to assist it in exercising *any authority* provided in this Act, or in the administration or enforcement of this Act, or any regulations or orders issued thereunder. For such purposes, the Commission is authorized . . . by subpoena to require any person to appear and testify or appear and produce documents, or both, at any designated place.

42 U.S.C. § 2201(c). In sum, Congress authorized the Commission to gather information “to assist it in exercising *any authority* provided in” the AEA and “[f]or such purposes . . . authorized” the Commission to issue any necessary subpoenas.

Section 161(d) of the AEA provides that the Commission is authorized to “appoint and fix the compensation of such officers and employees as may be necessary to carry out the functions of the Commission.” 42 U.S.C. § 2201(d). Furthermore, section 161(d) requires the Commission to “make adequate provision for administrative review of any determination to dismiss any employee.” *Id.* Thus, the Commission’s express authority to “appoint” or hire employees and to make “determination[s] to dismiss” employees is found in the Atomic Energy Act, not the Civil Service Reform Act of 1978, as argued by Mr. Comley. True, the Commission’s “employees shall be appointed *in accordance with* the civil-service laws . . . .” *Id.* (emphasis added), including the Civil Service Reform Act. *See, e.g.,* 5 U.S.C. § 7541 *et seq.* However, that reference to the generic “civil-service laws” indicates that the appropriate civil service laws that are in effect at the time of appointment or discharge (or by implication some lesser disciplinary action) supply the appropriate standards and procedures for effecting and processing the Commission’s personnel action decisions, not the actual authority to make such decisions in the first place. Thus, the Commission’s authority to make appropriate personnel decisions is an authority provided in the AEA.

In this instance, the agency has received allegations that one of its senior officials is guilty of misconduct. Obviously, the agency cannot make a determination of the truth of the allegations or propose to take any action against the employee in question without making an investigation. Moreover, the employee himself is entitled to a full and fair investigation. Therefore, the agency is obligated to make an investigation to determine whether the allegations have any substance. 42 U.S.C. § 2201(c). When it is necessary for the Commission to conduct an investigation in order to obtain information to make a personnel decision, the Commission is authorized to issue subpoenas under section 161(c).

## B. Subpoenas in Public Health and Safety Investigations

A separate and additional basis under the AEA also supports the Commission’s subpoena. Mr. Comley concedes (as he must) that the Commission clearly has the authority to issue subpoenas in investigations affecting public health and safety. Motion to Quash at 3. As we noted above, the NRC employee is an employee in the NRC’s Office of Investigations (“OI”). This office is responsible for investigating allegations of “wrongdoing” or deliberate violations of NRC regulations by holders of Commission licenses. As such, these investigations frequently have serious implications for public health and safety. If an

OI investigation uncovers information relating to violations of NRC regulations governing the technical aspects of licensee activity, OI must refer those matters to the NRC's technical offices, such as the Office of Nuclear Reactor Regulation ("NRR"). *See, e.g.*, 10 C.F.R. § 1.27(f) (1988).

In this case, the evidence developed during this investigation provides sufficient reason for the NRC to inquire further into the possibility that the NRC employee in question received information relating to potential violations of NRC regulations and did not pass that information to the appropriate officials of NRR. Thus, the allegations being investigated also raise questions involving public health and safety which, as Mr. Comley concedes, clearly fall within proper NRC subpoena jurisdiction.

#### IV. PETITIONER'S FIRST AMENDMENT CONCERN

In the pleading before us, Mr. Comley alleges that enforcement of the subpoena will somehow "chill" his rights of freedom of association under the first amendment to the U.S. Constitution, citing *United States v. Garde*, 673 F. Supp. 604 (D.D.C. 1987), *appeal dismissed*, 848 F.2d 1307 (D.C. Cir. 1988). We reject this argument as a basis for quashing this subpoena. By this subpoena the Commission is simply trying to obtain records of conversations that are relevant to a lawful investigation being conducted by the Commission. Nothing in the first amendment immunizes such information from discovery. If the case were otherwise, no party to any lawsuit or any investigator seeking to learn facts could discover the contents of any conversation.

The first amendment burdens at issue in the *Garde* case are clearly distinguishable from any that might be involved in the present case. The subpoena in *Garde* was directed at records and documents of an attorney employed by an organization whose primary purpose, indeed whose very existence, was asserted to depend upon protecting the confidentiality and identity of individuals who filed complaints regarding safety in the nuclear industry. The allegations in that case suggested that these individuals had requested confidentiality and had spoken to the individual involved solely because of an understanding that their identities would be protected. Here, Mr. Comley has not made similar assertions regarding the organization he calls "We The People" or claimed a dependence on confidentiality and nondisclosure of the identity of persons who have spoken to him. Such assertions would in any case not appear plausible.

As we understand Mr. Comley's argument, he believes that if he is required to surrender his tape recordings, NRC employees will be afraid to communicate with him, reducing the effectiveness of his political activities. Mr. Comley also appears to suggest that the Commission is engaged in a "witch hunt" to discover the names of presently unknown Commission employees who may have been

in contact with him. This is emphatically not the purpose of the subpoena. All the subpoena seeks is information relevant to the ongoing investigation described above. To remove all question about this point, the Commission by this Order hereby modifies and narrows the subpoena to seek only "tape recordings or transcripts of tape recordings of telephone conversations between [Mr. Comley] and" the NRC employee in question. Thus, there can be no concern that compliance with the subpoena will disclose previously unknown identities of persons in contact with Mr. Comley.

Finally, we note that even were some *Garde* first amendment interests implicated by this case, the *Garde* Court expressly acknowledged that the Commission can obtain information necessary to conduct its investigations, even if obtaining that information would burden a first amendment right. As the *Garde* Court explicitly noted, "it is clear that under the appropriate circumstances [the asserted] First Amendment rights would give way to the compelling government interest in nuclear safety" (673 F. Supp. at 606), if the Commission has demonstrated a "lack of alternative means" to avoid an unnecessary infringement on any first amendment associational rights (*id.* at 607).

The *Garde* Court declined to enforce the Commission's subpoena because in the Court's view the Commission had not considered other ways, perhaps less burdensome, to obtain the information it sought. However, in the present case, the information of interest to the Commission is the precise content of certain conversations. It is evident that by issuing a subpoena for the tape recordings of the conversations at issue the Commission is pursuing the least burdensome, indeed, the *only* possible means to obtain this relevant information. Simply put, the Commission has no other means to retrieve this material which is relevant and material evidence regarding the questions at issue.

The motion to quash is denied. The subpoena is modified as set forth herein. The new return date is 1:00 E.D.T., April 24, 1989, at the Office of the U.S. Attorney for the District of Massachusetts.

It is so ORDERED.<sup>3</sup>

For the Commission<sup>4</sup>

**SAMUEL J. CHILK**  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 24th day of April 1989.

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<sup>3</sup>In his Motion to Quash, Mr. Comley "neither confirms or denies that any tape recordings [sic] or transcripts exist at the current time, or ever existed." Motion to Quash at 1 n.1. The Commission has drafted this Order under the assumption that Mr. Comley would not waste our time and effort and the taxpayers' resources unless he possessed material he wished to shield. Otherwise, a simple response that he possessed no such items would have sufficed to conclude this matter.

<sup>4</sup>Commissioner Curtiss was unavailable to participate in this decision.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Lando W. Zech, Jr., Chairman**  
**Thomas M. Roberts**  
**Kenneth M. Carr**  
**Kenneth C. Rogers**  
**James R. Curtiss**

In the Matter of

Docket No. OI-4-89-008

**JOSEPH J. MACKTAL**

**June 22, 1989**

The Commission denies a request by Mr. Joseph J. Macktal for a grant of "confidentiality," for a change in his interview site, and for 30 days prior notice of his interview relative to a subpoena that requires him to provide the NRC with information regarding his alleged safety concerns at Comanche Peak. The Commission finds that Mr. Macktal does not meet the NRC guidelines required for a grant of confidentiality with regard to his name, that the Government's interests would not be served by moving the interview to Washington, D.C., and that the issue with regard to prior notice is moot.

**RULES OF PRACTICE: CONFIDENTIAL INFORMATION  
(PROTECTION FROM DISCLOSURE)**

In order for a grant of confidentiality from the Commission, the criteria in NRC Manual Chapter 0517 must be met.

**RULES OF PRACTICE: CONFIDENTIAL INFORMATION  
(PROTECTION FROM DISCLOSURE)**

The purpose underlying a grant of confidentiality is to preserve the alleger's identity from public disclosure where such disclosure could cause harm to the alleger. The repeated failure of an alleger to demonstrate what harm might

befall him if his name were linked to any specific allegation must result in a denial of confidentiality until such a showing is made.

## **NRC: ENFORCEMENT OF SUBPOENAS**

In reviewing an algeber's request to change his interview site from a location that is close to his residence, close to the plant site that is the subject of his concern, and close to the location of investigative documents and personnel relative to the allegations, the Commission finds it must balance all applicable factors.

## **NRC: ENFORCEMENT OF SUBPOENAS**

In order to prevail on a request for more time to review and prepare his documents prior to an interview in response to an NRC subpoena, an algeber must make a credible showing that time allowed is insufficient.

# **ORDER**

## **I. INTRODUCTION**

This matter is before the Commission on a motion filed by Mr. Joseph J. Macktal styled "Motion for Protective Order" in response to a subpoena issued to him by the NRC's Office of Investigations ("OI"). The motion before us constitutes a "Motion to Quash or Modify" the subpoena. 10 C.F.R. § 2.720(f). After due consideration, we deny the motion for the reasons stated herein.

## **II. FACTUAL BACKGROUND**

### **A. Prior Contacts with Mr. Macktal**

The NRC Staff had its first dealings with Mr. Macktal in January 1986. At that time, Region IV opened an allegation file in response to a newspaper article about certain of Mr. Macktal's alleged concerns regarding construction deficiencies at the Comanche Peak nuclear power plant. *See Fort Worth Star Telegram* (Jan. 23, 1986). After negotiations between his counsel and NRC Staff, Mr. Macktal presented his concerns both to OI (Mar. 5, 1986) and to the Region IV staff (Mar. 11, 1986). On each occasion, Mr. Macktal signed an agreement conferring upon him a limited form of "confidentiality" in regard to the nature of his concerns. At no time did Mr. Macktal seek confidentiality with

regard to his identity. *See Texas Utilities Electric Co.* (Comanche Peak Steam Electric Station, Units 1 and 2), CLI-89-6, 29 NRC 348, 355 n.7 (1989). The NRC later revoked Mr. Macktal's confidentiality because he no longer met the criteria set forth in NRC Manual Chapter 0517. *See Letter from Victor Stello, Jr., to Michael D. Kohn, Esq.* (Jan. 23, 1989).

The NRC issued an inspection report covering the technical aspects of Mr. Macktal's allegations on December 22, 1986. *See Inspection Report 50-445/86-15; 50-446/86-12.* This report is a public document, and the NRC provided copies of it to the attorneys who represented Mr. Macktal at that time. Later, on August 12, 1987, the NRC's Office of Special Projects, which had been established to oversee construction at Comanche Peak, attempted to provide Mr. Macktal himself with a copy of the inspection report and to obtain his comments on the NRC's resolution of his concerns. The August 12th letter was returned on August 24, 1987, stamped "Not deliverable — Not at address — no forwarding address." The NRC did not have any other contact with Mr. Macktal until the matter now before us arose.

## B. Mr. Macktal's Current Concerns

The matter now before the Commission first arose in the fall of 1988 when the Citizens for Fair Utility Regulation ("CFUR") filed a petition for late intervention in the NRC's administrative hearings involving the Comanche Peak nuclear power plant, located near Glen Rose, Texas. Ultimately, the Commission denied the petition. *See Texas Utilities Electric Co.* (Comanche Peak Steam Electric Station, Units 1 and 2), CLI-88-12, 28 NRC 605 (1988).

In the course of those proceedings, CFUR submitted an affidavit executed by Mr. Macktal which alleged certain deficiencies and safety concerns at the Comanche Peak facility. *See Affidavit of Joseph J. Macktal* (Aug. 31, 1988), attached to "CFUR's First Supplement to Its August 11, 1988 Request for Hearing and Petition for Leave to Intervene" (Sept. 12, 1988). Because Mr. Macktal was still covered by the "confidentiality" agreements signed in March 1986, the NRC took pains not to identify him during its decision on the petition. *See, e.g., CLI-88-12, supra*, 28 NRC at 612 n.8 (identified only as "the specific individual" or "the individual involved").

As we noted above, Mr. Macktal had also filed an action with the Department of Labor ("DOL") against his former employer, the Brown & Root Corporation, under section 210 of the Energy Reorganization Act, alleging that he had been wrongfully terminated from his position as an electrician in the construction force at Comanche Peak because of his actions in voicing safety concerns. Subsequently, Mr. Macktal entered into a settlement agreement with Brown & Root, terminating that litigation. He has since repudiated that settlement

agreement and attempted to reinstate the DOL proceeding, a matter addressed at length in both CLI-88-12 and CLI-89-6.

In pleadings filed with the Secretary of Labor and provided to the Commission during the proceedings that culminated in CLI-89-6, Mr. Macktal stated that he had withheld information regarding certain safety issues from the NRC Staff during the interviews conducted during March of 1986. Additionally, he alleged that he had been offered what might be termed a "bribe" to withdraw his section 210 action against his former employer and not to provide testimony to the NRC's Licensing Board or to the Citizens Association for Sound Energy ("CASE"), the intervenor in the *Comanche Peak* proceedings. *See generally* Second Affidavit of Joseph J. Macktal (Dec. 27, 1988). *See also* Affidavit of Joseph J. Macktal (Aug. 31, 1988), *supra*. Mr. Macktal also testified about his alleged safety concerns and the alleged "bribes" during a recent congressional hearing. *See Transcript of Hearings before the Committee on Environment and Public Works, Subcommittee on Nuclear Regulation*, at 91-106 (May 4, 1989). Furthermore, Mr. Macktal has discussed his concerns with various news organizations. *See, e.g., Fort Worth Star Telegram* (Sept. 13, 1988); *Dallas Times Herald* (Sept. 13, 1988); *Dallas Morning News* (Sept. 13, 1988); *Fort Worth Star Telegram* (Sept. 14, 1988).

### C. The Subpoena Issued to Mr. Macktal

In CLI-89-6 the Commission specifically invited Mr. Macktal to detail his alleged concerns. *See CLI-89-6, supra*, 29 NRC at 355. Subsequently, both OI and the Comanche Peak Project Division of the Office of Nuclear Reactor Regulation ("NRR/CPPD," the successor to the Office of Special Projects) requested Mr. Macktal to provide them with information that he claimed to possess regarding (1) his allegations concerning safety concerns at Comanche Peak and (2) one of the specific allegations of "bribery."

Both offices attempted to arrange an interview date that was convenient for both Mr. Macktal, who resides in Texas, and his counsel, who reside in Washington, D.C. Altogether, counting both letters and telephone calls, the OI and NRR/CPPD offices have made over ten separate requests to either Mr. Macktal or his attorneys between March 1, 1989, and the present time in an attempt to schedule an interview. These requests included attempts to arrange an interview with Mr. Macktal during his trip to Washington, D.C., to testify before a congressional subcommittee investigating issues at Comanche Peak. Mr. Macktal has rebuffed all advances and has repeatedly refused to be interviewed by representatives of either office absent the conditions he seeks to impose by this motion.

Accordingly, OI issued Mr. Macktal a subpoena which was signed on June 2, 1989, and served upon Mr. Macktal on June 5, 1989. The subpoena directed

Mr. Macktal to appear at the NRC's Region IV OI Office in Arlington, Texas, on June 15, 1989, to testify on the matters contained in his allegations and to bring any relevant documents. Mr. Macktal indicated at the time of service that he did not plan to comply with the subpoena. Subsequently, on June 13, 1989, Mr. Macktal filed the motion that is the subject of this Order.<sup>1</sup>

### III. THE MOTION FOR PROTECTIVE ORDER

The Motion for Protective Order does not challenge the subpoena on jurisdictional grounds. Instead, Mr. Macktal essentially argues that the subpoena is "burdensome" because (1) it does not give him adequate time to review and prepare his documents and (2) it requires him to appear in the NRC's Region IV OI Office, burdening him with the expenses for his attorney's travel to Texas and lodging for the time necessary to prepare for and complete the interview.<sup>2</sup> Mr. Macktal also objects to the subpoena on the grounds that it does not guarantee him "confidentiality."

In his motion, Mr. Macktal seeks relief on each count. First, he seeks an NRC guarantee of "confidentiality"; second, he seeks to have the deposition in Washington, D.C.; and third, he seeks 30 days prior notice of the interview. We deal with each of those requests in turn.

### IV. ANALYSIS

Mr. Macktal clearly does not meet the guidelines required for a grant of confidentiality as that term is normally defined, i.e., confidentiality with regard to his name. Although Mr. Macktal has not disclosed the substance of his new safety allegations, he has, as discussed above, publicly stated that he has safety concerns which he has not previously disclosed. In view of this, a

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<sup>1</sup> On June 20, 1989, the Commission received a letter dated June 16, 1989, from Mr. Macktal's counsel seeking additional time "to respond to any request filed for enforcement of said subpoena." Letter of June 16 at 1. The letter contained additional arguments in support of the motion now before us. The letter also requests leave to present oral argument to the Commission on these issues.

Any arguments in support of the Motion for Protective Order should have been submitted with that motion. However, in order to avoid any prejudice to Mr. Macktal we have reviewed the letter of June 16 as if it were a Memorandum in Support of the Motion for Protective Order.

Second, oral argument before the Commission is discretionary. 10 C.F.R. § 2.763. We find nothing in the pleadings before us to indicate how it would assist us in reaching a decision. Therefore, we also deny the motion for oral argument.

"Enforcement" of the subpoena does not take place before the Commission. Instead, if Mr. Macktal refuses to comply with the subpoena as modified herein, the Office of the General Counsel will ask the Department of Justice to seek enforcement of the subpoena in the appropriate U.S. District Court. 10 C.F.R. § 2.720(g).

<sup>2</sup> The Staff and OI estimate that the interview should be completed in less than 1 full day.

grant of confidentiality with regard to the identity of Mr. Macktal would not be appropriate.

Instead, Mr. Macktal apparently is requesting "confidentiality" regarding the nature of his allegations, i.e., that the NRC "disguise" his allegations so that in subsequent investigations or inspections, other persons or entities such as the licensee, Texas Utilities, will not know if the items being investigated or inspected are the result of Mr. Macktal's allegations.

To this point, Mr. Macktal has failed to demonstrate that he meets the criteria for granting confidentiality set forth in NRC Manual Chapter 0517. The purpose underlying a grant of confidentiality is to preserve the algeber's identity from public disclosure where such disclosure could cause harm to the algeber. Mr. Macktal has repeatedly failed to demonstrate what harm might befall him if his name were linked to any specific new allegation that he may bring before the Staff at this time — in spite of numerous requests by the NRC Staff to provide such an explanation. *See, e.g.*, Letter from P. McKee, NRR/CPPD, to Michael D. Kohn, Esq. (May 12, 1989). Absent some effort by Mr. Macktal to provide the NRC Staff with some reason why the NRC should grant him "confidential" status, i.e., evidence of some harm that could result to Mr. Macktal because of the disclosure of the nature of the new information he provides to the NRC, we see no reason to accede to his request. In view of Mr. Macktal's numerous public statements regarding the nature of his previous alleged safety violations at Comanche Peak, we fail to see any "harm" that Mr. Macktal might suffer if the nature of his alleged additional concerns is made public.<sup>3</sup>

Finally, the NRC has not entirely closed the door on the question of confidentiality. During recent conversations, OI representatives informed Mr. Macktal that the issue of confidentiality would be reviewed upon completion of the interview and that if Mr. Macktal could demonstrate that he met the applicable criteria, the NRC would reconsider its position. Mr. Macktal rejected this offer. In any event, both OI and the NRR/CPPD will evaluate the nature of the allegations upon completion of the interview and determine whether a basis for a grant of confidentiality exists under the applicable NRC criteria.

Second, the subpoena reasonably seeks Mr. Macktal's presence in Arlington, Texas. Arlington is less than 2 hours drive from Mr. Macktal's residence. The Region IV office is the location of the OI investigators who are assigned to this case. Naturally, this is also the location of any investigative documents compiled by OI. Furthermore, the subject of Mr. Macktal's technical concerns is a nuclear power plant also located less than 2 hours from the Region IV

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<sup>3</sup>For example, during the process of revoking the previous grant of confidentiality, the NRC Staff repeatedly requested Mr. Macktal to provide them with some reason why that status should be retained under Manual Chapter 0517. Mr. Macktal never addressed those criteria. *See* Letters from Victor Stello, Jr., to Michael D. Kohn, Esq. (Oct. 3, 1988; Oct. 31, 1988; and Jan. 23, 1989). *See also* Letter from William H. Briggs, Jr., Esq., to Michael D. Kohn, Esq. (Feb. 10, 1989).

Office. The NRC technical staff at the plant would be readily available for consultation if the necessity arose, and similarly documents and records at the plant would also be readily available. Additionally, the NRC could arrange for Mr. Macktal to point out his concerns during a tour of the plant, if necessary. Moving this interview to Washington, D.C., would require transporting those individuals and documents to Washington, at no small expense. Moreover, it would eliminate the ready access to the plant and its personnel. On balance, we find that the Government's interests would not be served by such action.

Mr. Macktal's main concern appears to be the travel expenses of his attorney if the interview is held in Texas. While Mr. Macktal may have counsel present at the interview, should he so choose, there is no duty on the part of the agency to provide him with counsel of his choice or to incur an additional burden or expense to facilitate Mr. Macktal's access to any particular counsel of his choice. Mr. Macktal has not pointed to any reason why he cannot obtain local counsel in Arlington.

Finally, as we noted earlier, the NRC requested an interview with Mr. Macktal when he was in Washington (with his counsel) for the congressional hearings on May 4, 1989. Mr. Macktal declined to meet with the NRC Staff at that time and made no apparent effort to take advantage of the situation to conduct the interviews at that time. Therefore, we find his protests on this occasion without merit.

Third, Mr. Macktal requests thirty (30) days notice of the proposed interview based only upon the blanket assertion that he "and his counsel need a reasonable period of time to review said documents and make a determination as to whether said documents are privileged." Motion for Protective Order at 2. We find this argument completely unpersuasive. Mr. Macktal has known for several months that the NRC sought information from him. Thus, any claim that he has not had sufficient time to review and prepare his documents is completely lacking in credibility. However, in view of our resolution of this issue, we find that it may be moot. Discussions between NRC counsel and Mr. Macktal's counsel have indicated that the first available date for an interview is July 6, 1989, a date that we have incorporated into the modified subpoena. Mr. Macktal received his subpoena on June 5th. Accordingly, Mr. Macktal will in fact have had 30 days notice by the revised return date of the subpoena.

## V. CONCLUSION

Based upon the above analysis, we hereby deny the relief sought by Mr. Macktal. Because negotiations have at least identified a date upon which both Mr. Macktal and his counsel are available, we hereby modify the subpoena to be returned on July 6, 1989, at 9:00 a.m., C.D.T., at the NRC Region IV OI Office,

611 Ryan Plaza Drive, Suite 1000, Arlington, Texas. Upon completion of the interview, OI and the NRR/CPPD staff will separately review the substance of the interview in their respective areas of concern and consider Mr. Macktal's request for confidentiality under the relevant criteria of NRC Manual Chapter 0517.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 22d day of June 1989.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Kenneth M. Carr, Chairman**  
**Thomas M. Roberts**  
**Kenneth C. Rogers**  
**James R. Curtiss**

In the Matter of

Docket No. OI-4-89-008

JOSEPH J. MACKTAL

July 5, 1989

The Commission denies Mr. Joseph J. Macktal's request for reconsideration of, and oral argument on, a Commission decision that denied his request for a protective order regarding an NRC subpoena.

**RULES OF PRACTICE: RECONSIDERATION PETITIONS**

The filing of a motion for reconsideration of a final Commission decision does not stay the effectiveness of that decision. 10 C.F.R. § 2.771(c).

**ORDER**

This matter is before the Commission on a motion by Mr. Joseph J. Macktal, through counsel, for reconsideration of the Commission's order of June 22, 1989 (CLI-89-12, 30 NRC 19 (1989)), which denied Mr. Macktal's request for a protective order regarding an NRC subpoena issued to him. The motion also requests oral argument on this matter before the Commission.

The order of June 22, 1989, modified the original subpoena to the extent that Mr. Macktal's time for compliance with the subpoena, originally June 15, 1989, was extended to July 6, 1989. The Office of the General Counsel has notified Mr. Macktal's counsel that the filing of the motion for reconsideration does not stay the operation of the Commission's June 22, 1989 order. 10

C.F.R. § 2.771(c). Pursuant to 10 C.F.R. § 2.772, the motion having been circulated to the Commission, and no majority having voted for reconsideration, the motion for reconsideration and oral argument is denied. The subpoena remains in effect as stated in the Commission's order of June 22, 1989.

For the Commission

**SAMUEL J. CHILK**  
Secretary to the Commission

Dated at Rockville, Maryland,  
this 5th day of July 1989.

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. 50-271-OLA  
(Spent Fuel Pool  
Amendment)

**VERMONT YANKEE NUCLEAR  
POWER CORPORATION**  
(Vermont Yankee Nuclear Power  
Station)

July 26, 1989

The Appeal Board reverses a Licensing Board decision (which was before it on referral) admitting environmental contentions premised on a severe accident scenario, and certifies its own ruling to the Commission.

**NEPA: REMOTE AND SPECULATIVE EVENTS**

The National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. § 4321, does not require agencies to consider remote and speculative events. *See, e.g., San Luis Obispo Mothers for Peace v. NRC*, 751 F.2d 1287, 1301 (D.C. Cir. 1984), *aff'd en banc*, 789 F.2d 26, *cert. denied*, 479 U.S. 923 (1986) [hereinafter cited as "San Luis Obispo"].

## **RULES OF PRACTICE: REFERRAL OF RULING TO APPEAL BOARD**

Under 10 C.F.R. § 2.730(f), a licensing board may refer a ruling to an appeal board for interlocutory review “to prevent detriment to the public interest or unusual delay or expense.”

## **RULES OF PRACTICE: REFERRAL OF RULING**

An appeal board will accept a ruling referred by a licensing board where the overall circumstances show that it is in the public interest to render a definitive ruling on the matter at issue before the completion of the proceeding. *Compare Tennessee Valley Authority* (Phipps Bend Nuclear Plant, Units 1 and 2), ALAB-506, 8 NRC 533 (1978) (appeal board affirms NEPA ruling on referral by licensing board, which in the interim completed the proceeding before it). An appeal board will also certify its own rulings to the Commission in such circumstances. See 10 C.F.R. § 2.785(d).

## **RULES OF PRACTICE: COMMISSION REVIEW OF APPEAL BOARD DECISIONS**

Under 10 C.F.R. § 2.786(b)(1), no petition for Commission review of an appeal board decision on a section 2.730(f) referral is permitted.

## **RULES OF PRACTICE: CONTENTIONS (UNTIMELY FILING)**

Boards must balance the five factors in 10 C.F.R. § 2.714(a)(1) in determining whether to admit a late-filed contention. See 10 C.F.R. § 2.714(b).

## **RULES OF PRACTICE: CONTENTIONS (UNTIMELY FILING)**

The Commission’s Rules of Practice are clear that “any contention filed ‘later than fifteen (15) days prior to the holding of the special prehearing conference . . . or where no special prehearing conference is held, fifteen (15) days prior to the holding of the first prehearing conference’ is nontimely and can be admitted only upon a balancing of the five lateness factors.” *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-918, 29 NRC 473, 480 (1989) (citing 10 C.F.R. § 2.714(b); emphasis in original). See also *id.* (citing *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041, 1046-47 (1983)).

## **RULES OF PRACTICE: ADMISSIBILITY OF CONTENTIONS**

The third criterion of 10 C.F.R. § 2.714(a)(1) — the extent to which a petitioner's participation may reasonably be expected to assist in developing a sound record — requires petitioners to "set out with as much particularity as possible the precise issues [they plan] to cover, identify [their] 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), and cases cited. This burden is clearly not satisfied where a petitioner has failed even to address the third factor.

## **RULES OF PRACTICE: ADMISSIBILITY OF CONTENTIONS**

A bare assertion of the past effectiveness of a party's participation on other issues in a proceeding, unsupported by specific information from which a board can draw an informed inference that the party can and will make a valuable contribution on another contention, is not sufficient to satisfy the third criterion of 10 C.F.R. § 2.714(a)(1). See *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-813, 22 NRC 59, 85 (1985) (citing *Washington Public Power Supply System* (WPPSS Nuclear Project No. 3), ALAB-747, 18 NRC 1167, 1181 (1983)).

## **RULES OF PRACTICE: CONTENTIONS (AMENDMENT)**

Parties are not free to modify their contentions during an NRC adjudication without cause and observance of the Commission's Rules of Practice.

## **NEPA: ENVIRONMENTAL IMPACT STATEMENT (SPENT FUEL POOL)**

An environmental impact statement (EIS) is not automatically required under the Commission's regulations for an operating license amendment permitting the expansion by reracking of a spent fuel pool. 10 C.F.R. § 51.20. Instead, either an environmental assessment (see 10 C.F.R. § 51.14(a)) is required, or the action is a "categorical exclusion" for which no environmental document is required. See 10 C.F.R. § 51.21, 51.22(c)(9).

## **NEPA: ENVIRONMENTAL IMPACT STATEMENT (SPENT FUEL POOL)**

The Commission has stressed that the staff should consider on a case-by-case basis the matter of whether a particular spent fuel pool reracking amendment

warrants an EIS. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-86-12, 24 NRC 1, 12, *rev'd on other grounds sub nom. San Luis Obispo Mothers for Peace v. NRC*, 799 F.2d 1268 (9th Cir. 1986).

#### **RULES OF PRACTICE: ADMISSIBILITY OF CONTENTIONS**

The Commission's Rules of Practice require that contentions have "bases" and that such bases be "set forth with reasonable specificity." 10 C.F.R. § 2.714(b).

#### **RULES OF PRACTICE: CONTENTIONS (ADMISSIBILITY)**

When a postulated accident scenario provides the premise for a contention, a causative mechanism for the accident must be described and some credible basis for it must be provided. *See, e.g., Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), CLI-80-16, 11 NRC 674, 675 (1980); *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-765, 19 NRC 645, 653-54 (1984), *petition for review denied sub nom. Anthony v. NRC*, 770 F.2d 1066 (3d Cir. 1985) (table).

#### **NEPA: RULE OF REASON**

If a contention claims that an EIS is necessary or inadequate in some respect, the "rule of reason" by which NEPA is to be interpreted provides that agencies need not consider "remote and speculative risks" or "events whose probabilities they believe to be inconsequentially small." *Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719, 739 (3d Cir. 1989) [hereinafter cited as "LEA"]; *San Luis Obispo*, 751 F.2d at 1300.

#### **NEPA: WORST CASE ANALYSIS**

Neither NEPA, the case law based thereon, nor regulations of the Council on Environmental Quality (CEQ) require a "worst case analysis." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 333-34 (1989).

#### **NEPA: CEQ REGULATIONS**

The Commission has declined to adopt substantive CEQ regulations (*see* 49 Fed. Reg. 9352, 9356 (1984)), and at least one court has acknowledged the Commission's right to do so. LEA, 869 F.2d at 743. The Supreme Court has left open the issue whether CEQ regulations are binding on independent

agencies like the NRC. *Baltimore Gas and Electric Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87, 99 n.12 (1983).

#### **RULES OF PRACTICE: CONTENTIONS (SPECIFICITY AND BASIS)**

Whether the reference to a particular document or part thereof is sufficiently specific to allow a board and the parties to retrieve it is one thing. See, e.g., *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-804, 21 NRC 587, 592 & n.6 (1985). But whether a document on its face appears to provide a basis for the point for which it is cited and raises a justiciable issue is quite another.

#### **RULES OF PRACTICE: CONTENTIONS (ADMISSIBILITY)**

Boards should not make a judgment as to what weight should be given to a document on which a contention is based, as though it were a piece of evidence, but rather should take it (unless obviously specious) at the face value its proponent urges. To do the former would be tantamount to a "merits" determination prohibited by *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542, 547-49 (1980).

#### **RULES OF PRACTICE: CONTENTIONS (SPECIFICITY AND BASIS)**

Boards must do more than uncritically accept a party's mere assertion that a particular document supplies the basis for its contention, without even reviewing the document itself to determine if it in fact says what the party claims it says and if it appears to support a litigable contention.

#### **RULES OF PRACTICE: CONTENTIONS (SPECIFICITY AND BASIS)**

The purpose of the bases and specificity requirements is "to help assure at the pleading stage that the hearing process is not improperly invoked." *Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 AEC 13, 20, modified on other grounds, CLI-74-32, 8 AEC 217 (1974).

## **RULES OF PRACTICE: CONTENTIONS (SPECIFICITY AND BASIS)**

Licensing boards are expected to undertake a thoughtful, albeit non-merits, review of any document, information, theory, postulated accident scenario, etc., that is claimed to provide the basis for a contention. *See, e.g., Limerick, ALAB-804, 21 NRC at 593-94* (because cited environmental document "does not support the point for which it is urged," contention thus lacks a "cognizable basis").

## **RULES OF PRACTICE: CONTENTIONS (SPECIFICITY AND BASIS)**

The review of a document that assertedly supplies the basis for a contention may include consideration of the fact that the underpinnings of that document have been subsequently repudiated by the document's own source. *See Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-89-3, 29 NRC 234, 241 (1989) (citing *Georgia Power Co.* (Vogtle Electric Generating Plant, Units 1 and 2), ALAB-872, 26 NRC 127, 136 (1987)).

## **NEPA: RULE OF REASON**

When the very documents on which a contention is based conclude that the events underlying the contention are of very low probability, NEPA's rule of reason allows rejection of the contention at the threshold. *See LEA*, 869 F.2d at 741-44.

## **TECHNICAL ISSUES DISCUSSED:**

- Spent fuel pool reracking
- Zircaloy cladding fire
- Severe accidents
- Mark I containment
- Hydrogen control
- General Design Criterion 61.

## **APPEARANCES**

**R.K. Gad, III, Boston, Massachusetts** (with whom John A. Ritsher, Boston, Massachusetts, was on the brief), for applicant Vermont Yankee Nuclear Power Corporation.

**Anne Spielberg, Washington, D.C. (with whom Andrea Ferster, Washington, D.C., was on the brief), for intervenor New England Coalition on Nuclear Pollution.**

**Ann P. Hodgdon for the Nuclear Regulatory Commission staff.**

## **DECISION**

Before us for the third time, albeit in various forms, is an environmental contention proffered by intervenor New England Coalition on Nuclear Pollution (NECNP) and the Commonwealth of Massachusetts in this operating license amendment proceeding. The license amendment sought by applicant Vermont Yankee Nuclear Power Corporation would permit the expansion of the capacity of the Vermont Yankee spent fuel pool by reracking.<sup>1</sup> The contention here at issue claims that an environmental impact statement (EIS) is required to consider the risk of a severe reactor accident that assertedly could lead to a self-sustaining zircaloy cladding fire.<sup>2</sup> For the third time, we conclude that the contention is not admissible.

### **I. BACKGROUND**

The Vermont Yankee facility is a boiling water reactor (BWR) with a Mark I containment. The spent fuel pool is located within the reactor building but outside the reactor's primary containment. In early 1987, NECNP proffered a contention that sought consideration in an EIS of the risks associated with a spent fuel pool accident that would somehow be initiated by a severe *reactor* accident involving hydrogen generation and detonation. No mention was made of a zircaloy cladding fire. The Licensing Board combined NECNP's contention with a similar one submitted by the Commonwealth of Massachusetts and, after redrafting it, admitted it for litigation as Contention 2. LBP-87-17, 25 NRC 838, 851-55, 864 (1987).

Applicant appealed the admission of this contention (as well as two others), pursuant to 10 C.F.R. § 2.714a(c). We reversed. Accepting the Licensing Board's characterization of the contention's accident scenario as a "beyond design-basis" event — a characterization then-unchallenged by NECNP — we

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<sup>1</sup> Under this procedure, new fuel racks that allow for closer placement of spent fuel assemblies will be installed in place of existing racks. This will increase the capacity of the pool from 2000 to 2870 assemblies. See Letter from V.L. Rooney to R.W. Capetick (July 25, 1988), Enclosure (Environmental Assessment) [hereinafter cited as "EA"] at 1.

<sup>2</sup> The spent fuel rods of the assemblies stored in the pool are sheathed, or clad, in zircaloy.

noted that such accidents are, by definition, highly improbable. We went on to point out that courts applying the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. § 4321, have held that NEPA does not require agencies to consider such remote and speculative events. *See, e.g., San Luis Obispo Mothers for Peace v. NRC*, 751 F.2d 1287, 1301 (D.C. Cir. 1984), *aff'd en banc*, 789 F.2d 26, *cert. denied*, 479 U.S. 923 (1986) [hereinafter cited as "San Luis Obispo"]. We therefore rejected the contention. ALAB-869, 26 NRC 13, 27-31 (1987). NECNP and the Commonwealth sought reconsideration, raising several new arguments. Among them was the hypothesis that a beyond design-basis reactor accident was not necessarily a precondition for a spent fuel pool accident involving a self-sustaining fire. After thoroughly airing these views, we reaffirmed our earlier rejection of the contention. ALAB-876, 26 NRC 277, 281-85 (1987). The Commission ultimately declined review of both ALAB-869 and ALAB-876. At the time of these earlier decisions, the NRC staff had not yet issued any environmental document in connection with the applicant's license amendment application. On July 25, 1988, however, it issued an Environmental Assessment (EA), concluding that the proposed amendment and pool reracking will not have a significant effect on the quality of the human environment so as to require an EIS. The EA briefly addressed beyond design-basis events, including a zircaloy cladding fire due to overheating following pool failure and loss of spent fuel pool cooling. The staff concluded that, although the environmental impacts of such an accident could be significant, it is not considered to be reasonably foreseeable in light of the pool design and structure. EA, *supra* note 1, at 11.

A few weeks later, NECNP and the Commonwealth proffered three new, "late-filed" environmental contentions, assertedly prompted by the staff's EA. As pertinent here, Environmental Contention 1 claims that the EA is inadequate because it "fails to consider the consequences and risks . . . of a hypothesized accident which would be greater than those previously evaluated in connection with the Vermont Yankee reactor." The accident is described as a "self-sustaining fuel cladding fire in a spent fuel pool with high density racking . . . caused by [a reactor] accident which involves substantial fuel damage without full core melt, if hydrogen leaks to the reactor building." The contention states that NEPA requires an EIS to address the environmental impacts of the risks posed by such an accident and cites two NRC documents as the bases for its claim — NUREG/CR-4982, "Severe Accidents in Spent Fuel Pools in Support of Generic Safety Issue 82" (July 1987) [prepared for the NRC by the Brookhaven National Laboratory and hereinafter cited as the "BNL Report"], and NUREG-1150, "Reactor Risk Reference Document" (February 1987 Draft) [hereinafter cited as "NUREG-1150"]. Joint Motion of NECNP and the Commonwealth of Massachusetts for Leave to File Late-Filed Contentions (August 15, 1988) [hereinafter cited as "Late Contention Motion"] at 1-3.

Although it did not "parse" the contention or discuss the documents assertedly providing the bases for the contention, the Licensing Board determined that the accident that is the focus of Environmental Contention 1 is "essentially similar" to that in the previously considered Contention 2, which had been rejected in ALAB-869 and ALAB-876. Under the law of the case doctrine, the Board thus rejected the new contention. LBP-88-26, 28 NRC 440, 445 (1988). The Board Chairman, however, issued a separate statement, recognizing the binding effect of, but disagreeing with, ALAB-869 and ALAB-876. His principal belief was that the Commission's "Policy Statement on Severe Reactor Accidents Regarding Future Designs and Existing Plants," 50 Fed. Reg. 32,138 (1985) [hereinafter cited as "Severe Accident Policy Statement"], "permits examination of the *risk* of 'beyond-design-basis accidents,'" and that we had misunderstood the Licensing Board's original reasoning in this regard. LBP-88-26, 28 NRC at 453 (emphasis in original).

Several months later, NECP and the Commonwealth sought reconsideration from the Licensing Board of its decision in LBP-88-26. The basis for their request was the November 30, 1988, decision of the U.S. Court of Appeals for the Ninth Circuit in *Sierra Club v. NRC*, 862 F.2d 222, *as amended* (1989). The *Sierra Club* decision reversed our rejection of a contention, based on a draft of the BNL Report, that sought the preparation of an EIS to consider the impacts of a zircaloy cladding fire. See *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-880, 26 NRC 449, 454-62 (1987). The Ninth Circuit concluded that we had erred in finding that the contention did not meet the Commission's requirements in 10 C.F.R. § 2.714(b) that the "bases for each contention [be] set forth with reasonable specificity." 862 F.2d at 227-28. NECP and the Commonwealth also took the opportunity in seeking reconsideration to elaborate on their earlier contention and to cite another NRC document on which NECP had previously relied in its 1987 version of the contention — NUREG/CR-4624, "Radionuclide Release Calculations for Selected Severe Accident Scenarios" (July 1986) [hereinafter cited as "NUREG/CR-4624"]. See Joint Motion of NECP and the Commonwealth of Massachusetts for Reconsideration (December 30, 1988) [hereinafter cited as "Joint Motion for Reconsideration"].

The Licensing Board granted reconsideration of its earlier ruling in LBP-88-26 rejecting Environmental Contention 1. In its view, the Ninth Circuit's *Sierra Club* decision "seriously undercuts the rationale of the Appeal Board in ALAB-869 and ALAB-876." LBP-89-6, 29 NRC 127, 132 (1989). The Board noted that the *Diablo Canyon* decision reversed by the Ninth Circuit "had relied in substantial part on ALAB-869 and ALAB-876." *Ibid.* It also reiterated the separate view expressed earlier by the Licensing Board Chairman that its initial acceptance of the contention in 1987 was based on its reading of the Commission's Severe Accident Policy Statement. *Id.* at 133-34. The

Licensing Board, however, once again did not analyze the contention or discuss its bases; it simply concluded that it "appear[s] to be 'substantially identical' to that dealt with by the Ninth Circuit" and is "more deserving of admission" because it was "timely filed" and "is more specific." *Id.* at 132. The Board thus admitted Environmental Contention 1.<sup>3</sup> Noting that it was "still technically bound by ALAB-869 and ALAB-876," however, it stayed the effect of its ruling and referred the matter to us under 10 C.F.R. § 2.730(f). *Id.* at 135-36. That provision of the Rules of Practice authorizes referrals "to prevent detriment to the public interest or unusual delay or expense."

Pursuant to a schedule we established, applicant and the NRC staff filed briefs urging reversal of the Licensing Board's decision, while NECPN supports the ruling admitting the contention.<sup>4</sup> During the period in which this matter has been pending before us, other court decisions ostensibly bearing on this case have been rendered, and the staff has issued two board notifications with documents pertinent to spent fuel pools — Board Notification No. 89-01 (February 14, 1989), enclosing NUREG/CR-5176, "Seismic Failure and Cask Drop Analyses of the Spent Fuel Pools at Two Representative Nuclear Power Plants" (January 1989) [hereinafter cited as the "Livermore Report"]; and Board Notification No. 89-03 (May 2, 1989), enclosing, among other things, NUREG-1353, "Regulatory Analysis for the Resolution of Generic Issue 82: 'Beyond Design Basis Accidents in Spent Fuel Pools'" (February 1989 Draft) [hereinafter cited as "NUREG-1353"]. These unusual developments prompted our pre-argument request for supplemental briefs from applicant and the staff, as well as a number of post-argument pleadings tendered by NECPN, applicant, and the staff, all of which we accept for filing.<sup>5</sup>

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<sup>3</sup> The Board also modified the basis of Environmental Contention 3, which concerns the alternative of dry cask storage and was already admitted, so as to include the severe accident scenario set out in Environmental Contention 1. LBP-89-6, 29 NRC at 135, 136. Recently the parties agreed to dismiss the non-severe accident portion of Environmental Contention 3. LBP-89-18, 29 NRC 539 (1989).

<sup>4</sup> Though a joint sponsor of Environmental Contention 1, the Commonwealth has not participated in the briefing and argument of this matter.

<sup>5</sup> See NECPN's Motion for Leave to File Memorandum on NUREG-1353 and NECPN's Memorandum on NUREG-1353 (May 10, 1989); Response of Vermont Yankee to NECPN's "Motion for Leave to File Memorandum on NUREG-1353" and Response of Vermont Yankee to NECPN's "Memorandum on NUREG-1353" (May 15, 1989); NRC Staff Response to NECPN Motion for Leave to File and NRC Staff Response to NECPN Memorandum (May 25, 1989); NECPN's Motion for Leave to File Memorandum Addressing Significance of Recent Supreme Court Decisions and NECPN's Memorandum (May 25, 1989); NRC Staff Response to NECPN Motion for Leave to File Memorandum and NRC Staff's Response to NECPN Memorandum (June 12, 1989).

We also recently received a letter from applicant's counsel, dated July 19, 1989, bringing to our attention two matters relating to issues raised during oral argument. Although we accept applicant's letter for filing, neither of the points raised bears on our decision here.

## II. ANALYSIS

A. Several procedural matters must be addressed at the outset. First, we accept the Licensing Board's referral under 10 C.F.R. § 2.730(f). The circumstances and nature of the ruling involved here strongly demonstrate that a definitive ruling on the admissibility of Environmental Contention 1 is in the public interest. The Licensing Board and parties are entitled to have our opinion thereon now, rather than in the context of the usual appellate review. Further, most other contentions in this proceeding have been resolved, making the Licensing Board's ruling "less interlocutory" as each day passes. *Compare Tennessee Valley Authority* (Phipps Bend Nuclear Plant, Units 1 and 2), ALAB-506, 8 NRC 533 (1978) (appeal board affirms NEPA ruling on referral by licensing board, which in the interim completed the proceeding before it). For the same reasons, pursuant to 10 C.F.R. § 2.785(d), we certify our ruling to the Commission for its final determination.<sup>6</sup>

We turn next to applicant's argument that neither we nor the Licensing Board has jurisdiction to entertain Environmental Contention 1. As applicant sees it, our decisions in ALAB-869 and ALAB-876 — which became final over a year ago — held the contention here at issue inadmissible as a matter of law, and that ruling is binding. The short answer to applicant is that the contention, albeit similar to that considered in ALAB-869 and ALAB-876, was nonetheless somewhat enhanced and was proffered in response to the July 1988 issuance of the staff's EA. Although in the context of our discussion of another contention, in ALAB-869 we expressly recognized the intervenors' right to submit to the Licensing Board contentions based on the staff's EA, provided that they satisfy the standards for late-filed contentions in 10 C.F.R. § 2.714(a)(1). 26 NRC at 34. Thus, the record on NEPA issues clearly remained open before the Licensing Board and it had jurisdiction to entertain such contentions. The Board likewise had authority to rule on requests for reconsideration of its decision regarding EA-prompted contentions. Our authority to review the matter through the mechanism of referral necessarily follows.<sup>7</sup>

The last procedural matter involved here concerns whether Environmental Contention 1 is, in fact, "late-filed," and, if so, whether NECNP and the Commonwealth have satisfied the Commission's requirements for consideration

<sup>6</sup>Under 10 C.F.R. § 2.786(b)(1), no petition for Commission review of an appeal board decision on a section 2.730(f) referral is permitted. Thus, certification of our ruling is necessary in order to bring this matter directly to the Commission's attention.

<sup>7</sup>We note further that, in our view, the Licensing Board followed the appropriate course in the circumstances, by actually ruling on the contention, but staying its effect and referring the matter to us.

of late-filed contentions. See 10 C.F.R. §§ 2.714(b), 2.714(a)(1).<sup>8</sup> The Licensing Board found that "the contention is essentially similar to that submitted at the outset of the proceeding and, hence, should not be regarded as late-filed." LBP-89-6, 29 NRC at 131. As for what it termed "minor changes," however, the Board weighed all five factors of section 2.714(a)(1) in the intervenors' favor. *Id.* at 131-32.

As we have noted *supra* pp. 36, 39, Environmental Contention 1 was prompted by the staff's July 1988 EA and contained some new material. The Commission's Rules of Practice are clear that "any contention filed 'later than fifteen (15) days prior to the holding of the special prehearing conference . . . or where no special prehearing conference is held, fifteen (15) days prior to the holding of the first prehearing conference' is nontimely and can be admitted only upon a balancing of the five lateness factors." *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-918, 29 NRC 473, 480 (1989) (citing 10 C.F.R. § 2.714(b); emphasis in original). See also *ibid.* (citing *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041, 1046-47 (1983)). The time for filing contentions here expired in early 1987, as NECPN and the Commonwealth themselves recognized in their August 15, 1988, "Joint Motion . . . for Leave to File Late-Filed Contentions." We therefore agree with the staff that the Licensing Board erred in concluding that Environmental Contention 1 should not be regarded as late-filed under the Commission's rules.

The balancing of the five factors nevertheless undertaken by the Licensing Board in this regard was thus necessary. Although the Board gave this matter only cursory treatment — failing even to mention factors two and four — we agree with the Board's conclusion (if not its analysis) that the five factors balance in the intervenors' favor. In light of our ultimate ruling on the admissibility of the contention, we need not discuss this aspect of the Licensing Board's opinion, except for one matter that warrants attention. Finding in favor of the intervenors on the third factor of section 2.714(a)(1), the Board stated that "both NECPN and Massachusetts have rendered significant assistance in developing an adequate record on other contentions, and we have no reason to expect that they would not do so here." LBP-89-6, 29 NRC at 132. The Board's conclusion about the intervenors' ability "to assist in developing a sound record" rests on an

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<sup>8</sup> Boards must balance the following five factors in deciding whether to accept a late contention:

- (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).

improper inference that NRC case law and the record here do not permit to be drawn. Intervenors never even addressed this factor in proffering Environmental Contention 1. *See* Late Contention Motion at 7-10. Thus, they have clearly failed to satisfy the burden imposed on them by the third criterion to "set out with as much particularity as possible the precise issues [they plan] to cover, identify [their] 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), and cases cited. If "[v]ague assertions regarding petitioner's ability or resources . . . are insufficient," *ibid.*, so too are no assertions.<sup>9</sup>

B.1. As noted above, the contention here at issue has had several incarnations. When originally proffered as separate contentions by NECNP and the Commonwealth, their postulated accident sequence was: (1) an unspecified<sup>10</sup> severe reactor accident that generates substantial amounts of hydrogen; (2) hydrogen release through the Mark I containment to the reactor building; (3) hydrogen burn or detonation that creates pressure and threatens the structural integrity of the "containment building"; (4) damage to the spent fuel pool cooling system or the pool structure itself, which are located in the reactor building; (5) inadequate pool cooling; and (6) increased radiological releases due to increased spent fuel inventory. *See* ALAB-869, 26 NRC at 36-38. *See also* LBP-87-17, 25 NRC at 854, 845. NECNP's version of the contention relied on NUREG-1150 and NUREG/CR-4624, incorporating by reference its citation to these documents in another contention. *See* NECNP's Response to Board Order of February 27, 1987: Statement of Contentions and Standing (March 30, 1987) at 8-10, 2-4. As explained *supra* pp. 35-36, the Licensing Board admitted the contention and we reversed.

Following the issuance of the staff's EA, when NECNP and the Commonwealth jointly tendered their late-filed contentions, the contention again focused on an unspecified, hypothesized reactor accident, involving substantial fuel damage and hydrogen leaks to the reactor building, as the triggering event. The contention and its basis, however, also referred to "pool heatup due to loss of cooling water circulation capability, resulting in a self-sustaining oxidation of the Zircaloy cladding (i.e. a cladding fire) or a cladding rupture," and alleged "severe long-term health effects." The contention relied on the BNL Report generally and two pages of NUREG-1150. Late Contention Motion at 1-3. The

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<sup>9</sup> Because intervenors were mute on this score, we need not decide whether, if they had affirmatively relied on their past contributions on other contentions in this very proceeding (as the Licensing Board assumed on their behalf), a similar contribution was likely to be made on the new contention. *See Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-813, 22 NRC 59, 85 (1985) (citing *Washington Public Power Supply System* (WPPSS Nuclear Project No. 3)), ALAB-747, 18 NRC 1167, 1181 (1983).

<sup>10</sup> That is, no explanation or brief outline as to how this reactor accident might occur is provided.

Licensing Board rejected the contention on the basis of our prior decisions in ALAB-869 and ALAB-876. *See supra* p. 37.

When NECNP and the Commonwealth subsequently asked the Licensing Board to reconsider its rejection of the contention in light of the Ninth Circuit's *Sierra Club* decision, they embellished the contention somewhat. The triggering event, however, remained constant — an unspecified, hypothetical reactor accident involving hydrogen generation, failure of the Mark I containment, and hydrogen detonation in the reactor building, which also houses the spent fuel pool. This accident in turn allegedly would threaten the pool cooling water systems or pool structure itself, leading to pool heatup and ultimately a zircaloy cladding fire. Again, the contention relied on the BNL Report in general and specified pages of NUREG-1150 and NUREG/CR-4624. Joint Motion for Reconsideration at 3-5.

For purposes of this decision, the contention (and basis) at issue is that set out in NECNP's and the Commonwealth's Joint Motion for Reconsideration (also included in NECNP's brief).<sup>11</sup> Although NECNP and the Commonwealth were not free to embellish or to change their contention when they sought reconsideration from the Licensing Board in December 1988,<sup>12</sup> we have given them the benefit of the doubt in this regard, inasmuch as their embellishments to the contention do not affect the outcome here. This should not be construed, however, as a condonation of any future attempts to modify contentions during an NRC adjudication without cause and observance of the Commission's Rules of Practice. Contentions are simply the issues that define the scope and course of the proceeding. To permit reformulation of contentions every time their proponents file another pleading would be tantamount to rejecting all notions of an orderly and fair administrative process.

2. Under the Commission's regulations, no environmental impact statement is automatically required for operating license amendments like that involved here. *See* 10 C.F.R. § 51.20. Instead, either an environmental assessment (*see* 10 C.F.R. § 51.14(a)) is required, or the action is a "categorical exclusion" for which no environmental document is required. *See* 10 C.F.R. §§ 51.21, 51.22(c)(9). The Commission has stressed, however, that the staff should consider on a case-by-case basis the matter of whether a particular spent fuel pool reracking amendment warrants an EIS. *Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-86-12, 24 NRC 1, 12, rev'd on other grounds sub nom. San Luis Obispo Mothers for Peace v. NRC, 799 F.2d 1268 (9th Cir. 1986)*.<sup>13</sup> As noted earlier, the staff here prepared an

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<sup>11</sup> The contention and basis are reproduced in full in the Appendix to this opinion, *infra* pp. 52-53.

<sup>12</sup> Their own Joint Motion for Reconsideration at 2 states that the contention is "essentially as follows."

<sup>13</sup> As far as we are aware, however, no EIS has been prepared for any spent fuel pool reracking license amendment that has been issued.

environmental assessment and concluded, pursuant to 10 C.F.R. § 51.31, that the involved expansion of the capacity of the Vermont Yankee spent fuel pool will have no significant impact on the quality of the human environment. See 53 Fed. Reg. 28,925 (1988).

The essence of Environmental Contention 1, however, is that an environmental impact statement is required for the proposed license amendment to assess the risks of the following hypothetical accident scenario: (1) a severe reactor accident occurs by some unidentified mechanism and involves substantial fuel damage, hydrogen generation, Mark I containment failure, and subsequent detonation in the reactor building where the Vermont Yankee spent fuel pool is located; (2) the reactor building and the spent fuel pool are assertedly not likely to withstand the pressure and temperature loads generated by such an accident, thereby threatening the pool cooling systems or pool structure itself (*see* NUREG-1150 at 4-33 to 4-39 and NUREG/CR-4624, Vol. 1, at 4-26 to 4-62); and (3) pool heatup occurs, resulting in a self-sustaining zircaloy cladding fire with increased long-term health effects for the public from the increased fuel pool inventory (*see* BNL Report). *See* Appendix, *infra* pp. 52-53. Although the contention refers only to "pool heatup," the *sine qua non* of the postulated zircaloy fire is the absence of water. Therefore, the penultimate event in the contention's accident scenario is necessarily a complete loss of water from the pool. *See* BNL Report at iii.<sup>14</sup>

It should go without saying that reactors and spent fuel pools are not expected to have accidents, or a series of accidents, like that set forth in this contention. For example, the Commission's regulations set standards for the control of the hydrogen that may be generated in the event of a serious reactor accident. *See* 10 C.F.R. § 50.44. Further, spent fuel pools must be designed "to prevent significant reduction in fuel storage coolant inventory under accident conditions." 10 C.F.R. Part 50, Appendix A, General Design Criterion 61. Therefore, the scenario on which the contention is premised is obviously not a "normal" operating event; indeed, it can be fairly characterized as a double "worst case" accident — (1) a severe hydrogen-generating and detonating reactor accident, that somehow leads to (2) a gross loss of spent fuel pool water and subsequent zircaloy fire. In other words, the two accidents at the heart of the contention are individually among the worst things that can even be hypothesized for a reactor and a spent fuel pool, respectively, in terms of potentially significant offsite consequences for the public.<sup>15</sup>

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<sup>14</sup> This means that approximately 35,000 cubic feet of water must boil off, evaporate, or otherwise disappear. *See* BNL Report at 32.

<sup>15</sup> As the BNL Report (on which NECNP relies) states, "the risk estimates [for the hypothetical spent fuel pool accidents analyzed] are quite *uncertain* and could potentially (under *worst case* assumptions) be significant." *Id.* at xxi (emphasis added).

The Commission's Rules of Practice require that contentions have "bases" and that such bases be "set forth with reasonable specificity." 10 C.F.R. § 2.714(b). It necessarily follows that, when a postulated accident scenario provides the premise for a contention, a causative mechanism for the accident must be described and some credible basis for it must be provided. See, e.g., *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), CLI-80-16, 11 NRC 674, 675 (1980); *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-765, 19 NRC 645, 653-54 (1984), *petition for review denied sub nom. Anthony v. NRC*, 770 F.2d 1066 (3d Cir. 1985) (table).<sup>16</sup> If a contention claims that an EIS is necessary or inadequate in some respect, the "rule of reason" by which NEPA is to be interpreted provides that agencies need not consider "remote and speculative risks" or "events whose probabilities they believe to be inconsequentially small." *Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719, 739 (3d Cir. 1989) [hereinafter cited as "LEA"]; *San Luis Obispo*, 751 F.2d at 1300. In addition, the Supreme Court has recently held that neither NEPA, the case law based thereon, nor regulations of the Council on Environmental Quality (CEQ) require a "worst case analysis." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 333-34 (1989).<sup>17</sup> The Court reached this conclusion in a case involving substantial uncertainties in the assessment of certain environmental impacts that might be associated with the recreational development of a national forest area. See *id.* at 367-68. It is therefore within the context of these agency requirements and judicial interpretations of NEPA that we evaluate the admissibility of the contention before us.

3. NECNP claims that the causative mechanism and bases for the accident scenario on which Environmental Contention 1 is premised are found in several NRC documents, principally the BNL Report, NUREG-1150, and NUREG/CR-4624. It also argues that, under the Ninth Circuit's *Sierra Club* decision ordering the admission of an assertedly similar zircaloy fire contention, the contention's mere reference to the BNL Report satisfies the Commission's bases and specificity requirements. Further, NECNP contends that the Third Circuit's *LEA* decision expands *Sierra Club* and reinforces an intervenor's right to litigate the NRC's compliance with NEPA. In its view, *LEA* prohibits the agency from relying on a policy statement to preclude litigation of such issues or to define certain accidents generically as remote and speculative. See generally NECNP's

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<sup>16</sup> Without such a basis requirement, NRC adjudicatory proceedings would become an undisciplined forum for litigating any bizarre accident that a party could concoct.

<sup>17</sup> We note that, in any event, the Commission has declined to adopt substantive CEQ regulations (see 49 Fed. Reg. 9352, 9356 (1984)), and at least one court has acknowledged the Commission's right to do so. *LEA*, 869 F.2d at 743. The Supreme Court has left open the issue whether CEQ regulations are binding on independent agencies like the NRC. *Baltimore Gas and Electric Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87, 99 n.12 (1983).

Brief (March 29, 1989). With respect to the Supreme Court's recent *Robertson* decision, NECNP argues that it is irrelevant to this case. As NECNP sees it, the issue before us is "whether the impact of a spent fuel pool fire is reasonably foreseeable, and thus requires the preparation of an EIS — not the nature of the analysis required once such a determination is made." NECNP's Memorandum Addressing Significance of Recent Supreme Court Decisions (May 25, 1989) at 2.

Contrary to NECNP's claims, upon scrutiny the documents on which Environmental Contention 1 relies for its support do not provide bases for a litigable contention or the accident scenario postulated. Although the BNL Report addresses several different accident scenarios, all culminating in a complete loss of pool water and a zircaloy cladding fire, none involves the serious reactor accident and resultant hydrogen detonation that serve as the triggering event for the Environmental Contention 1 accident scenario.<sup>18</sup> The contention does mention "pool heatup due to loss of cooling water circulation capability" (see Appendix, *infra* p. 52), which is one of the accident scenarios considered in the BNL Report.<sup>19</sup> That report itself, however, assumed that such disruption of pool cooling water circulation would be "due to station blackout, pump failure, pipe rupture, etc.," and that the pool temperature would rise steadily until boiling begins. In the most "pessimistic case," the water level would drop slowly, at about six inches per hour. BNL Report at 15. No mention is made of any type of serious *reactor* accident with hydrogen detonation — an event of an obviously different nature entirely — as a cause of disruption of spent fuel pool cooling circulation. But more important, the BNL Report concludes that "[a]ccidents leading to complete pool draining that might be initiated by loss of cooling water cir-

<sup>18</sup> This may explain why the contention fails to cite any particular pages or portions of the 160-page BNL Report.

<sup>19</sup> The contention makes no mention whatsoever of the other accidents considered in the BNL Report, namely, structural pool failure due to seismic events or missiles, partial draindown due to pneumatic seal failure, and structural pool failure due to a heavy load drop. Compare BNL Report at xix with Appendix, *infra* pp. 52-53. In its brief, however, NECNP mentions for the first time a seismically-initiated spent fuel pool accident (as opposed to the serious reactor accident initiating event that has been the consistent focal point of the contention in all of its forms, *see supra* pp. 41-42). It does so in connection with the Livermore Report (NUREG/CR-5176), which was made available relatively recently via a board notification. NECNP claims that that report (at xiii and 6-6) concludes that the probability and risk of a seismically-initiated spent fuel pool failure leading to a self-sustaining zircaloy cladding fire are greater than previously identified, thereby further supporting the contention. NECNP's Brief at 9-10 n.12, 29 n.36, 30.

The Livermore Report was primarily undertaken in response to the BNL Report's finding that a seismically-induced spent fuel pool failure is the dominant contributor to risk. It analyzes two plants in this regard, one of which is Vermont Yankee. The Livermore Report notes (at xiii) — as does the BNL Report at xx, xxi — that the public consequences of a zircaloy fire could be significant. Indeed, that point has never been in dispute and demonstrates why a zircaloy fire is indeed a "worst case" accident. *See supra* p. 43. But the Livermore Report goes on to find on the basis of its analyses that the probability of seismically-induced spent fuel pool failure at Vermont Yankee is actually less than had previously been estimated by BNL (referred to by author as "the Sailor study"). Livermore Report at xiii. It thus concludes that "seismic risk contribution from spent fuel pool structural failures is negligibly small." *Id.* at 8-2 (emphasis added). (Because risk is the product of consequences and probability, even where the consequences of a worst case accident could be large, if the probability of such an occurrence is extremely low, the risk will necessarily be quite low as well.) Thus, the Livermore Report neither supports the contention actually submitted to the Licensing Board nor says what NECNP claims it says.

culation capability . . . were found to have a very low likelihood." *Id.* at xix.<sup>20</sup> NECPN directs us to nothing else that suggests otherwise. Furthermore, this low probability event involving slow pool drainage is not a dominant contributor to risk (*see id.* at 28) and hence was not even considered in that portion of the BNL Report devoted to fuel cladding failure and the zircaloy fire process. *See id.* at xiii, 49-50 (key assumption of fuel cladding failure analysis is instantaneous drainage from pool). Thus, *on its face* one of the key documents *on which NECPN relies* provides no basis for the admission of a litigable contention.<sup>21</sup>

NUREG-1150 and NUREG/CR-4624 likewise do not support Environmental Contention 1. As NECPN notes, NUREG-1150 does indeed describe the vulnerability of Mark I containments (like that at Vermont Yankee) in the event of a severe reactor accident involving, for example, core damage (i.e., melting). NUREG-1150 at 4-33 to 4-35. NUREG/CR-4624 analyzes several similar severe accident scenarios for Mark I reactors and also concludes that the ability of the secondary containment (i.e., the surrounding reactor building) to withstand the pressure loadings from such accidents is questionable. *See* NUREG/CR-4624, Vol. 1, at 4-26 to 4-62, especially 4-37, 4-45. But neither document even mentions (at the pages cited by NECPN or anywhere), let alone analyzes, what effect such a reactor accident might have on the facility's spent fuel pool structure or pool cooling system, which is the subject of the particular license amendment application before us here.<sup>22</sup> Moreover, notwithstanding the concerns aired in NUREG-1150 regarding the vulnerability of the Mark I containment in the event of a severe reactor accident, the analyses of a core damage accident in that document show that the likelihood of such an accident is itself very low

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<sup>20</sup>In this connection, the Report observes that no pool heatup events are on record after approximately 1000 reactor years of experience. BNL Report at 15.

<sup>21</sup>At oral argument, applicant suggested that NUREG-1353 (also received recently via board notification) essentially repudiates the BNL Report and thereby eliminates any basis for the contention. App. Tr. 13-16. *See infra* pp. 48-49. The staff does not rely on the substance of NUREG-1353, but rather repeats its principal argument that Environmental Contention 1 fails to satisfy the Commission's requirements for admissibility and notes that NUREG-1353 "does nothing to cure this deficiency." NRC Staff Response (May 25, 1989) at 2. NECPN argues that NUREG-1353 does not undermine either the BNL or Livermore Reports and that it does not affect the admissibility of its contention. NECPN's Memorandum on NUREG-1353 (May 10, 1989) at 1-2.

NUREG-1353 is essentially the NRC staff's cost-benefit analysis of various alternatives to address the potential risks discussed in the BNL and Livermore Reports. It concludes that the "No Action" alternative is justified. NUREG-1353 at ES-4. We disagree with applicant that this document amounts to a repudiation of the BNL and Livermore Reports. Rather, it appears to accept the findings of those reports as a starting point and then consider a different issue entirely (one certainly not before us here): to wit, is any regulatory action necessary or justified on a cost-benefit basis? Thus, because NUREG-1353 is not directly relevant here and indeed is not relied on by NECPN as providing support for Environmental Contention 1, it warrants no further consideration.

<sup>22</sup>In this regard, NUREG/CR-4624 at 3-12, 4-37 notes the relative fragility of the reactor building walls, whereas the BNL Report at 16 refers to "the massive reinforced concrete structure" of spent fuel pools and their "extremely unlikely" structural failure. *See also* Livermore Report at 3-1, 3-2 (Vermont Yankee spent fuel pool floor is over 4 feet thick concrete with steel bar reinforcement, topped with 11 inches of grout and stainless steel plate; the walls are 4 to 6 feet thick, to which stainless steel plate is anchored).

(see, e.g., NUREG-1150 at ES-4, ES-5),<sup>23</sup> and, again, NECNP directs us to nothing that reflects the contrary.

In sum, none of the documents on which NECNP relies supports the compound worst case accident scenario on which Environmental Contention 1 is based. But more important, those documents themselves reflect the view that the accident scenarios analyzed therein are individually events of very low probability. Environmental Contention 1 strings these individual events together into a chain of causation that is *necessarily* of even lower likelihood. We thus conclude on the basis of NECNP's own submissions that the risk posed by the multiple-event accident scenario in Environmental Contention 1 is remote and speculative. NEPA therefore does not mandate that it be analyzed in an EIS.

NECNP argues, however, that, under the Ninth Circuit's *Sierra Club* decision ordering the admission of an assertedly similar zircaloy fire contention, the contention's mere reference to the BNL Report alone satisfies the Commission's contention-admission requirements. But that case is distinguishable and, further, the court's decision is grounded in a misunderstanding of the nature and scope of an adjudicatory board's inquiry at the contention-admission stage.

In the first place, the Ninth Circuit never even considered whether the contention there at issue concerned a remote and speculative risk beyond NEPA's rule of reason, overlooking entirely that portion of our decision in *Diablo Canyon*, ALAB-880, 26 NRC at 457-60. Instead (as pertinent here), the court focused only on whether we had correctly applied the Commission's bases and specificity requirements to the involved contention. 862 F.2d at 227-28. The court conceded that "the contention itself did not contain any specific accident scenario," but it went on to assume *sua sponte* that the *Sierra Club* had simply intended to litigate all of the accident scenarios analyzed in the BNL Report cited in the contention. *Id.* at 227. Here, in contrast, NECNP and the Commonwealth have been adamant from the first time they tendered a variation of Environmental Contention 1 that it was based on a serious reactor accident involving hydrogen detonation in the reactor building. *See supra* pp. 41-42.<sup>24</sup> As explained above, the BNL Report analyzes no such accident scenario. It would be both contrary to the Commission's Rules of Practice and unfair to the other parties to this proceeding to rewrite Environmental Contention 1 and pretend now that the contention is about something other than it is.

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<sup>23</sup> We note that, of the five plants analyzed in NUREG-1150, Peach Bottom, which is a BWR with a Mark I containment like Vermont Yankee, has the lowest core damage frequency. NUREG-1150 at ES-5.

<sup>24</sup> Indeed, other than its reference to a zircaloy cladding fire, the contention at issue in *Diablo Canyon* bears little resemblance to that involved here. *See Diablo Canyon*, ALAB-880, 26 NRC at 454-55. *See also id.* at 460 (noting the "somewhat different hypothetical accident scenario" involved in *Vermont Yankee*, ALAB-869). Thus, the Ninth Circuit's decision could hardly be automatically "controlling" — as NECNP argues — in the different circumstances presented here. Further, as applicant points out, *Sierra Club* is binding only in the Ninth Circuit, and the Commission has expressed no view on whether it intends to "acquiesce" in the decision elsewhere.

The Ninth Circuit also labored under some erroneous impressions regarding our consideration of the contention at issue in the *Sierra Club* case and contentions in general. It believes that contentions that merely identify or refer to "particular documents or studies are sufficiently *specific* for the purposes of admission," and cites several of our decisions as authority for this view. 862 F.2d at 227 (emphasis added). The court also appears to believe that a review of a contention's bases (including any referenced documents), in order to ascertain if the contention even raises an issue that may properly be litigated under the Commission's rules and policies, amounts to a determination on the merits of the contention. *Id.* at 228.

Whether the reference to a particular document or part thereof is sufficiently *specific* to allow a board and the parties to retrieve it is one thing. *See, e.g., Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-804, 21 NRC 587, 592 & n.6 (1985). But whether a document on its face appears to provide a *basis* for the point for which it is cited and raises a justiciable issue is quite another. To be sure, boards should not make a judgment as to what *weight* should be given to a document on which a contention is based, as though it were a piece of evidence, but rather should take it at the face value its proponent urges.<sup>25</sup> To do the former would be tantamount to a "merits" determination prohibited by *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542, 547-49 (1980). On the other hand, contrary to what the Ninth Circuit seemingly believes is required by NRC precedent, boards must do more than uncritically accept a party's mere assertion that a particular document supplies the basis for its contention, without even reviewing the document itself to determine if it in fact says what the party claims it says and if it appears to support a litigable contention. Otherwise, the contention-admission inquiry would be a meaningless exercise.<sup>26</sup>

Thus, licensing boards are expected to undertake a thoughtful, albeit non-merits, review of any document, information, theory, postulated accident scenario, etc., that is claimed to provide the basis for a contention. *See, e.g., Limerick*, ALAB-804, 21 NRC at 593-94 (because cited environmental document "does not support the point for which it is urged," contention thus lacks a "cognizable basis").<sup>27</sup> This review may even include consideration of the fact that the underpinnings of the document on which a contention is based have

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<sup>25</sup> Boards, of course, are not obliged to take at face value obviously specious documents.

<sup>26</sup> As we noted some 15 years ago, the purpose of the bases and specificity requirements is "to help assure at the pleading stage that the hearing process is not improperly invoked." *Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 AEC 13, 20, *modified on other grounds*, CLI-74-32, 8 AEC 217 (1974). Such a determination cannot reasonably be made if the contention and its bases are not scrutinized.

<sup>27</sup> The Licensing Board's parenthetical afterthought that Environmental Contention 1 was "(supported by appropriate bases)" — the only reference to the contention's bases in the Board's decision here before us — therefore falls far short of the inquiry a board should make with regard to the admissibility of a contention. *See LBP-89-6, 29 NRC at 134.*

been subsequently repudiated by the document's own source. See *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-89-3, 29 NRC 234, 241 (1989) (citing *Georgia Power Co.* (Vogtle Electric Generating Plant, Units 1 and 2), ALAB-872, 26 NRC 127, 136 (1987)).

The NRC cases cited in *Sierra Club*, 862 F.2d at 227, 228, are not to the contrary. In each instance, we only measured the contentions against the documents and assertions upon which they were based to determine whether there were in fact litigable issues for which bases were provided.

In *Texas Utilities Electric Co.* (Comanche Peak Steam Electric Station, Unit 1), ALAB-868, 25 NRC 912, 928 (1987), the contention claimed that the facility's construction delays were due to violations of NRC quality assurance (QA) program requirements. Bases for the contention were found in NRC inspection reports concerned with *that* facility's QA program. The decision also included an extensive discussion of whether the contention was litigable under other requirements imposed by the Commission for the special proceeding involved in that case. *Id.* at 930-38. *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 693-94 (1985), *aff'd in part and review otherwise declined*, CLI-86-5, 23 NRC 125 (1986), *remanded in part on other grounds sub nom. Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719 (3d Cir. 1989), involved a contention that sought EIS consideration of certain severe accident mitigation reactor design features. The intervenor's references to NRC studies that devoted specific attention to the feasibility of such features for the Limerick plant were found to provide sufficient basis and specificity for the contention. Relying on biomass cost and energy output figures from a specified government report, the intervenor's contention in *Allens Creek*, 11 NRC at 544-45, claimed that a marine biomass farm was environmentally preferable to the Allens Creek nuclear facility and thus should have been considered a reasonable alternative in the staff's EIS. We reversed the Licensing Board for accepting the applicant's and staff's arguments that intervenor was obliged to prove at that stage the superiority of biomass. Rather, the Board should have confined itself to determining only whether the referenced document supplied a basis for the contention. *Id.* at 547-49. Finally, in *Carolina Power and Light Co.* (Shearon Harris Nuclear Power Plant), ALAB-837, 23 NRC 525, 540-42 (1986), we found that the Licensing Board had erred by effectively reaching the merits of a NEPA contention concerned with the impacts of ocean-dumping of low-level radioactive waste. The Board had improperly considered and given weight to the applicants' and staff's opposing factual assertions, despite the "logical foundation for," and "well-known circumstances" underlying, the contention. *Id.* at 541.

Thus, as is evident from these cases, we conduct a non-merits threshold review of contentions and their bases, including any materials referenced therein. We do not simply find that a contention satisfies the bases and specificity re-

quirements and is litigable by the mere reference to an assertedly supporting document. On the other hand, we stop short of considering and weighing contentions against an opponent's own fact-based claims and arguments. Here, unlike the contention proponents in each of the cases discussed above, intervenors have failed to meet their initial burden of showing some ostensible connection between a litigable contention and its claimed support.

The Third Circuit's decision in *LEA* also does not require admission of Environmental Contention 1.<sup>28</sup> In *Limerick*, ALAB-819, 22 NRC at 693-94, we found that a contention that sought consideration in an EIS of certain design alternatives for the mitigation of severe reactor accidents satisfied the Commission's bases and specificity requirements. See *supra* p. 49. We concluded, however, that admission and litigation of the contention were precluded by the Commission's 1985 Severe Accident Policy Statement, *supra* p. 37. 22 NRC at 695-96. The Third Circuit determined that that policy statement was entitled to no deference, that it failed to give adequate consideration to severe accident mitigation design alternatives (SAMDAs), and that SAMDAs could not be treated generically. The court also held that meeting Atomic Energy Act requirements does not exempt the Commission from complying with NEPA. And, finding the record ambiguous, the court opined that the Commission could not properly exclude consideration of SAMDAs on the basis of a generic finding that the risks of severe accidents are remote and speculative. 869 F.2d at 733-41.

We agree with both the staff and NECNP that one aspect of the *LEA* decision does undercut the primary underpinning of ALAB-869 and ALAB-876. In those opinions, we clearly relied on the Commission's long-standing distinction between so-called "design-basis" and "beyond design-basis" events and its expert technical judgment that the latter are, by definition, remote and speculative and thus beyond NEPA's mandate. See ALAB-869, 26 NRC at 30-31; ALAB-876, 26 NRC at 283-85.<sup>29</sup> This distinction reflects the very essence of the agency's

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<sup>28</sup> The *LEA* decision was rendered after LBP-89-6; thus, the Licensing Board's decision does not address it.

<sup>29</sup> We did not rely, however, on the Severe Accident Policy Statement in rejecting the contention. The only mention of the Severe Accident Policy Statement in ALAB-869 is in our summary of the Licensing Board's decision before us for review. 26 NRC at 29. The only reference to this policy statement in ALAB-876 is a "See generally" citation directing the reader to a description of a severe, beyond design-basis accident. That part of the policy prohibiting litigation of severe accident mitigation measures in licensing proceedings (50 Fed. Reg. at 32,145) was not cited. 26 NRC at 283.

The Licensing Board, on the other hand, has repeatedly relied on the Severe Accident Policy Statement in this case and, in fact, believes that we have not given its decisions appropriate attention in this regard. See, e.g., LBP-89-6, 29 NRC at 133-34; LBP-88-26, 28 NRC at 451-54. Frankly, we have had difficulty in following the Board's reasoning. Apparently, the Board believes that the Commission incorporated its Interim Policy on "Nuclear Power Plant Accident Considerations Under the National Environmental Policy Act of 1969," 45 Fed. Reg. 40,101 (1980) [hereinafter cited as "NEPA Policy Statement"], into its 1985 Severe Accident Policy Statement. Under the NEPA Policy Statement, the Commission considers the environmental risks of beyond design-basis accidents in *initial* operating license proceedings as a matter of *discretion*, rather than as a requirement of NEPA. See *San Luis Obispo*, 751 F.2d at 1301. In addressing the NEPA Policy Statement in ALAB-869, 26 NRC at 31, we found no

(Continued)

regulatory philosophy and scheme and had not been seriously questioned by any court until *LEA*. Indeed, in *San Luis Obispo*, 751 F.2d at 1300-01, the District of Columbia Circuit clearly endorsed it.

In this decision on NECNP's enhanced Environmental Contention 1, however, we need not and do not rely on any generic findings, definitions, or Commission policy in finding that the contention is based on a remote and speculative accident scenario and thus is inadmissible. As discussed *supra* pp. 45-46, 46-47, the very documents on which NECNP relies conclude that the various elements of the accident scenario on which the contention is based are individually events of very low probability. NECNP has given us no cause to doubt that, taken together as set forth in Environmental Contention 1, these events become even more remote.

If the "rule of reason" is to have any meaning at all, it surely permits the rejection at the threshold of a contention in these circumstances. Indeed, another portion of the *LEA* decision so holds. The court affirmed our rejection at the threshold of a NEPA contention that sought consideration in an EIS of the risk of sabotage. Our rejection of the contention rested on the materials and argument presented by the intervenor in support of its contention, and the intervenor's failure to cast serious doubt on the agency's inability to address the uncertainties in the environmental analysis requested. The court upheld our judgment that the contention was nonlitigable as a legitimate scientific determination within the acknowledged area of the agency's expertise. 869 F.2d at 741-44.

Finally, the Supreme Court's recent ruling in the *Robertson* case that NEPA requires no worst case analysis is not "irrelevant," as NECNP argues. While the procedural context and factual circumstances of that case differ from those here, the Court's "bottom line" sends a clear message. In light of the fact that Environmental Contention 1 is based on the sequential occurrence of two worst case accidents, the admission and consideration of the contention cannot reasonably be squared with *Robertson*.<sup>30</sup>

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Commission intent to extend that discretionary policy to a license amendment proceeding. The Licensing Board, however, appears to find that intent by implication in the Severe Accident Policy Statement. See LBP-89-6, 29 NRC at 133-34. We note only that the Commission had the opportunity to correct our understanding of the reach of its NEPA Policy Statement, but it declined review of both ALAB-869 and ALAB-876.

In any event, as we emphasize below, our decision here does not rest on any generic finding or policy.  
<sup>30</sup> As noted *supra* p. 45, NECNP claims the issue here is whether a zircaloy fire is reasonably foreseeable. We have concluded on the basis of NECNP's own arguments and supporting material that it is not. Although the CEQ regulation specifically upheld in *Robertson* is not binding on the NRC (see *supra* note 17), our conclusion here is fully consistent with that regulation. It defines "reasonably foreseeable" impacts as those "which have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason." 40 C.F.R. § 1502.22(b)(1) (1988) (emphasis added). As we have seen, NECNP has failed to describe a causative accident scenario and to provide a credible basis for the contention, thus rendering it a matter of conjecture, beyond the rule of reason.

The Licensing Board's decision, LBP-89-6, 29 NRC 127, is *reversed*; Environmental Contention 1 and so much of Environmental Contention 3 as is premised on a severe accident scenario are *rejected*. This ruling is *certified* to the Commission pursuant to 10 C.F.R. § 2.785(d).

It is so ORDERED.

FOR THE APPEAL BOARD

Barbara A. Tompkins  
Secretary to the  
Appeal Board

APPENDIX

*NECNP's Environmental Contention 1* (as set forth in the Joint Motion of NECNP and the Commonwealth of Massachusetts for Reconsideration (December 30, 1988) at 3-5)

The Environmental Assessment prepared by the Staff fails to consider the consequences and risks posed by the proposed amendment of a hypothesized accident (hydrogen detonation in the reactor building), resulting in a self-sustaining zircaloy cladding fire in a spent fuel pool, which would be greater than those previously evaluated in connection with the Vermont Yankee reactor. This risk is sufficient to constitute the proposed amendment as a "major federal action significantly affecting the environment" requiring the preparation and issuance of an Environmental Impact Statement prior to approval of the amendment.

*Basis*

The National Environmental Policy Act (NEPA) requires the preparation of an environmental impact statement detailing, *inter alia*, the environmental impact of the proposal and considering alternatives, for any "major federal action significantly affecting the quality of the human environment." 42 U.S.C. § 4332(C). The proposed amendment, which would substantially increase the risk to public health and safety associated with operation of the Vermont Yankee Plant, is such an action. The NRC has not prepared an environmental impact statement, as required by law and by 10 C.F.R. §§ [sic] 51.20.

The Environmental Assessment prepared by the NRC incorrectly concludes that no environmental impact statement is required, based on a failure to consider significant environmental hazards posed by the proposed amendment: a self-sustaining zircaloy cladding fire. According to NUREG/CR-4982, "Severe Accidents in Spent Fuel Pools in Support of Generic Safety Issue 82," Brookhaven National Laboratory (July 1987), one postulated event initiating a severe accident in a spent fuel pool [sic] storage pool includes pool heatup due to loss of cooling water circulation capability, resulting in a self-sustaining oxidation of the Zircaloy cladding (i.e. a cladding fire) or a cladding rupture.

The spent fuel pool at Vermont Yankee is located inside the reactor buildings [sic]. The NRC's most recent risk estimate for the Containment structure of the General Electric Mark I plants, such as Vermont Yankee, is that they are as likely as not to fail in a severe

accident.<sup>5</sup> Neither the reactor building, which surrounds the spent fuel pool, nor the spent fuel pool itself, is designed to withstand the pressure and temperature loads that could be generated inside the reactor building by a severe accident.<sup>6</sup> Moreover, the spent fuel pool cooling systems which are also in the reactor building, are not designed for the environmental conditions associated with severe accidents. Such an accident would threaten the spent fuel pool cooling system and/or the structural integrity of the pool, while simultaneously preventing access to the building for repairs or accident mitigation activities, due to the high radiation levels that would follow some accident scenarios.

A self-sustaining zirconium fire in a spent fuel pool with high density racking could be caused by partial fuel melt and hydrogen release to the reactor building, where the pool is located. By increasing the amount of fuel stored by 40%, the potential consequences of a reactor accident are greatly increased, and could result in severe long-term health effects in terms of radiation exposure.

A self-sustaining fuel cladding fire in a spent fuel pool with high density racking could also be caused by an accident which involves substantial fuel damage without full core melt, if hydrogen leaks to the reactor building. See NUREG-1150, Reactor Risk Reference Document, Draft for Comment, Feb, 1987, at 4-34 and 4-35. This is within the design basis for fuel damage, and could result in severe long-term health effects (i.e. person-rem).

Accordingly, increasing the spent fuel pool storage capacity would have a significant impact on the public health and safety, requiring preparation of an Environmental Impact Statement.

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<sup>5</sup> See NUREG-1150, "Reactor Risk Reference Document," Draft for Comment (February, 1987), at 4-33 – 4-39 (describing the vulnerability of the Mark I containment design used by the Peach Bottom plant).

<sup>6</sup> Calculations on the Peach Bottom Plant indicate that following primary containment failure, steam and hydrogen will be released to the reactor building where the hydrogen can burn or detonate. This will result in pressure and temperature loads which the reactor building is unlikely to withstand. NUREG/CR-4624, Vol. 1, at 4-26 – 4-62.



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

**Before Administrative Judges:**

**Morton B. Margulies, Chairman**  
**Jerry Harbour**  
**Frederick J. Shon**

In the Matter of

Docket Nos. 50-352-OL-2  
50-353-OL-2  
(ASLBP No. 89-589-04-OL-R2)  
(Design Alternatives)

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

July 18, 1989

**NATIONAL ENVIRONMENTAL POLICY ACT: NEED TO  
CONSIDER SEVERE-ACCIDENT DESIGN ALTERNATIVES**

The U.S. Court of Appeals for the Third Circuit, in its decision in *Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719 (3d Cir. 1989), granted Intervenor's petition for review of its contention that in granting the full-power license the NRC violated the National Environmental Policy Act of 1969 by failing to adequately consider severe-accident-mitigation design alternatives, and remanded the issue to the Commission for further consideration.

**LICENSING BOARDS: AUTHORITY**

Where the Commission orders a Licensing Board to limit its consideration to certain kinds of severe-accident-mitigation design alternatives, the Licensing Board is bound by the Commission's direction and cannot enlarge the jurisdiction conferred by the Commission.

## **SEVERE-ACCIDENT-MITIGATION DESIGN ALTERNATIVES: IDENTIFICATION**

The Licensing Board, as instructed, identifies the severe-accident-mitigation design alternatives that the agency shall consider for Limerick Generating Station in order to satisfy National Environmental Policy Act requirements.

## **MEMORANDUM AND ORDER**

On June 30, 1989, Limerick Ecology Action (LEA), Philadelphia Electric Company (PECO), and the Nuclear Regulatory Commission Staff (Staff) submitted a report naming six severe-accident-mitigation design alternatives (SAMDAs) upon which they agree fall within the Commission Order of May 5, 1989 (unpublished), which designates the kinds of mitigation alternatives that the agency should consider under remanded LEA Contention DES-5.

The submittal was in response to the Order of the Board made at the prehearing conference on June 6, 1989, which was held in part to define the issues in the proceeding. We requested that the parties submit by July 3, 1989, a stipulation as to those SAMDAs that they agreed should be the subject of the litigation.

They were also directed, as to those proposed SAMDAs upon which they could not agree, to submit memoranda setting forth their differing positions.

In accordance with the filing schedule, LEA submitted a memorandum describing various categories of SAMDAs it claimed fall within the contention to be litigated. Appended to the memorandum was a "List of Primary Candidates for Severe Accident Mitigation" which described eight mitigating systems. There was also included a "Current 'Best Estimate' Risk Reduction Package for Limerick" which listed ten items. The foregoing lists were made known to the other parties and the Board at the prehearing conference. Also attached to the memorandum was a "Supplemental List of Litigable Severe Accident Mitigation Alternatives." Listed were more than eighty claimed mitigation alternatives with references to their sources.

Licensee, in its memorandum, discusses the SAMDAs it concludes should be considered for Limerick to satisfy the National Environmental Policy Act (NEPA) and be included in the litigation. It submitted its position on LEA's "Primary Candidates" and "Risk Reduction Package Proposals." As to the "Primary Candidates," it concluded that two of the items were within the ambit of the remand. Licensee termed the "Risk Reduction Package" a repetition and summary of the "Primary Candidates" list and concluded that it presented no new acceptable alternatives.

As to the "Supplemental List" PECO states that it was received from the Intervenor extremely late, in the period set by the Board for filing, and that the listed items are unfocused, repetitious, and are inadequately referenced. PECO comments on the items and concludes that, except as they coincide with mitigation alternatives suggested by the Licensee and accepted by Staff, the supplemental items overall do not present new litigable material in the proceeding.

Staff, in its memorandum, states its position on the LEA proposals contained in the "Primary Candidates" and "Risk Reduction Package Proposal" listings. Except as to two "Primary Candidate" items, the Staff's response to the proposals was negative. It further reported that because of the brief period of time available to it, Staff could not study in any detail LEA's new supplemental list of more than eighty items. Staff requested an opportunity to comment on the items should the Board consider admitting any of the newly listed items.

The Board, having carefully reviewed the parties' submissions, in this memorandum defines below the kinds of SAMDAs the Commission in its Order of May 5, 1989, directed should be considered in the litigation of DES-5. The defined categories include the SAMDAs that were agreed to by the parties. Essentially, these comprise the bases that we find to support the contention as originally submitted.

## DISCUSSION

This proceeding comes about through a remand by the U.S. Court of Appeals for the Third Circuit in its decision in *Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719 (3d Cir. 1989). The Court granted LEA's petition for review as to its contention that, in granting the full-power license, the NRC violated the National Environmental Policy Act of 1969 (NEPA) by failing adequately to consider severe-accident-mitigation design alternatives (SAMDAs). It then remanded the case to the NRC for consideration of SAMDAs. *Id.* at 741.

Pursuant to the Order of the Commission of May 5, 1989, this proceeding was instituted. In its Order, the Commission directed that a Licensing Board in considering DES-5,<sup>1</sup> LEA's contention underlying its appeal to the Court, limit consideration to those mitigation alternatives identified by the Appeal Board as being supported with the required bases and specificity. The Order stated that "the Appeal Board indicated that NRC-sponsored studies on severe accident

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<sup>1</sup>Contention DES-5 provides that "[t]he environmental risk of accidents during operation of the Limerick facility as proposed for licensing is significant, and preventative and/or mitigative alternatives to the design, mode of operation, procedures, and/or number of reactors presently proposed must be considered for purposes of compliance with the National Environmental Policy Act of 1969 and with 10 CFR Secs. 51.20(b), 51.21, 51.23(c), and 51.26. None have [sic] been considered."

mitigation identified by LEA or submitted to the Licensing Board provided bases and specificity for the contention. ALAB-819, 22 NRC 681, 693-94 (1985)."

LEA in its memorandum argues that the matters to be litigated in this proceeding are those issues raised by Contention DES-5 as drafted. LEA Memo at 2-3. The Commission's Order of May 5, 1989, is to the contrary and we are bound by the Commission's Order. A licensing board is a body of limited jurisdiction. Its jurisdiction is defined by the Commission, and the licensing board cannot enlarge the jurisdiction conferred by the Commission. *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-825, 22 NRC 785, 790 (1985).

To comply with the Commission's Order, one must look to the portions of the Appeal Board decision it cited. Our perusal of the cited passages has brought out that the Appeal Board did not specifically name particular SAMDA designs that it considered properly supported. Rather it considered several documents in reaching its conclusion that some alternatives had been supported with the proper basis and specificity. Among the documents considered were NUREG/CR-2666, "PWR Severe Accident Delineation and Assessment" and a status report on a study by R&D Associates (RDA). As to NUREG/CR-2666, the Appeal Board appears to have dismissed that document as "largely qualitative (rather than quantitative)" and as presenting "no cost-benefit analysis for any design feature." ALAB-819, *supra*, 22 NRC at 694.

To the RDA status report, however, the Appeal Board apparently gave its *imprimatur*, quoting a paragraph from that report and terming it "more enlightening" than NUREG/CR-2666. The quoted paragraph contains the statement that "[f]or Mark II containment as exemplified by the Limerick Plant, mitigation requirements (functions) have been identified, including containment heat removal, core residue capture and retention without concrete attack, and . . . some kind of venting system." *Id.* The Appeal Board then noted that the RDA project would not be completed for some time but that the interim material available (presumably the status report quoted) "appears to have satisfied the threshold basis and specificity requirements for admission of the contention; that is, particular design changes that might be cost-effective were at least identified." *Id.*

We are thus led to the conclusion that, in the Appeal Board's view, only design alternatives aimed at containment heat removal, core residue capture, and venting were adequately supported. The fact that the Board noted the pending nature of the RDA study suggests to us that designs aimed at the three approved ends, designs that might have in fact persisted into the final report, would, in retrospect, also be adequately supported even if they had not been specifically treated in the status report.

With the foregoing set of ground rules in mind, we turn now to the individual SAMDAs that have been proposed for litigation.

In the Report of the Parties (Report) jointly filed on June 30, 1989, six SAMDAs were accepted by all parties as litigable matters in this proceeding. Report at 2-3. They are:

- a. Pool Heat Removal System — A separate independent dedicated system for transferring heat from the suppression pool to the spray pond utilizing a diesel driven 3,200 gpm pump and heat exchanger without dependence on the Station's present electrical power or other systems. The diesel is cooled with water tapped off the spray pond suction line.
- b. Drywell Spray — A new dedicated system for heat and fission product removal using Pool Heat Removal System described in (a) above to inject water into the drywell.
- c. Core Debris Control (Core Catchers) — Two techniques, either a basemat rubble bed or using a dry crucible approach, to contain the debris in a known stable condition in the containment.
- d. Anticipated Transient Without Scram (ATWS) Vent — A large wetwell vent line to an elevated release point to remove heat added to the pool in an ATWS event and prevent overpressurization.
- e. Filtered Vent — Drywell and wetwell vents to a large filter (two types — gravel or enhanced water pool) to remove heat and fission products and prevent overpressurization.
- f. Large Containment Vacuum Breaker — To restore containment pressure to atmospheric level through 20" valves in certain severe accident cases where a vacuum has been produced.

Clearly all of these design alternatives fall within the three types of devices specified by the Appeal Board. While the drywell spray system was among those in NUREG/CR-2666 given a cool reception by the Appeal Board it is also a specific matter mentioned in the final RDA report, NUREG/CR-4025 (in just this configuration: working in conjunction with the pool heat removal system). NUREG/CR-4025 at 3-35. All of them are accepted for litigation.

Staff is expected to consider the SAMDAs approved above, under its NEPA obligation, along with any subsequent updating to the studies that the Appeal Board found provided basis and specificity for the contention. Subsequently developed information that further supports or alters the studies is relevant and should be considered. Asserted deficiencies in the Staff's future review of the SAMDAs may result in litigation of such matters at the appropriate time.

Intervenor claims that those alternatives and the supporting documents that were identified to the Licensing Board prior to the Appeal Board decision on the admissibility of the contention are relevant and should be considered in this proceeding. LEA Memo at 5-7. LEA's position has merit only to the extent that the SAMDAs and supporting documents referred to are those that the Appeal Board identified as providing basis and specificity for the contention, i.e., the RDA reports and the SAMDAs they identify. That is to what the Commission limited this litigation. The other alternatives and supporting documents that

were otherwise identified to the Licensing Board are beyond the scope of this proceeding.

LEA would have considered as relevant to the proceeding anything that the state of the art has developed since 1984 in severe-accident-mitigation designs. *Id.* at 8-9. That is beyond the scope of the proceeding ordered by the Commission and it cannot be considered.

We will accept in this proceeding matters clearly indicated by the Appeal Board in ALAB-819 as having been stated with adequate basis and specificity at the time of that decision. In doing so we shall, of course, recognize the admissibility of information developed more recently to the extent such information pertains to the SAMDAs then extant. We shall not, however, deal with SAMDAs that have themselves arisen only in the interim. The Commission has set the standard that LEA should have "the same opportunity to obtain consideration of specific SAMDAs as it would have had if its SAMDA contention had been fully litigated before the Licensing Board *when it was submitted.*" CLI-89-10, 30 NRC 1, 3 n.1 (1989) (emphasis added). Any other SAMDAs will be considered as late-filed. *Id.*

As to the matter of fuel pool fires that Intervenor wants considered, even LEA admits the chief concern here would occur "particularly after re-racking" and would influence choices "sometime over the next decade." LEA Memo at 11, Attach. 1 at 5. The matter might be litigable if and when it is raised in a license modification proceeding; we will not accept it now.

We reject the LEA position that matters other than design alternatives (modifications in training or procedures, for example) are appropriate for our consideration here. LEA Memo at 12-13. The very acronym itself suggests otherwise, and the court in its remand stated:

Severe accident mitigation design alternatives are, as the name suggests, possible plant *design* modifications that are intended not to prevent an accident, but to lessen the severity of the impact of an accident should one occur.

869 F.2d 719, 731 (emphasis added, footnote omitted).

By the same token, we reject the Intervenor's position that there is no "bright line" between mitigation and prevention. LEA Memo at 4 n.7. We will consider only those measures meant to reduce the consequences of an accident that is already severe, not measures intended to reduce the probability of a severe accident. We shall take as "severe" any accident involving serious core damage and shall look only at measures meant to "truncate" the accident after such damage has occurred.

## **LEA's "List of Primary Candidates"**

LEA attached to its Memorandum as Attachment 1 its "List of Primary Candidates for Severe Accident Mitigation." These are eight items described in some detail that LEA believes should also be accepted as possible SAMDAs. These include:

### ***Venting/Filter Devices***

LEA describes two types of devices: filtered containment venting and a wetwell vent. Both are accepted under items (d) and (e), above.

### ***Containment Spray/Flooding Modifications***

LEA suggests that a modification similar to that carried out by Boston Edison Company at its Pilgrim plant might be in order. It would involve modifying the existing drywell spray system by plugging certain spray nozzles and developing alternate supply paths for that system. The theory is that the additional paths would increase the reliability of the system, and the reduction in flow rate would make a larger number of alternate systems capable of sustaining a spray. LEA Memo, Attach. 1 at 3-5. The idea is not without some appeal, since it might be that the cost of such design changes would be small enough to compensate for their lessened effectiveness compared to that of the completely new system that we have admitted to litigation.

The Licensee argues that LEA has not shown how this alternative derives from any of the alternatives discussed in ALAB-819 (PECO Memo at 9), and that is true, although clearly a drywell spray of any sort is a heat removal mechanism, and LEA also suggests a further modification that could be viewed as providing some core residue control. LEA Memo, Attach. 1 at 4.

The Staff notes that modifications to an existing system are "not among the design alternatives listed in the . . . RDA report" cited by the Appeal Board. Staff Memo at 4. That too is true, although the final RDA report includes an analysis of a completely new system as admitted in alternative (b), above.

We must, we believe, apply our criteria strictly. The Appeal Board did not specifically mention any such modified system. It did, in fact, include a disclaimer of sorts of any such intent when it noted that, in the material before it, "[t]he authors of NUREG/CR-2666 did not include consideration of the containment spray system currently installed at Limerick." ALAB-819, *supra*, 22 NRC at 694 n.5. Thus such modifications are matters that the Appeal Board could not have had in mind. They represent an approach to mitigation that arose in its entirety, not from the materials considered in ALAB-819, but from later thinking, presumably involving Boston Edison Company and others. Thus the

Commission in CLI-89-10 has precluded us from considering this approach save possibly as a late-filed contention. CLI-89-10, *supra*, 30 NRC at 3 n.1.

#### *Containment Heat Removal Modifications*

LEA mentions a variety of modifications that could result in more effective heat removal. LEA Memo, Attach. I at 4-5. There is no indication that these modifications were all contemplated by the Appeal Board, and in fact even LEA recognizes that the only real potential candidate for use at Limerick is an augmented suppression pool cooling function. That SAMDA has been admitted as system (a), above. Otherwise, the containment heat removal modifications listed are not accepted for litigation.

#### *Spent Fuel Pool Accident Risk Modifications*

For the reasons set forth above, this type of modification will not be accepted for litigation. *Id.* at 5-6.

#### *Human Factors Modifications (Including Procedures)*

As we have explained above, procedural and training modifications are not within the scope of this proceeding. LEA attempts to include these items, as well as seismic modifications, the latter modifications including chatter-insensitive relays. *Id.* at 6-8. As we have explained, none of these matters is within the scope as contemplated by the Appeal Board in ALAB-819. The same is true of the notion of control room design review for human factors deficiencies mentioned by LEA in the same section of its submittal. *Id.* at 7-8.

#### *Seismic Modifications*

LEA devotes a separate section to additional seismic modifications. *Id.* at 8-9. Such modifications would be aimed primarily at reducing accident frequency. Further, there is no indication that they were among the matters sanctioned by the Appeal Board. Thus these modifications are beyond the scope of the proceeding.

#### *Reduction of Transient Initiator Frequency*

LEA would litigate modifications intended to reduce transients and hence reduce accident frequency. *Id.* at 9-11. As we have explained above, we consider such measures clearly beyond the scope of the remand.

### **Reactor Pressure Vessel Depressurization System Modifications**

LEA would introduce this subject as a "way to reduce core damage frequency." *Id.* at 11. Since it is only aimed at reducing core damage frequency, it is not admissible here.

### **Current "Best Estimate" Risk Reduction Package for Limerick**

Under this caption LEA presents what is apparently a summary of ten previously mentioned modifications that together comprise LEA's notion of the optimum package. *Id.* at 12. Some (e.g., items (a) and (b)) have already been accepted for litigation in whole or in part. The rest have been rejected for reasons set forth above. (We presume that item (j), "spent fuel proof accident risk modification," was meant to read "spent fuel pool accident risk modification.")

### **LEA's Supplemental List**

LEA attached to its memorandum a supplemental list of approximately eighty-five items it seeks also to litigate. LEA Memo, Attach. 2. This list was submitted to Staff and Licensee shortly before the deadline for briefing the Board, and both these parties complain of the tardiness of the submittal. PECO Memo at 8; Staff Memo at 3. PECO attempted to treat these items in groups. PECO Memo at 14 ff. Staff declined even to attempt a treatment because of the brief time that then remained. Staff Memo at 3. We have examined the list. It is redundant, and it is notably lacking in scrutability. Many of the items simply urge us to consider the alternatives "described in" some report. Others appear to duplicate one another or to duplicate matters already dealt with, but the descriptions are so sparse as to make it impossible to determine exactly whether they overlap or not. Clearly this submittal does not meet the threshold test of specificity under any circumstances. We do note one feature, however: buried deep within the rambling and redundant pile presented is a series of "core catcher" alternatives. LEA Memo, Attach. 2 at 4-5. Licensee has stated that "[t]o the extent these alternatives were later examined by RDA and included in its final report with costs and benefits related to Limerick discussed with reasonable specificity, Licensee does not object to the consideration of those alternatives." PECO Memo at 32.

The only two core debris control schemes the parties have agreed to examine are a basemat rubble bed and a dry crucible (*cf.* item (c), *supra*). We note that the final RDA report included analysis of a third approach to core debris control: diking and thoria plates on the diaphragm floor and thoria-covered gravel beneath the downcomers in the suppression pool. NUREG/CR-4025 at 3-39 ff. The costs derived for this system are quite comparable to those for the

rubble bed and substantially less than those for the dry crucible. *Id.* at 3-44, 47, 50. However, it does not appear that any of LEA's listed devices would correspond directly to the third RDA scheme. We therefore believe that the third scheme falls into the category of approaches that can only be introduced as late-filed contentions and that none of the LEA proposals is presently admissible.

The "Supplemental List" appears to be a catch-all of items that might have application to severe-accident mitigation, irrespective of whether or not the items fall within the Commission's standard for SAMDAs that are to be considered in this proceeding. The list, being too cryptic for meaningful analysis, will not be considered further. No request will be made of the Staff to comment on the list.

## CONCLUSION

The Board has determined that the SAMDAs to be considered pursuant to NEPA in this proceeding consist of the following: containment heat removal, core residue capture, and venting. As agreed to by the parties, and approved by the Board, the SAMDAs include the following: pool heat removal system, drywell spray, core debris control, anticipated transient without scram vent, filtered vent, and large containment vacuum breaker.

It is so ORDERED.

### THE ATOMIC SAFETY AND LICENSING BOARD

Jerry Harbour  
ADMINISTRATIVE JUDGE

Frederick J. Shon  
ADMINISTRATIVE JUDGE

Morton B. Margulies, Chairman  
ADMINISTRATIVE LAW JUDGE

Bethesda, Maryland  
July 18, 1989

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

**Before Administrative Judges:**

**Peter B. Bloch, Chair  
Gustave A. Linenberger, Jr.  
Dr. Jerry Harbour**

**In the Matter of**

**Docket Nos. 50-275-OLA  
50-323-OLA  
(ASLBP No. 89-586-02-OLA)  
(Remand Concerning Zircaloy  
Fire; Adequacy of Supplemental  
Environmental Assessment)**

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

**July 28, 1989**

The Board dismissed this license amendment proceeding on the unopposed request of the Intervenor.

**MEMORANDUM AND ORDER  
(Dismissing Proceeding)**

Pursuant to the unopposed request of the Sierra Club,<sup>1</sup> which is the sole

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<sup>1</sup> Sierra Club Request to Withdraw Contentions, July 24, 1989, is attached in its entirety.

Intervenor, and upon consideration of the entire record in this matter, the Board orders that this proceeding is DISMISSED.

**THE ATOMIC SAFETY AND  
LICENSING BOARD**

**Jerry Harbour  
ADMINISTRATIVE JUDGE**

**Gustave A. Linenberger, Jr.  
ADMINISTRATIVE JUDGE**

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

**ATTACHMENT**

**Sierra Club Request to Withdraw Contentions**

The Sierra Club has reviewed several recently published documents related to Generic Issue 82. These documents contain new findings relevant to issues raised in this proceeding. In addition, NRC staff has provided the Sierra Club with supplemental information which also has a bearing on this proceeding. Upon analysis of this additional material, the Sierra Club believes that its contentions concerning the risks of catastrophic Zircaloy fires have been adequately addressed. We therefore request permission to withdraw our contention regarding this issue.

On Friday, July 23, a telephone conference call was held in which Mr. Rutberg for the NRC, Mr. Locke for PG&E and Dr. Ferguson for the Sierra Club participated. Dr. Ferguson informed the others of the Club's intention to request that the contention related to Generic Issue 82 be withdrawn. Mr. Rutberg and Mr. Locke indicated during this call that they would support this request.

Also at issue in this proceeding is the adequacy of the Supplemental Environmental Assessment for the reracking. Dr. Ferguson suggested that the Sierra Club's contention related to the EA also be withdrawn and that further informal discussions between Commission staff and the Sierra Club regarding the implementation of NEPA by the NRC be held sometime in the near future. Mr. Rutberg agreed that this might be a more productive approach to resolving the outstanding NEPA issues and that he would be willing to participate in fur-

ther informal discussion. The Sierra Club therefore requests that the remaining contention related to the NEPA documents in this proceeding also be withdrawn. Mr. Rutberg and Mr. Locke indicated that they would support this request also.

Thus, the Sierra Club requests that all the outstanding contentions in the current proceedings be withdrawn with the understanding that further discussion between the NRC and the Sierra Club regarding the Commission's implementation of the National Environmental Policy Act will occur.

Respectfully,

(signed)

Dr. Richard B. Ferguson  
Sierra Club

dated July 24, 1989

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

**Before Administrative Judge:**

**John H Frye, III**

**In the Matter of**

**Docket No. 55-20449  
(ASLBP No. 89-588-01-SP)**

**RODGER W. ELLINGWOOD  
(Senior Operator License for Catawba  
Nuclear Station)**

**July 31, 1989**

The Presiding Officer sustains Staff's proposed denial of a senior reactor operator's license application for failure to pass the written examination.

**INITIAL DECISION**

In September 1988, Rodger W. Ellingwood took an examination in an effort to qualify as a senior reactor operator (SRO) for Duke Power Company's Catawba Nuclear Station. Although Mr. Ellingwood passed the operating test, he did not pass the written examination. Staff advised him that he might seek reconsideration of Staff's grading of the written examination, and Mr. Ellingwood followed this course. On March 1, Staff informed Mr. Ellingwood that it had reconsidered its marking of the examination in light of Mr. Ellingwood's comments and had revised his score upward, but had determined that he still had not achieved a passing score. Mr. Ellingwood filed a timely request for a hearing with the Commission's Secretary. On April 13 the Secretary, acting

pursuant to 10 C.F.R. § 2.772(j), forwarded the request to the Chief Administrative Judge who, on April 17, appointed the undersigned to preside.<sup>1</sup>

In an unpublished Memorandum and Order of April 27, I initiated a proceeding on Staff's proposed denial of Mr. Ellingwood's application. Because the Commission had not adopted rules to govern the procedures to be employed in cases such as these, although it had proposed to apply the rules contained in the recently adopted Subpart L to 10 C.F.R. Part 2,<sup>2</sup> I determined that the Rules contained in Subpart L would apply to this proceeding.<sup>3</sup> In an unpublished Order of May 30, the Commission approved this decision.

Pursuant to 10 C.F.R. § 2.1205(h), Mr. Ellingwood and Staff were the parties to the proceeding. Pursuant to 10 C.F.R. § 2.1231(a) and (b), Staff filed with the Secretary and served a hearing file containing all documents and correspondence relevant to the SRO examination taken by Mr. Ellingwood, including any applicable regulations or Staff guidance.

Following service of the hearing file, Mr. Ellingwood filed and served a detailed description of the mistakes that he maintains Staff made in the grading of his examination. He indicated that he did not wish to make an oral presentation in support of his position. Staff then responded to Mr. Ellingwood's arguments. I find that oral presentations are not necessary and that the existing record is sufficiently complete to permit the issuance of this Initial Decision.

The examination that Mr. Ellingwood took consisted of four sections totaling 112.25 points. In order to pass, it was necessary to score at least 80% on the examination as a whole and at least 70% on each section. Prior to Staff review, Mr. Ellingwood's grade was as follows:

Category	Value	Score	Percent
	30.0	23.10	77
	26.25	18.125	69
	27.75	22.35	80.5
	28.25	20.70	73.3
	<hr/> 112.25	<hr/> 84.275	<hr/> 74.8

Mr. Ellingwood asked Staff to review sixteen answers. After review, Staff credited Mr. Ellingwood with an additional 2.025 points and deleted questions

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<sup>1</sup>Judge Frederick J. Shon was appointed to provide technical assistance in the compilation of the record.

<sup>2</sup>See Proposed Rule, Informal Hearing Procedures for Nuclear Reactor Operator License Adjudications, 54 Fed. Reg. 17,961, April 26, 1989.

<sup>3</sup>At my request, Staff supplied Mr. Ellingwood with a copy of Subpart L.

worth 2.5 points from the examination because they were ambiguous. Thus after Staff's review, Mr. Ellingwood's score was as follows:

Category			
Value	Change	Score	Percent
29.5	+0.6	23.70	80.3
26.25	+0.85	18.975	72.3
26.75	+0.20	22.55	84.3
27.25	+0.375	21.075	77.3
<hr/>	<hr/>	<hr/>	<hr/>
109.75	+2.025	86.30	78.55

Thus, although Mr. Ellingwood achieved the necessary 70% on each section of the examination, he fell 1.45% short of the required overall score. Mr. Ellingwood has asked that I restore the three questions that Staff deleted from the exam and conclude that his answers to these questions were correct. In addition, Mr. Ellingwood challenges Staff's marking of questions 8.02, 8.20, and 6.09 worth 1.0, 0.5, and 0.2 points respectively. If none of the questions that Staff deleted from the exam are restored as Mr. Ellingwood asks, Mr. Ellingwood will need to score 80% of 109.75 to achieve a passing score, or 87.8, which is 1.5 points higher than his score as it now stands. If some or all of the questions deleted from the exam are restored, the number of additional points that Mr. Ellingwood needs to pass will be reduced as follows:

Questions	Points	Exam			Points Needed
		Total	80%	Score	
5.10a	0.5	110.25	88.2	86.8	1.44
7.07	1.0	110.75	88.6	87.3	1.3
5.10a & 7.07	1.5	111.25	89.0	87.8	1.2
7.07 & 8.18	2.0	111.75	89.4	88.3	1.1
7.07, 8.18 & 5.10a	2.5	112.25	89.8	88.8	1.0

Thus Mr. Ellingwood needs a minimum of 1.0 points restored from the 1.7 points that he contends Staff should not have deducted from his score. Because Mr. Ellingwood challenges Staff's marking of questions 8.02, 8.20, and 6.09 worth 1.0, 0.5, and 0.2 points respectively, it is evident that he must receive credit for at least question 8.02 if he is to prevail.

Question 8.02 postulates that the plant is at 100% power, that one ECCS subsystem is tagged out of service because of mechanical problems with one of its elements, and that routine maintenance on the other requires that, in order to maintain one operable subsystem, elements of both must be combined in a so-called cross-train lineup. The question then asks which of four possible answers most accurately describes the allowances and limitations imposed by the technical specifications. Staff states that the postulated facts would require a plant shutdown begun within 1 hour. Mr. Ellingwood argues that the correct answer is that the element of the subsystem tagged out of service for mechanical problems must be returned to service within 72 hours or the plant must be in Hot Standby within the next 6 hours and Hot Shutdown within the following 6 hours.

Mr. Ellingwood bases his argument on that portion of technical specification 3.5.2 which requires two operable subsystems. If one subsystem is inoperable, this provision requires the action that Mr. Ellingwood gave in his answer. Mr. Ellingwood also relies on his employer's interpretation of this technical specification which permits a cross-train lineup in order to have one operable subsystem. That interpretation, however, also notes that a cross-train lineup will only be used "when unexpected plant conditions put us into this situation." It states that "[i]t will not be a normal practice to intentionally remove equipment for maintenance . . . that would result in this cross-train lineup."

Because the question clearly postulates that normal maintenance requires the cross-train lineup, I must sustain Staff's marking of this question. Mr. Ellingwood argues that the question postulated that the ECCS subsystems were already in this configuration and that, given the choice, he would not permit the routine maintenance to take place. While I agree that the situation postulated by the question is as Mr. Ellingwood states, that fact does not help his case. Clearly, the terms of the documentation provided by Mr. Ellingwood do not permit the action that Mr. Ellingwood stated he would take.

Because Mr. Ellingwood needed to receive credit for a correct answer on this question in order to achieve the required 80%, it is unnecessary for me to consider his other arguments. Even if he were to prevail on all of his other arguments, he would not achieve the required 80%. However, in sustaining Staff's marking of the examination, I am compelled to observe that Mr. Ellingwood has fallen a maximum of 1.5 points, or about 1.4% short of a passing score. At the same time, Staff has conceded that 2.025 points, or about 1.8%, were incorrectly deducted from Mr. Ellingwood's score on the original marking and that questions worth 2.5 points, or about 2.2%, were ambiguous and therefore should be deleted. Consequently, one must wonder whether the 1.4% shortfall in Mr. Ellingwood's score is indeed significant. It seems entirely probable that, given Staff's actions affecting 4.0%, this 1.4% is not a reliable indication that Mr. Ellingwood lacks the necessary competence to be an SRO.

Of course Staff must set a pass-fail mark at some point. However, Staff is not without flexibility in its administration of this program. Section 55.47 of the Regulations provides that Staff may waive examination and test requirements under certain circumstances. If, as appears to be the case, Mr. Ellingwood has satisfied all other requirements for an SRO's license, Staff may wish to consider whether waiving his 1.4% shortfall would be appropriate. Doing so would not only benefit Mr. Ellingwood, it would also save Staff the expense of administering another SRO's examination to him.

In consideration of the foregoing, it is ORDERED that:

1. Staff's proposed denial of Mr. Ellingwood's application for an SRO's license is sustained.
2. Pursuant to 10 C.F.R. §§ 2.1253, 2.1255, 2.762, and 2.763, Mr. Ellingwood may appeal this Initial Decision to the Atomic Safety and Licensing Appeal Board by filing a notice of appeal specifying the party appealing and the decision appealed within 10 days following service of this Initial Decision. If Mr. Ellingwood appeals, he must file a brief in support of his appeal within 30 days following the filing of his notice of appeal. Staff may file a responsive brief within 40 days following the expiration of the period for the filing of Mr. Ellingwood's brief.
3. In the event that Mr. Ellingwood does not appeal, this Initial Decision shall become the final action of the Nuclear Regulatory Commission 30 days after its issuance.

PRESIDING OFFICER

John H Frye, III  
ADMINISTRATIVE JUDGE

Bethesda, Maryland  
July 31, 1989

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

**Thomas E. Murley, Director**

In the Matter of

Docket Nos. 50-250  
50-251

FLORIDA POWER & LIGHT  
COMPANY  
(Turkey Point Nuclear Generating Plant,  
Units 3 and 4)

July 12, 1989

In this Partial Decision, the Director of Nuclear Reactor Regulation defers consideration of two issues raised in a Petition filed by Thomas J. Saporito and denies the remainder of the Petition. Specifically, Mr. Saporito requests that the NRC keep Turkey Point Units 3 and 4 shut down until the Licensee completes an internal safety investigation and the NRC completes an investigation of certain allegations, immediately suspend and revoke the operating licenses for these units, issue a notice of violation and impose an escalated civil penalty on the Licensee because of discrimination and harassment, and immediately issue an order outlining steps to be taken to correct problems with security, operations, maintenance, plant equipment, and training deficiencies. As a basis for his requests, he alleges that the Licensee has demonstrated problems with maintenance, leadership, "quality improvement," operator behavior, training, procedural deficiencies, and security; that there has been a chilling effect on reporting safety concerns as a result of discrimination and harassment against employees; and that there has been a willful falsification and destruction of safety-related plant documents. In this Partial Decision, the Director defers consideration of the issues of discrimination and destruction of documents, and denies the Petitioner's requests with regard to the other issues.

## **RULES OF PRACTICE: SHOW-CAUSE PROCEEDING**

The institution of proceedings pursuant to 10 C.F.R. § 2.202 is appropriate only where substantial health and safety issues have been raised.

### **TECHNICAL ISSUES DISCUSSED**

Systematic Assessments of Licensee Performance  
Repairs and Maintenance  
Operator Performance  
Organization and Management  
Procedures and Training  
Security Program.

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

#### **INTRODUCTION**

On December 21, 1988, Thomas J. Saporito, Jr., submitted a request pursuant to 10 C.F.R. § 2.206 that the NRC take certain actions with regard to the Turkey Point Nuclear Generating Plant, Units 3 and 4. The request of December 21, 1988, was supplemented by five later submittals dated January 13 and 30, February 7, April 25 and 26, 1989. These six documents were referred to the Office of Nuclear Reactor Regulation for consideration pursuant to section 2.206. The documents will be jointly referred to herein as the Petition.

The Petition requests the NRC to (1) keep Turkey Point Units 3 and 4 shut down until Florida Power & Light Company (FPL, the Licensee) completes an internal safety investigation and the NRC completes an investigation of allegations provided by Mr. Saporito to the NRC Region II office on December 5, 1988; (2) immediately suspend and revoke the operating licenses for Units 3 and 4; (3) issue a notice of violation and impose an escalated civil penalty on the Licensee because of discrimination and harassment; and (4) immediately issue an order outlining the steps to be taken to correct problems with security, operations, maintenance, plant equipment, and employee/operator training deficiencies.

As a basis for his requests, the Petitioner makes numerous assertions. Broadly summarized, these are that the Licensee has demonstrated and/or experienced: (1) poor maintenance, (2) poor leadership, (3) poor "quality

improvement,"<sup>1</sup> (4) unprofessional operator behavior, (5) poor training, (6) procedural deficiencies, and (7) security problems. Mr. Saporito also cites a severe chilling effect on reporting safety concerns as a result of discrimination against and harassment of employees, the willful falsification and destruction of safety-related plant documents, and the Licensee's inability to address and resolve these problems effectively. In addition to the Petition, numerous additional letters were submitted by Mr. Saporito which urged the NRC to implement the requests in his Petition.

In support of his assertions, Mr. Saporito refers to numerous documents that, in his view, have identified problems with the facility. Many of these documents are simply listed without further explanation as to the concerns these documents have identified. To the extent that Mr. Saporito has stated his purpose for citing these documents, the Staff has factored the information provided into this Decision. However, to the extent that Mr. Saporito has not provided the factual basis for his request with the specificity required by section 2.206, action need not be taken with regard to the alleged findings of these documents. See, e.g., *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), DD-85-11, 22 NRC 149, 154 (1985).

By letter dated January 30, 1989, I acknowledged receipt of Mr. Saporito's Petition. In that letter, I explained that a preliminary review of the concerns raised in the Petition did not indicate any immediate need to keep the Turkey Point Units 3 and 4 shut down, since the concerns did not identify any new information that was not already being addressed by the Licensee and the Staff, or of which the Staff was not aware. A notice was published in the *Federal Register* on February 6, 1989 (54 Fed. Reg. 5708) indicating that the Petitioner's request was under consideration.<sup>2</sup> By letter dated February 1, 1989, the Licensee was asked to respond to the Petition. In its response, dated March 15, 1989, the Licensee stated that, for the most part, the items referred to in statements made by Mr. Saporito involved information already addressed by the NRC and FPL, do not raise any safety concerns, are so vague as to preclude meaningful response, or are demonstrably untrue, and that the relief requested in the Petition should be denied.

With the exception of two issues raised in the Petition, the NRC Staff review of the Petition is now complete. Those two issues, which were also submitted as allegations to the Region II office, are still under investigation and allege

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<sup>1</sup> Mr. Saporito does not explain what he means by "quality improvement." For the purpose of this Decision, the Staff has interpreted this term to encompass Mr. Saporito's claims regarding the Licensee's quality assurance and assertions that the Licensee has failed to correct long-standing problems in its program, which has resulted in a generally poor enforcement history.

<sup>2</sup> A letter to Thomas J. Saporito, Jr., from Thomas E. Murley, Director, Office of Nuclear Reactor Regulation, dated April 14, 1989, acknowledged receipt of additional submittals by Mr. Saporito. In that letter, Mr. Saporito was informed that the NRC would not separately acknowledge receipt of any future letters he might submit regarding suspension/revocation of the Turkey Point license.

that there has been (1) a chilling effect on reporting safety concerns as a result of discrimination and harassment and (2) a willful falsification and destruction of safety-related documents. When the investigation is complete, the NRC will determine whether any action is appropriate to take with regard to these two issues. With regard to the remaining issues raised by the Petitioner, for reasons stated in this Partial Decision, the Petitioner's requests are denied.

## BACKGROUND

The NRC Staff has been concerned about the performance of the Turkey Point plant for a number of years. This has been evidenced by an increasing number (and magnitude) of civil penalties that peaked in 1986 and 1987, issuance of several NRC orders for specific improvements, below-average ratings and identification of areas needing improvement in the NRC systematic assessments of licensee performance (SALPs), a high level of NRC inspection effort, and the inclusion of Turkey Point on the NRC list of plants to be monitored more closely. Over the years the NRC Staff has identified and documented specific issues of concern. For example, the most recent SALP report identified maintenance and operations as areas needing improvement. In two of the three most recent SALP reports, training has been rated below average. In the confirmatory order issued by the NRC on October 19, 1987, management concerns were identified and an independent management appraisal was ordered. Also, in that confirmatory order, the operator professionalism issue was recognized and a management-on-shift (MOS) program was ordered. The need for improved plant procedures was recognized in a confirmatory order dated July 13, 1984, and the Licensee initiated a broad-scoped procedures upgrade program. A subsequent confirmatory order dated August 12, 1986, was issued, superseding the order of July 13, 1984, to expand the scope of requirements to include certain other items.

In response to these concerns, the Licensee has made many improvements. In the past few years, several hundred million dollars worth of improved facilities and equipment have been added at Turkey Point, such as a new maintenance facility, a new training building with a plant-specific simulator, and new steam generators. The Licensee is currently in the process of adding two new safety-related emergency electric power generators, a major safety enhancement, at an additional cost of about 80 million dollars. Reliability of equipment has been enhanced by adding many preventive maintenance and surveillance procedures for plant equipment. Extensive changes in management have been made, bringing in new experienced personnel in key positions and adopting an improved management philosophy. In 1988, the plant set site records for continuous operation, with no major operational events. The number and

magnitude of civil penalties also has decreased markedly since 1987. Although the improvements noted above have been made, and I believe the plant to be safer today than before the improvements were made, the NRC is still dissatisfied with Turkey Point's performance. The many program, management, and hardware changes implemented at Turkey Point have not resulted in plant performance on a par with NRC expectations. We intend to continue to monitor the operation of the plant closely until it is clear that the plant is operating well and can be expected to continue to do so.

On December 5, 1988, Mr. Saporito provided the NRC Region II office with a number of allegations that he refers to in support of his subsequent requests. Nearly all of these allegations were referred to the Licensee in a letter from the NRC Staff, dated January 6, 1989. The Licensee responded to these allegations in a letter dated February 24, 1989. An NRC special inspection was conducted to follow up on these allegations. The inspection team reviewed the Licensee's response in conjunction with the followup inspection of the allegations. Although forty-three of the allegations were substantiated, the inspection team concluded that the allegations raised no new safety issues that had not been previously addressed. See Inspection Report 50-250/89-13 and 50-251/89-13, dated May 8, 1989.

Subsequently, on March 3 and 15, 1989, a second group of maintenance-related allegations was provided to the NRC Region II office by Mr. Saporito. These were very similar in substance to the earlier maintenance-related allegations. These allegations were sent to the Licensee for response on April 12, 1989. The NRC Staff has reviewed these allegations and has concluded that the second group of allegations had little safety significance and will notify Mr. Saporito of our findings on them under separate cover.

## DISCUSSION

For the purposes of the discussion below, the Petitioner's major areas of concern (which were described earlier in the introduction to this Decision) have been separated into three categories: (1) poor maintenance, leadership, quality improvement, unprofessional behavior, and inability of management to resolve these problems; (2) procedural deficiencies and poor training; and (3) poor security. As noted above, the two remaining issues, relating to a chilling effect on reporting safety concerns as a result of discrimination and harassment and willful falsification of documents, are still under investigation.

## **1. Poor Maintenance, Leadership, Quality Improvement, Unprofessional Behavior, and Inability of Management to Resolve Problems**

The Petitioner alleges that Turkey Point Plant has demonstrated poor maintenance practices, poor leadership, poor "quality improvement" (i.e., poor quality control and a poor enforcement history), unprofessional operator behavior, and a lack of suitable management expertise to properly address and resolve these concerns. In support of these assertions, the Petitioner refers to the Enercon Services Inc. report, which was an independent management appraisal that identified five root causes of performance deficiencies to be inadequate leadership, inadequate sense of personal accountability, lack of sufficient technical support, inadequacies in key support systems, and a lack of a strong sense of leadership in the operations department, which in his view fails to "demand excellence" from other departments. The Petitioner also refers to the findings of the SALP report dated February 7, 1985, for the period July 1, 1983, through October 31, 1984 (50-250/85-01; 50-251/85-01), and the most recent SALP report dated September 13, 1988 (50-250/88-15; 50-251/88-15), for the period June 1, 1987, through June 30, 1988, which rated the maintenance area Category 3 and had many adverse findings that the Petitioner lists. The Petitioner also asserts that because of problems, including maintenance, the Licensee has been unable to bring Unit 3 on line since early December 1988. Finally, the Petitioner asserts that conduct of maintenance performed on the Unit 3 thimble guide tube assemblies departed from safety-related procedures. In his view, the Licensee's zeal to return these nuclear units to operation resulted in "rush work," and a severe accident may well have resulted from this maintenance activity.

With respect to the Petitioner's concern about poor maintenance, the NRC Staff has recognized the need for improvement in this area as evidenced by a low SALP rating in three of the last four SALP periods, including the most recent one. However, a low SALP rating does not mean a plant is unsafe but that the NRC believes improvements should be made by the Licensee. Partly because of aging plant equipment, a good maintenance program is especially important to ensure a well-run plant. In bimonthly management meetings with the Licensee since 1987, the NRC Staff has continually focused on the need for maintenance improvements. The Licensee added a new maintenance building in 1988, has significantly increased the ratio of preventive maintenance to corrective maintenance activities over the past year, and has markedly reduced the number of green tags (signifying maintenance needs) in the control room. A special NRC maintenance inspection was conducted in December 1988, and Inspection Report 50-250/88-32; 50-251/88-32 was issued on April 4, 1989. This report concluded that a satisfactory maintenance program had been developed, but that its implementation is poor. An improving trend was noted, stemming from changes in management's approach to maintenance and from newly instituted

programmatic changes. The recent focus at the site on improving the spare parts program, combined with other improvements in the maintenance program such as management changes in the maintenance organization and a higher level of staffing, should assist in improving the overall reliability of plant equipment. Although a number of maintenance-related allegations were presented to our Region II office by the Petitioner, Inspection Report 50-250/89-13; 50-251/89-13 dated May 8, 1989, presented the results of a special inspection of those allegations, which indicated that no significant safety concerns were found that would justify shutting down the plant.

The Petitioner also cited an instance of maintenance error in performing work on the Unit 3 thimble guide tube assemblies, as noted above, and attributes it to rush work. Our inspection efforts indicate the error occurred because of carelessness by a worker. Although the guide tube to be repaired was well marked, and details of the repair work to be performed had been discussed with the worker, he proceeded to begin work on the wrong guide tube. The mistake was considered to result from an unacceptable implementation of work controls, and the worker was dismissed from employment by the Licensee.

With respect to Petitioner's concerns about unprofessional operator behavior, this concern was raised by the NRC Staff in 1987 and documented in Inspection Report 50-250/87-44; 50-251/87-44, dated December 9, 1987. Although unprofessional behavior was found not to be pervasive at the site, there were isolated instances identified and reported in the inspection report. One such instance involved an unlicensed person manipulating a control under the supervision of a licensed operator, in violation of NRC regulations. This event was identified by the Licensee, although the Licensee did not respond with action in a timely manner. The NRC responded with high-level discussions with the Licensee which resulted in NRC conducting continuous control room observations over an extended period. Since that concern was raised, the Licensee has appointed a new Plant Manager, a new Operations Superintendent, and several new operations shift supervisors. In addition, a number of newly trained operators have been added, while some previous operators have been removed from on-shift duty. As a result the NRC Staff believes the quality of the operations staff has improved. A new guidance document for professional behavior was prepared for control room operators and committed to by them. Control room operators have begun wearing uniforms in an effort to establish pride in their position and teamwork. As part of the confirmatory order of October 19, 1987, a management-on-shift (MOS) program was implemented in late 1987 to monitor operations. This program was conceived by the Licensee and included a number of independent managers and personnel, experienced in control room operations, who served on shift in a monitoring capacity. Because of the operational improvements already implemented and under way, the NRC granted approval for the Licensee to terminate the MOS program on January 20, 1989.

With respect to the Petitioner's concerns about management issues, such as poor leadership, poor quality improvement, and the inability of management to address and resolve concerns, the NRC Staff recognized the need for improved management at Turkey Point several years ago. In its confirmatory order dated October 19, 1987, the NRC Staff confirmed the Licensee's commitment to cooperate in an independent management appraisal (IMA) of the Licensee's corporate and Turkey Point organizations. This appraisal was carried out by Enercon Services Inc., and issued as a report dated April 18, 1988. The issues noted above were identified in the IMA along-with numerous recommendations. The Licensee's formal response to the IMA was dated August 15, 1988. However, actions to deal with the management problems began earlier. Widespread management changes were made throughout the organization at corporate headquarters and at the Turkey Point site, bringing in new leadership from outside the Licensee's organization in several important positions, including a new site Vice President in mid-1987, a new Operations Superintendent in October 1987, a new Senior Vice President-Nuclear in January 1988, a new Plant Manager in May 1988, and a new site Vice President in May 1989. Also, in early 1989, a new Maintenance Superintendent and a new Security Director were appointed. In the Licensee's response to the IMA, numerous actions were identified to address and resolve the issues identified in the IMA. Many of these actions have already been implemented, while some are ongoing, including setting goals and communicating them to employees, defining job requirements and matching them with skilled people, and establishing performance measures. Quality improvement information, such as trends in radiation exposures and plant performance indicators, is updated on a monthly basis and provided to top management.

The NRC Staff is continuing to monitor the Licensee's implementation of the numerous IMA recommendations. We believe the IMA effort and the Licensee's response so far have resulted in some performance improvements. For example, both units have operated in 1988 with few problems, the number and severity of civil penalties have decreased significantly from the high levels of 1986 and 1987, and an improved and more professional attitude can be seen at the site, especially in operations. There are still problems to be overcome at the plant, but progress has been and is being made.

## **2. Procedural Deficiencies and Poor Training**

The Petitioner raises concerns with regard to the training of personnel and with procedures. He claims that these problems also have been part of the reason that the Licensee has been unable to bring Unit 3 on line since early December 1988. In support of his allegations in these areas, he refers to NRC Inspection Report 50-250/85-32; 50-251/85-32. This report had indicated that there were no administrative controls or technical specification requirements in place to ensure

the availability of the nonsafety-grade standby feedwater system. The report further stated that, with regard to the safety-related nitrogen system, it cannot be assumed that control room operators would shift the flow control valves from automatic to manual mode within 6-7 minutes following an accident because (1) some operators were trained to assume that they had 15 to 20 minutes to take action, and (2) applicable emergency procedures did not include requirements for the operators to shift the flow control valves to manual. The Petitioner also asserts that the Licensee has a well-documented history involving departures from approved procedures that have resulted in escalated enforcement actions.

With respect to procedural deficiencies, there are two basic reasons for such deficiencies: (1) the procedures themselves need improvement, and (2) the procedures are not adhered to strictly. The latter problem is a management/training issue that is expected to improve as the management and training improvements continue to take effect. The need for improved procedures at Turkey Point was recognized by the NRC Staff in the early 1980s. After discussions between NRC and the Licensee, the Licensee proposed a major performance enhancement program (PEP) in a letter to the NRC Region II office, dated April 11, 1984. In confirmatory orders issued by the Commission on July 13, 1984, and August 12, 1986, the PEP program was made a requirement. One facet of PEP was a procedures upgrade program.

As part of the procedures upgrade program, a major upgrade was made to procedures for technical specification surveillances. Many added surveillances/procedures were developed to permit operators to more closely monitor the performance of their equipment. Already-existing surveillance procedures were revised and improved. Additional preventive maintenance procedures were added. The NRC Staff believes that this effort produced a significant enhancement to safe plant operation. Other procedural improvements include: the adoption of the writers guide for procedures prepared by the Institute of Nuclear Power Operations (INPO); the consideration of human factors when developing procedures; required walkdowns of new procedures, where appropriate; and the implementation of upgraded emergency operation procedures in response to NRC requirements that were developed after the accident at Three Mile Island. The NRC Staff recognizes that significant additional improvements are still needed with respect to procedures at the plant. However, the Licensee has made considerable progress, and the procedure upgrade process is an activity expected to continue for the life of a plant (at all plants) and can proceed while the plant operates.

With respect to training at Turkey Point, a new Training Superintendent, who is experienced in operations, was appointed in mid-1987. The training staff was augmented at that time by about fifteen contractor personnel who had previously held senior reactor operator licenses. In addition, the non-operator training changed from a self-teach program to include classroom instruction. The training

staff has now increased to nearly eighty personnel from fewer than sixty in early 1987. The Licensee's increasing recognition of the importance of training has led to larger classes of trainees than existed a few years ago. The addition of a new training facility in late 1986, including a recently added plant-specific simulator, represents an improved training capability and is expected to result in a stronger operational staff over the long term. Even with the improvements noted, the NRC Staff believes further near-term progress is needed, especially in the implementation of improvements already identified by the Licensee. This was evidenced by recent unsatisfactory performance on NRC-administered requalification examinations. Following these exams, extensive retraining and NRC-monitored reexamination were administered. The Licensee has recently outlined steps that are expected to lead to a satisfactory training program. For example, simulator training will be increased, emergency plan criteria will be designed into the simulator scenario guides, and instructors will be retrained and evaluated. The Staff has been closely monitoring the Licensee's progress in this area.

With respect to certain findings in Inspection Report 50-250/85-32; 50-251/85-32 cited by the Petitioner, these findings were published in 1985 and do not reflect the current state of the plant. Corrective actions were taken years ago. For example, for the nonsafety-grade standby feedwater system, administrative controls, such as periodic testing and limited allowable outage time for the pumps, have been in place for several years to ensure the availability on demand of this system. As another example, for the safety-related nitrogen system, the Licensee responded on October 1, 1986, to an NRC notice of violation. The Licensee stated that procedures had been revised and operators trained for proper shifting of the auxiliary feedwater flow control valves from automatic to manual. This was inspected and closed by the NRC in Inspection Report 50-250/88-14; 50-251/88-14, dated July 29, 1988, which found that these items had been satisfactorily resolved.

### 3. Poor Security

Finally, the Petitioner alleges weaknesses in the Licensee's security program, as evidenced by what he describes as a continuing number of violations in this area. In this connection, the Petitioner refers to a number of enforcement actions taken against the Licensee, as well as the SALP report for the period June 1, 1987, through June 30, 1988, which assessed the Licensee's performance in this area as a Category 3.

The Petitioner has provided no new information regarding security weaknesses. Instead he cites various reports issued by the NRC or to the NRC. These were all considered in our performance assessment process (SALP) and formed part of the basis for a SALP Category 3 rating in the area of secu-

rity. Where significant violations of regulations have occurred, civil penalties have been imposed to encourage the Licensee to improve in specific areas. The Licensee has continued to increase its security staff, restructure the management, and add system improvements. The NRC is continuing to require further improvements. However, the security violations cited by the Petitioner do not represent a breakdown of the plant security which poses a significant threat to the public health and safety, or that would justify shutting down the plant. A plant security system has many redundant and diverse features so that security is not compromised when one feature weakens.

## CONCLUSION

The Petitioner seeks the suspension and revocation of the operating licenses for the Turkey Point facility pursuant to 10 C.F.R. § 2.202. In addition the Petitioner asks that Units 3 and 4 not be permitted to restart until the Licensee and the NRC Staff complete investigations of allegations provided to NRC on December 5, 1988. The Petitioner further requests that an escalated civil penalty be imposed upon the Licensee for discrimination against and harassment of employees and that NRC immediately issue an order outlining the steps to be taken to correct problems with security, operations, maintenance, plant equipment, and employee/operator training deficiencies.

The institution of proceedings pursuant to section 2.202 is appropriate only where substantial health and safety issues have been raised. *See Consolidated Edison Co. of New York* (Indian Point, Units 1, 2, and 3), CLI-75-8, 2 NRC 173, 176 (1975), and *Washington Public Power System* (WPPSS Nuclear Project No. 2), DD-84-7, 19 NRC 899, 923 (1984). This is the standard that has been applied to determine whether the actions requested in the Petition are warranted.

For the reasons discussed above, no substantial basis was found for taking the actions requested in the Petition. Rather, based upon the identification and pursuit of concerns by the NRC Staff and the progress and improvements made by the Licensee in its efforts to resolve these concerns, it is concluded that no substantial health and safety issues have been raised by the Petition. Accordingly, the Petitioner's request for action pursuant to section 2.202, except for the remaining two open issues, is denied. As provided in 10 C.F.R. § 2.206(c), a copy of this Decision will be filed with the Secretary for the Commission's review.

When the NRC Staff investigation of the issues of a severe chilling effect on reporting safety concerns as a result of discrimination and harassment and of the willful falsification and destruction of safety-related documents is complete,

I will further review the Petitioner's section 2.206 request with regard to these two issues and determine whether any action is appropriate.

FOR THE NUCLEAR  
REGULATORY COMMISSION

Thomas E. Murley, Director  
Office of Nuclear Reactor  
Regulation

Dated at Rockville, Maryland,  
this 12th day of July 1989.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Kenneth M. Carr, Chairman**

**Thomas M. Roberts**

**Kenneth C. Rogers**

**James R. Curtiss**

In the Matter of

Docket No. OI-4-89-008

**JOSEPH J. MACKTAL**

August 16, 1989

The Commission denies a motion for disqualification.

**ADJUDICATORY BOARDS: DISQUALIFICATION (STANDARD)**

**DISQUALIFICATION: STANDARDS**

A request that would be insufficient to disqualify a decisionmaker from a formal adjudication must also be insufficient to bar a decisionmaker from the nonadjudicatory consideration of an issue.

**ADJUDICATORY BOARDS: DISQUALIFICATION (STANDARD)**

**DISQUALIFICATION: STANDARDS**

A judge (or Commissioner) should disqualify himself or herself only if "a reasonable man, cognizant of all the circumstances, would harbor doubts about the judge's impartiality."

**ADJUDICATORY BOARD(S): DISQUALIFICATION (STANDARD)**  
**DISQUALIFICATION: STANDARDS**

NRC decisions have consistently followed the standard applicable to requests for disqualification of federal judges in that “ ‘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.’ ”

**ADJUDICATORY BOARD(S): DISQUALIFICATION (STANDARD)**  
**DISQUALIFICATION: STANDARDS**

If no extrajudicial source is present, NRC has held that disqualification may be appropriate if judicial conduct demonstrates a pervasive bias or prejudice. “[T]he right to an impartial adjudicator does not mean that favorable rulings must be divided equally between the parties, or that a judge may not occasionally use strong language toward a party or in expressing his views on matters before him. Nor does the fact that a judge’s actions may be controversial or may provoke strong reactions by the parties provide grounds for disqualification.”

**ADJUDICATORY BOARD(S): DISQUALIFICATION (STANDARD)**  
**DISQUALIFICATION: STANDARD**

Simply because a party criticizes a judicial officer (or the Commission) or holds that officer up for embarrassment does not mean that the officer must recuse himself automatically upon request. If mere public criticism of an adjudicator were sufficient to compel disqualification, the potential for manipulation of administrative or judicial processes would be unlimited.

**ADJUDICATORY BOARD(S): DISQUALIFICATION (STANDARD)**  
**DISQUALIFICATION: STANDARD**

Even in cases involving congressional scrutiny and criticism of, or comments on, agency proceedings, a high threshold must be met. In the Commission’s judgment, the discussions between the members of the subcommittee and the Commission never approached the level held to be prejudicial.

**NRC: AUTHORITY TO INVESTIGATE (SUBPOENA);  
ENFORCEMENT OF SUBPOENAS**

**RULES OF PRACTICE: SUBPOENAS**

Courts have specifically enforced administrative subpoenas in the face of alleged congressional pressure if the congressional pressure is not directed at the *merits* ultimately to be reached by the agency.

**ADJUDICATORY BOARDS: BIAS; EFFECT OF OTHER  
PROCEEDINGS**

**RULES OF PRACTICE: CONSIDERATION OF ISSUES**

The hearing's discussion focused on the propriety of Petitioner's settlement agreement under the terms of section 210 of the Energy Reorganization Act. The question of the *merits* of his allegations regarding Comanche Peak never arose, and the Commission has carefully avoided making any comments on the merits of those allegations. Therefore, Petitioner can hardly accuse the Commission of issuing an "opinion on the merits" based upon bias or prejudice from "an extrajudicial source."

**NRC: INVESTIGATORY AUTHORITY**

**RULES OF PRACTICE: INVESTIGATORY AUTHORITY**

While it may be inappropriate for an agency to undertake an investigation solely because of undue congressional pressure, it may undertake an investigation of matters within its jurisdiction supported by an independent agency determination that such an investigation is appropriate.

**ADJUDICATORY BOARDS: EFFECT OF OTHER PROCEEDINGS;  
RESPONSIBILITIES (ASSESSMENT OF HEALTH AND SAFETY  
RISKS)**

**ADMINISTRATIVE TRIBUNALS: JURISDICTION**

**ENERGY REORGANIZATION ACT: EMPLOYEE PROTECTION;  
RESPONSIBILITIES**

**NRC: AUTHORITY TO INVESTIGATE; JURISDICTION**

Petitioner has stated allegations concerning matters falling within the NRC's exclusive jurisdiction — the public health and safety matters at a nuclear power plant. The NRC, not the Departments of Labor or Justice, is directly and

exclusively responsible for such matters. Although NRC has deferred to the Department of Labor on the issue as to whether Petitioner's rights under section 210 of the Energy Reorganization Act have been violated, NRC cannot and will not shrink from its public health and safety responsibilities under the Atomic Energy Act. Accordingly, NRC has issued the subpoena in an attempt to determine the details of Petitioner's concerns about the Comanche Peak facility.

**ADJUDICATORY BOARDS: EFFECT OF OTHER PROCEEDINGS**

**DUE PROCESS: SIMULTANEOUS HEARINGS**

**ENERGY REORGANIZATION ACT: EMPLOYEE PROTECTION;  
SCOPE OF NRC ACTIVITIES**

The information developed as a result of Petitioner's compliance with the subpoena will have no effect on his litigation before the Department of Labor. Petitioner's statutory right to bring concerns to the NRC does not depend on the technical merits of his allegations.

**ADJUDICATORY BOARDS: EFFECT OF OTHER PROCEEDINGS**

**ENERGY REORGANIZATION ACT: EMPLOYEE PROTECTION;  
SCOPE OF NRC ACTIVITIES**

**NRC: HEALTH AND SAFETY RESPONSIBILITIES**

**RULES OF PRACTICE: ADMINISTRATIVE FAIRNESS**

Petitioner's DOL claim rests on the argument that he suffered discrimination because he voiced safety concerns, not because he voiced technically correct safety concerns.

**MEMORANDUM AND ORDER**

**I. INTRODUCTION**

This matter is once again before the Commission on a request by Mr. Macktal styled a "Motion for Recusal" of the entire Commission from any and all future actions involving Mr. Macktal. The request, in effect a motion for

disqualification,<sup>1</sup> was filed on July 3, 1989, in conjunction with a "Motion for Reconsideration" of the Commission's Order of June 22, 1989 (CLI-89-12, 30 NRC 19), denying a "Motion for Protective Order" regarding an administrative subpoena issued to Mr. Macktal by the NRC's Office of Investigations ("OI"). On July 5, 1989, we issued an order (CLI-89-13, 30 NRC 27) denying the motion for reconsideration. We now deny the motion for disqualification.

## II. FACTUAL BACKGROUND

The factual background underlying this controversy has been recited at length previously. See *Texas Utilities Electric Co.* (Comanche Peak Steam Electric Station, Units 1 and 2), CLI-89-6, 29 NRC 348 (1989); *In re Joseph J. Macktal*, CLI-89-12, *supra* ("Macktal I"). Accordingly, we will refrain from repeating it fully here except to the extent that it appears relevant. Briefly, Mr. Macktal was employed for approximately 1 year by the Brown & Root Corporation as an electrician on the Comanche Peak construction project. On several recent occasions Mr. Macktal has publicly stated that he has information concerning (1) alleged safety defects at the Comanche Peak facility and (2) an alleged attempted "bribe" by an officer of Brown & Root to induce him to withdraw an employment discrimination proceeding before the Department of Labor ("DOL"). On January 7, 1987, Mr. Macktal signed a settlement agreement resolving his charge of discrimination and withdrawing his DOL proceeding. However, Mr. Macktal has now repudiated that settlement agreement and reinstated proceedings before the DOL.

One of the occasions upon which Mr. Macktal voiced his concerns was a hearing before the Subcommittee on Nuclear Regulation, Committee on Environment and Public Works of the U.S. Senate on May 4, 1989. Beginning sometime before the hearing and continuing thereafter, both the Office of Investigations and the NRC technical staff repeatedly attempted to schedule an interview with Mr. Macktal to review his concerns. After all these attempts failed, on June 5, 1989, OI issued a subpoena for Mr. Macktal's appearance at the OI Office in the NRC's Region IV Office located in Arlington, Texas, on June 15, 1989. Mr. Macktal contested the terms of the subpoena and sought a protective order which the Commission denied in its June 22 Order. See *Macktal I*, *supra*. The June 22 Order revised the subpoena to establish a new return date of July 6, 1989.

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<sup>1</sup> Although there is currently no proceeding from which disqualification of an adjudicator might be sought, the provisions of 10 C.F.R. § 2.704(c), which treat the issue of disqualification in the adjudicatory context, are nevertheless germane to the analysis.

On July 3, 1989, however, Mr. Macktal filed both this motion and a "Motion for Reconsideration" of the June 22 decision. The Commission denied the Motion for Reconsideration 2 days later. See *In re Joseph J. Macktal*, CLI-89-13, *supra* ("Macktal 2"). Mr. Macktal has since refused to honor the subpoena, and the Commission has requested the Department of Justice to commence proceedings to enforce the subpoena in the appropriate U.S. District Court.

We now turn to the "Motion for Recusal," the companion to the Motion for Reconsideration. In this motion, Mr. Macktal alleges (without supporting affidavits or any other proof) that (1) "the Commissioners of the NRC have been embarrassed in front of national television, the press and before the Senate Oversight [sic] [Subc]ommittee [sic] on Nuclear Regulation" during a recent congressional hearing; (2) that issuance of the subpoena after "the harsh criticism [of the Commission] by the subcommittee raises an appearance" that the "subpoena is in retribution for the embarrassment Mr. Macktal caused to the NRC," and (3) that the "NRC wants to use his testimony so that their decision will be given *preclusive* effect in [Mr.] Macktal's case before the DOL." Motion for Recusal at 2 (emphasis in original). The Motion closes with the request that "[t]he NRC should rescue [sic] themselves from deciding Macktal's cases . . . [and] allow the . . . Circuit Courts and the Departments of Labor and Justice to determine Macktal's concerns." *Id.*

### III. ANALYSIS

#### A. Compliance with Applicable Standards

As noted above, there is no adjudicatory proceeding now in progress regarding Mr. Macktal's concerns.<sup>2</sup> Thus, the provisions of Subpart G of 10 C.F.R. Part 2, governing adjudicatory proceedings, do not apply. *A fortiori*, however, a request that would be insufficient to disqualify a decisionmaker from a formal adjudication must also be insufficient to bar a decisionmaker from the nonadjudicatory consideration of an issue. Here, Mr. Macktal's motion for disqualification fails to address the criteria established by the Commission for disqualification requests in adjudications. Furthermore, under the NRC's rules, such motions

<sup>2</sup>On August 2, 1989, Mr. Macktal filed a "Statement" indicating that he believed that this question regarding disqualification was moot because he had "no pending motion or requests before the NRC." See Statement Regarding Motion for Recusal at 1. However, it is well settled that a matter is not moot if "the challenged action was in its duration too short to be fully litigated prior to its cessation or expiration; and there was a reasonable expectation that the same complaining party would be subjected to the same action again." Charles Wright, *Law of Federal Courts* 55 (4th ed., 1983), citing *Murphy v. Hunt*, 455 U.S. 478 (1982); *Weinstein v. Bradford*, 423 U.S. 147 (1975). Here, the Commission found a need to resolve the issue of reconsideration before it explicitly addressed the issue of disqualification. Furthermore, while there is no adjudicatory proceeding involving Mr. Macktal currently before the Commission, there is a "reasonable expectation" that the Commission will again have other matters before it involving Mr. Macktal. *Weinstein v. Bradford*, *supra*. Therefore, we do not find the question of potential disqualification to be "moot."

"shall be supported by affidavits setting forth the alleged grounds for disqualification." 10 C.F.R. § 2.704(c).<sup>3</sup> The factual allegations in the motion before us are not supported by any such affidavits; however, we will address the merits of the motion as a matter of discretion.

## B. Criteria Governing Disqualification

A judge (or Commissioner) should disqualify himself or herself only if "a reasonable man, cognizant of all the circumstances, would harbor doubts about the judge's impartiality." *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-88-29, 28 NRC 637, 639 (1988), *citing Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-84-20, 20 NRC 1061, 1078 n.46 (1984). However, our decisions have consistently followed the standard applicable to requests for disqualification of federal judges in that "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." *Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), CLI-82-9, 15 NRC 1363, 1365 (1982), *quoting United States v. Grinnell Corp.*, 384 U.S. 563, 583 (1966). The same standard applies to presiding officers in administrative proceedings. *Duffield v. Charleston Area Medical Center, Inc.*, 503 F.2d 512 (4th Cir. 1974). Accordingly, our decisions have required evidence of an "extrajudicial source" and a "decision based upon evidence not contained in the record in order to support a disqualification." See, e.g., *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-907, 28 NRC 620 (1988); *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681 (1985); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-748, 18 NRC 1184 (1983).<sup>4</sup>

In the alternative, if no "extrajudicial conduct" is present, we have held that disqualification may be appropriate if judicial conduct demonstrates a pervasive bias or prejudice. *South Texas*, CLI-82-9, *supra*, 15 NRC at 1366. However,

the right to an impartial adjudicator does not mean that favorable rulings must be divided equally between the parties, or that a judge may not occasionally use strong language toward a party or in expressing his views on matters before him. Nor does the fact that a judge's

<sup>3</sup> See, e.g., *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-749, 18 NRC 1195, 1197 n.1 (1983); *Detroit Edison Co.* (Greenwood Energy Center, Units 2 and 3), ALAB-225, 8 AEC 379, 380 (1974); *Duquesne Light Co.* (Beaver Valley Power Station, Units 1 and 2), ALAB-172, 7 AEC 42, 43 n.2 (1974).

<sup>4</sup> "Preliminary assessments, made on the record, during the course of an adjudicatory proceeding — based solely on application of the decision-maker's judgment to material properly before him in the proceeding" do not compel disqualification as a matter of law." *Shoreham*, LBP-88-29, *supra*, 28 NRC at 640, *quoting South Texas*, CLI-82-9, *supra*, 15 NRC at 1365.

actions may be controversial or may provoke strong reactions by the parties provide grounds for disqualification.

*Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit 1), CLI-85-5, 21 NRC 566, 569 (1985).*<sup>5</sup>

### C. Application of Criteria to Allegations

Essentially, Mr. Macktal argues that (1) he has held the Commission up to criticism by members of Congress and the media and in so doing "embarrassed the Commission in public," and (2) therefore the Commission must recuse itself from ruling on any other matters relating to him because the Commission will be unavoidably prejudiced against him because of the unfavorable publicity. In the alternative, framing the argument in terms of the Commission's criteria, his argument appears to be either (1) that the issuance of the subpoena is "an opinion on the merits" based upon the bias or prejudice resulting from the Commission's embarrassment at the congressional hearing — an "extrajudicial source" — or (2) that the issuance of the subpoena demonstrates "pervasive bias or prejudice." These arguments are all fatally flawed.

First, simply because a party criticizes a judicial officer (or the Commission) or holds that officer up for embarrassment does not mean that the officer must recuse himself automatically upon request. If mere public criticism of an adjudicator were sufficient to compel disqualification, the potential for manipulation of administrative or judicial processes would be unlimited. Even in cases involving congressional scrutiny and criticism of, or comments on, agency proceedings, a high threshold must be met. See, e.g., *Pillsbury Co. v. FTC*, 354 F.2d 952 (5th Cir. 1966); *D.C. Federation of Civic Assoc. v. Volpe*, 459 F.2d 1231 (D.C. Cir. 1972), cert. denied, 405 U.S. 1030 (1972); *Koniag, Inc., Village of Uyak v. Andrus*, 580 F.2d 601 (D.C. Cir.), cert. denied, 439 U.S. 1052 (1978). In our judgment, the discussions between the members of the subcommittee and ourselves never approached the level held to be prejudicial in *Pillsbury* and its progeny.<sup>6</sup>

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<sup>5</sup>Our decisions, like those of the federal courts, establish a very high threshold for disqualification on the grounds of bias. For example, in other decisions, we have pointed out that inadvertent or possibly inaccurate statements by the adjudicator do not establish bias. *Limerick*, ALAB-819, *supra*. The fact that an adjudicator may have a "crystallized point of view" on questions of law or policy is not a basis for disqualification. *Long Island Lighting Co. (Shorcham Nuclear Power Station, Unit 1)*, ALAB-777, 20 NRC 21, 34-35 (1984). In sum, "[t]o establish that a hearing was biased, something more must be shown than that the presiding officials decided matters incorrectly; to be wrong is not necessarily partisan." *Northern Indiana Public Service Co. (Baily Generating Station, Nuclear-1)*, ALAB-224, 8 AEC 244, 246 (1974), citing *Tennessee Valley Authority (Belleville Nuclear Plant, Units 1 and 2)*, ALAB-164, 6 AEC 1143 (1973).

<sup>6</sup>As the Third Circuit has noted, the Commissioners, as "[m]embers of an agency charged by Congress with adjudicatory functions, 'are assumed to be men of conscience and intellectual discipline capable of judging a

(Continued)

Moreover, courts have specifically enforced administrative subpoenas in the face of alleged congressional pressure if the congressional inquiry is not directed at the *merits* ultimately to be reached by the agency. See, e.g., *Gulf Oil Corp. v. FPC*, 563 F.2d 588, 610-12 (3d Cir. 1977), cert. denied, 434 U.S. 1062 (1978); *United States v. Armada Petroleum Corp.*, 562 F. Supp. 43, 50-51 (S.D. Tex. 1982), aff'd, 700 F.2d 706 (5th Cir. 1983). As we read the transcripts of the May 4 hearing, we find no mention of any reference to the NRC's resolution of Mr. Macktal's allegations of safety defects or "bribes." Instead, the discussion focused on the propriety of Mr. Macktal's settlement agreement with Brown & Root under the terms of section 210 of the Energy Reorganization Act. The question of the *merits* of his allegations regarding Comanche Peak never arose, and the Commission has carefully avoided making any comment on the merits of those allegations. Therefore, Mr. Macktal can hardly accuse the Commission of issuing an "opinion on the merits" based upon bias or prejudice from "an extrajudicial source."

Additionally, while it may be inappropriate for an agency to undertake an investigation solely because of undue congressional pressure, it may undertake an investigation of matters within its jurisdiction "supported by an independent agency determination" that such an investigation is appropriate. *SEC v. Wheeling-Pittsburgh Steel*, 648 F.2d 118, 130 (3d Cir. 1981) (en banc). In this case, while congressional interest may have reinforced the NRC's concerns,<sup>7</sup> Mr. Macktal has stated allegations concerning matters falling within the NRC's exclusive jurisdiction — the public health and safety matters at a nuclear power plant. The NRC, not the Departments of Labor or Justice, is directly and exclusively responsible for such matters. Although we have deferred to the Department of Labor on the issue as to whether Mr. Macktal's rights under section 210 of the Energy Reorganization Act have been violated, we cannot and will not shrink from our public health and safety responsibilities under the Atomic Energy Act. Accordingly, we have issued the subpoena in an attempt to determine the details of Mr. Macktal's concerns about the Comanche Peak facility, not because of any congressional criticism about NRC's handling of settlement agreements.

Second, the information developed as a result of Mr. Macktal's compliance with the subpoena will have no effect on his litigation before the Department of Labor. Mr. Macktal alleges employment discrimination under section 210

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particular controversy fairly on the basis of its own circumstances.'" *Gulf Oil Corp. v. FPC*, 563 F.2d 588, 612 (3d Cir. 1977), cert. denied, 434 U.S. 1062 (1978), quoting *United States v. Morgan*, 313 U.S. 409, 421 (1941).

<sup>7</sup>As we pointed out in *Macktal I*, both OI investigators and representatives of the NRC technical staff began attempting to interview Mr. Macktal prior to the May 4 hearing. See *Macktal I, supra*, 30 NRC at 22. For example, NRC representatives sought (unsuccessfully) to arrange a meeting with Mr. Macktal when he was in Washington for that congressional hearing. They initiated this process prior to May 4, 1989, well before any alleged "embarrassment."

of the Energy Reorganization Act, 42 U.S.C. 5851. As we read section 210, Mr. Macktal's statutory right to bring concerns to the NRC does not depend on the technical merits of his allegations. Put another way, his DOL claim rests on the argument that he suffered discrimination because he voiced safety concerns, not because he voiced technically correct safety concerns.

Additionally, as we also noted in CLI-89-6, we have deferred to the DOL for an initial ruling on the question of whether the disputed settlement agreement between Mr. Macktal and the Brown & Root Corporation is a *per se* violation of section 210. See *Comanche Peak*, CLI-89-6, *supra*, 29 NRC at 355. Thus, the NRC has already agreed to "allow . . . the Department of Labor . . . to determine Macktal's concerns" with regard to employment discrimination. In fact, we took this action at Mr. Macktal's request.<sup>8</sup> In view of his having prevailed on this significant issue, he can hardly now complain that we have demonstrated "pervasive bias or prejudice" toward him. In sum, Mr. Macktal's "concerns" regarding his settlement agreement and employment discrimination claims *are* before the courts and the Department of Labor for appropriate resolution.<sup>9</sup> However, the safety of the Comanche Peak plant is the NRC's responsibility; the subpoena is necessary to help ensure that that responsibility is met.

Mr. Macktal has stated publicly that he has information concerning alleged safety violations at Comanche Peak, a plant that is under consideration for issuance of an operating license in the near future. Mr. Macktal should now provide that information to the NRC Staff which has the capacity to evaluate that information and the authority to require Texas Electric to undertake any corrective action that may be needed. The sole purpose of the subpoena is to obtain that information so that appropriate action may be taken. The issuance of the subpoena is not evidence of "pervasive bias or prejudice."

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<sup>8</sup> See Motion for Reconsideration of CLI-88-12 (Dec. 30, 1988).

<sup>9</sup> In CLI-89-6, we noted that we had deferred to the Department of Labor for a ruling on the "agreement's acceptability or legality. . . ." See 29 NRC at 355. We then noted that "we continue to adhere to our statement in [CLI-88-12] that the disputed agreement does not prevent Mr. Macktal from bringing any of his safety concerns directly to the NRC Staff." 29 NRC at 355-56 n.7. This statement was not intended to circumscribe the Department of Labor's review of the Settlement Agreement in any way. Instead, it was intended to encourage Mr. Macktal — and any other individuals similarly situated — to come forward with their concerns.

In any event, we note that the Department of Labor has now invalidated a provision in another settlement agreement which is virtually identical to the disputed provision in Mr. Macktal's agreement. The DOL held that this provision was "unenforceable as against public policy." See *Polizzi v. Gibbs & Hill*, 87-ERA-38 (July 18, 1989), slip op. at 7. Accordingly, in light of the DOL's action, the agreement *should not* prevent Mr. Macktal from bringing any of his safety concerns directly to the NRC Staff, regardless of any interpretation of the agreement's disputed terms.

#### **IV. CONCLUSION**

Mr. Macktal has failed to demonstrate any reason why the Commission should disqualify itself as a body or that any individual Commissioner should disqualify himself from any proceeding to inquire into Mr. Macktal's allegations. Therefore, we deny the motion.

It is so ORDERED.

**For the Commission**

**SAMUEL J. CHILK**  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 16th day of August 1989.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

Kenneth M. Carr, Chairman  
Thomas M. Roberts  
Kenneth C. Rogers  
James R. Curtiss

In the Matter of

Docket Nos. 50-352-OL-2

50-353-OL-2

(Severe-Accident-Mitigation  
Design Alternatives)

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

August 16, 1989

The Commission denies Intervenor's request to reconsider or stay its previous order allowing issuance of a low-power license pending completion of an ongoing adjudicatory proceeding convened to consider severe-accident-mitigation design alternatives pursuant to a court-ordered remand. The Commission concludes that a balancing of the environmental and economic impacts that may result from a delay of low-power authorization favors prompt issuance of the low-power license.

**RULES OF PRACTICE: IMMEDIATE EFFECTIVENESS OF DECISIONS**

An immediate effectiveness review and decision by the Commission is not required prior to low-power operation. 10 C.F.R. §§ 2.764(a) and 2.764(f)(2).

## **OPERATING LICENSE: LOW-POWER LICENSE**

The normal Commission rule is that a licensing board decision resolving all contested issues in favor of operation and authorizing the staff to issue a full-power license is effective to authorize the issuance of a low-power license without further Commission action, because the issues relevant to a low-power license are subsumed within those relevant to full-power operation. This normal application of Commission rules need not be altered or suspended where there is a court-ordered licensing board remand, provided that the issue on remand is not relevant to low-power operation.

## **RULES OF PRACTICE: STAY OF AGENCY ACTION (CRITERIA)**

Where a court decision does not mandate a stay, two types of inquiry are called for in considering whether a stay will be granted: (1) a traditional balancing of equities and (2) consideration of any likely prejudice to further decisions that might be called for by the remand. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-77-8, 5 NRC 503, 521 (1977).

## **TECHNICAL ISSUES DISCUSSED**

Severe-accident-mitigation design alternatives (SAMDAs).

## **ORDER RESPONDING TO LIMERICK ECOLOGY ACTION'S MOTION FOR RECONSIDERATION**

Limerick Ecology Action ("LEA") has moved the Commission "to reconsider, stay, suspend, or revoke" our order of July 7, 1989 (CLI-89-10, 30 NRC 1), which concluded that a low-power license can be issued for Limerick Generating Station, Unit 2, pending completion of an ongoing adjudicatory proceeding to consider severe-accident-mitigation design alternatives ("SAMDAs"). This proceeding is being conducted by the Commission in response to a remand by the U.S. Court of Appeals for the Third Circuit, *Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719 (3d Cir. 1989). For the reasons given in this Order, we deny the motion to reconsider or stay our previous order.

### **I. BACKGROUND**

In *Limerick Ecology Action, supra*, the Third Circuit held in the context of a challenge to a full-power operating license issued for Limerick Unit 1, that the

Commission violated the National Environmental Policy Act ("NEPA") when it excluded from the operating license hearings LEA's contention calling for consideration of SAMDAs. The Court remanded to the Commission to provide this consideration. However, the Court did not revoke the operating license for Unit 1, nor did it modify or vacate the Licensing Board decision authorizing full-power operation of both units. LBP-85-25, 22 NRC 101 (1985).

In light of the Court's decision, the license applicant, Philadelphia Electric Company ("PECo"), moved the Commission for clarification of the state of the licensing status of Unit 2, which is ready to begin operation, given that the existing Licensing Board decision authorizing operation of both units had not been vacated. PECo moved that the Commission treat the Licensing Board's authorization to issue a full-power license for Unit 2 as effective and to direct the NRC Staff to issue the license once the Staff has made the findings requisite under 10 C.F.R. § 50.57. LEA and the Commonwealth of Pennsylvania opposed this motion. The NRC Staff basically supported the motion, asserting that an operating license could issue prior to completing the consideration of SAMDAs that the Court said was required by NEPA and that any necessary exemptions from NRC regulations implementing NEPA would be authorized by law.

In our order of July 7, 1989, CLI-89-10, *supra*, which LEA asks us to reconsider, the Commission found it premature to declare that the Licensing Board's authorization of a full-power license for Unit 2 was effective, because such determinations are made only after an "immediate effectiveness" review shortly before a plant is ready for full-power operation. The Commission did, however, consider whether the Licensing Board's decision should be deemed effective to authorize the Staff to issue a license for low-power operation. For the reasons given in our order, we found that the Licensing Board's authorization adequately supported issuance of a low-power license once necessary NRC Staff findings have been made.<sup>1</sup> We also concluded that no supplementation of the existing final environmental statement ("FES") for the Limerick facility, NUREG-0974, was necessary prior to low-power operation. We made no decision regarding full-power operation, indicating that the Commission might need additional information from the parties regarding the issues that bear on the effectiveness of full-power authorization.<sup>2</sup>

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<sup>1</sup> An immediate effectiveness review and decision by the Commission itself is not required prior to low-power operation. See 10 C.F.R. §§ 2.764(a) and 2.764(f)(2). Accordingly, the Licensing Board decision resolving all contested issues in favor of Limerick Unit 2, and authorizing the NRC Staff to issue a full-power license would normally be effective to authorize the issuance of a low-power license for Unit 2 without further Commission action, because the issues relevant to a low-power license are subsumed within those relevant to full-power operation. Our order of July 7, 1989, in effect considered whether this normal application of our rules and procedures should be altered or suspended in the case of Limerick Unit 2, in view of the Third Circuit's decision. We concluded that it should not, in part because the NEPA inadequacies that the Court found in the Licensing Board's decision could reasonably be found not relevant to a decision to operate only at low power.

<sup>2</sup> On July 27, 1989, the Commission issued an order requesting such information from the parties.

## II. LEA'S MOTION

### A. The Request for Reconsideration

In its motion to reconsider our order of July 7, 1989, LEA objects to the Commission's conclusion that the Licensing Board's 1985 decision, LBP-85-25, is effective to support issuance of a low-power license for Limerick Unit 2. Much of LEA's motion, however, simply reiterates and reemphasizes the arguments LEA made in opposition to the applicant's claim that the Licensing Board decision should be deemed effective as an authorization for full-power operation. LEA asserts that the Commission showed "no reasoned basis" for distinguishing between full power and low power in considering the validity of the 1985 decision. However, the Commission's order was specifically premised on the distinctions between low-power and full-power operation. CLI-89-10, *supra*, 30 NRC at 4.

Even if LEA is correct that action to authorize issuance of a full-power license prior to completion of consideration of SAMDAs would be inconsistent with the Third Circuit's opinion (a matter the Commission has yet to determine), it surely does not follow, as LEA would have it, that permitting low-power operation likewise would violate the opinion or be contrary to NEPA. As explained in CLI-89-10, low-power operation is generally a short-term operation for testing purposes to help ensure that the reactor is ready to go to full power later on. Although low-power operation does involve criticality and radioactive contamination of the reactor core, the risk level is much lower than that of full-power operation, which itself is quite low in a power reactor that meets NRC regulatory requirements. As a consequence of these differences, some issues important to full-power operation, such as offsite emergency planning, are not relevant at all to low-power operation. For this reason, NRC regulations permit a low-power license to be granted before all full-power issues are fully resolved. If it is LEA's position that for purposes of applying the Third Circuit's decision no distinction can or should be made between low-power and full-power operation, then LEA's views do not take reasonable account of the regulatory scheme and the important ways these modes of operation differ.

This is not to say that the Commission believes that a low-power license for Limerick Unit 2 could have issued without consideration of how that issuance would bear on the NEPA concerns underlying the Court's remand. In support of our statement that the Limerick FES remains valid for low-power authorization, the Commission specifically considered "the degree to which severe accidents, and the SAMDAs that are intended to mitigate such accidents, are implicated in low-power operation." CLI-89-10, *supra*, 30 NRC at 6. The Commission found that the materials in the FES "fully support low-power operation without further

supplementation." *Id.* LEA presents nothing in its motion for reconsideration either by way of data or analysis to cast doubt on that conclusion.

## B. The Request for a Stay

LEA requests in the alternative that the Commission stay or suspend authorization for licensing of Limerick Unit 2 because of the Court's decision. LEA argues that the criteria governing the issuance of a stay on remand are less stringent than those of the test set forth in *Virginia Petroleum Jobbers' Ass'n v. FPC*, 259 F.2d 921, 925 (D.C. Cir. 1958). LEA is clearly correct in this assertion. Indeed, if a court decision mandates the issuance of a stay, a stay must issue. However, as indicated *supra*, the Third Circuit's decision at issue did not speak to the issuance of a stay.

Where, as here, however, the court's decision did not require a stay, two types of inquiry are called for in considering whether a stay will be granted: (1) a traditional balancing of equities and (2) consideration of any likely prejudice to further decisions that might be called for by the remand. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-77-8, 5 NRC 503, 521 (1977). LEA's motion omits consideration of the second inquiry.

In considering whether there will be any likely prejudice to decisions called for by the Third Circuit's remand, we emphasize that nothing in the remand calls into question the findings by the Licensing Board that Limerick as built, i.e., without SAMDAs, meets Atomic Energy Act safety requirements or the conclusion in the FES that the environmental cost/benefit balance for Limerick as built favors operation of the plant. Operation of Limerick Unit 2 is fully supported by the existing safety and NEPA analysis. The eventual operation of Limerick Unit 2 is thus not at issue in the remand. What does remain for consideration is simply the possibility that further cost-effective reductions of environmental impact can be achieved. So long as these reductions are not foreclosed by operating the plant while this consideration is going on, such operation cannot reasonably be found to violate either NEPA or the Third Circuit's decision, particularly where an avoidable delay in operation would itself be costly.<sup>3</sup>

A major concern addressed in our July 7 order was whether low-power testing might substantially increase the environmental cost of installing SAMDAs at a later time or otherwise foreclose the SAMDA alternative. LEA's motion puts forward no reason whatever to doubt the conclusion we reached in our

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<sup>3</sup>These costs are not necessarily confined to financial burdens on the utility and ultimately on its ratepayers. If putting off low-power testing leads to delays in full-power operation, this delay could in turn cause burdens on the environment from the continued generation of electric power by fossil fuel stations that could otherwise be replaced by Limerick's generating capacity.

order that low-power operation of Unit 2 will not foreclose or unreasonably prejudice a subsequent implementation of SAMDAs, if the Licensing Board hearing indicates that that would be a desirable course of action.

With regard to balancing the equities, we would note initially that the Third Circuit's decision, by its own terms, had no impact upon the effectiveness of the Licensing Board's initial decision authorizing the issuance of an operating license for Limerick Unit 2. As we determined in CLI-89-10, nothing in the Third Circuit's decision regarding SAMDA considerations impinges upon the validity of the existing FES as it relates to low-power authorization or warrants a delay in the effectiveness of the existing Licensing Board initial decision insofar as that decision authorizes low-power operation. In addition, in CLI-89-10 we reexamined the cost/benefit analysis in light of the Third Circuit's decision and concluded that the balance favors the prompt issuance of a low-power authorization for Limerick Unit 2. In view of this and of our determination that low-power operation will not foreclose or unreasonably prejudice the subsequent implementation of SAMDAs, authorization of low-power operation at this time will not harm LEA or the public. As we observed in CLI-89-10, however, a delay in low-power authorization could preclude the early detection and correction of facility problems and ultimately delay full-power operation. Such delays will result in unnecessary economic costs to the Applicant and ratepayers and avoidable environmental costs (*see note 3, supra*) to the public. In these circumstances, the balancing of the equities favors the prompt issuance of the low-power license for Limerick Unit 2. LEA's arguments to the contrary are without merit.

### III. CONCLUSION

In sum, the Commission finds that our order of July 7, 1989, appropriately considered the costs and benefits of allowing low-power operation to go forward in comparison with precluding this operation pending completion of Commission action on the Third Circuit's remand. We do not find in LEA's motion to reconsider or stay our earlier order any reason to alter our conclusion that the

preferable alternative is to let low-power operation proceed when the plant is ready. Accordingly, we deny the motion.

It is so ORDERED.

For the Commission

**SAMUEL J. CHILK**  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 16th day of August 1989.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Kenneth M. Carr, Chairman**  
**Thomas M. Roberts**  
**Kenneth C. Rogers**  
**James R. Curtiss**

In the Matter of

Docket No. 55-60755-SP

**ALFRED J. MORABITO**  
(Senior Reactor Operator License  
for Beaver Valley Power Station,  
Unit 1)

August 16, 1989

The Commission declines to reconsider its earlier decision holding that because Mr. Alfred J. Morabito, a candidate for a senior reactor operator's license, accepted employment outside the nuclear area, the controversy over his qualification for a license is moot.

**ORDER**

On July 15, 1988, the Commission determined that because Mr. Alfred J. Morabito, a candidate for a senior reactor operator's license, had taken employment outside the nuclear area, and was therefore ineligible for a license, the controversy over his examination grade was moot. We therefore vacated both the decision of the Administrative Judge which ruled that he had passed the necessary examinations, and the NRC Staff's denial of his license. In a request for reconsideration, filed on August 12, 1988, Mr. Morabito urged that issuance of a license, even though retroactively issued and retroactively revoked, would assist him in seeking employment in the nuclear area with another employer. We conclude that Mr. Morabito has not shown that reconsideration of our decision is appropriate.

Notwithstanding that that decision for legal reasons held the dispute over the license to be moot, Mr. Morabito can validly assert to any prospective employer that as of April 20, 1988, an NRC Administrative Judge had ruled that he had passed all examinations necessary for a license. In the absence of a currently valid certification of need, however, there is no basis for the Commission to add its own determination as to whether the requirements for a license were satisfied at some time in the past. The request for reconsideration is therefore denied.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 16th day of August 1989.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Kenneth M. Carr, Chairman**  
**Thomas M. Roberts**  
**Kenneth C. Rogers**  
**James R. Curtiss**

In the Matter of

Docket No. 50-353-OL-2

**PHILADELPHIA ELECTRIC COMPANY**  
(Limerick Generating Station,  
Unit 2)

August 25, 1989

The Commission authorizes the Staff, once it has made the requisite safety findings under 10 C.F.R. § 50.57, to issue a full-power license for Limerick Unit 2 without prejudice to the outcome of an ongoing Licensing Board proceeding convened to consider the environmental consequences of severe-accident-mitigation design alternatives ("SAMDAs") pursuant to an order of the U.S. Court of Appeals for the Third Circuit.

**RULES OF PRACTICE: IMMEDIATE EFFECTIVENESS REVIEW**

The Commission reviews all licensing board decisions authorizing issuance of full-power operating licenses before the NRC Staff can issue the license. 10 C.F.R. § 2.764(f)(2).

**RULES OF PRACTICE: IMMEDIATE EFFECTIVENESS REVIEW**

In an immediate effectiveness review under 10 C.F.R. § 2.764(f), the Commission decides whether a Licensing Board decision issued after full hearing and favorable to the applicant may be made effective so as to authorize full-power licensing pending further administrative appeals.

## **NEPA: REQUIREMENTS**

NEPA does not always require resolution of all contested environmental issues and completion of the entire NEPA review process before an operating license may issue. 40 C.F.R. § 1506.1.

## **RULES OF PRACTICE: INTERVENTION**

Additional hearings on environmental issues prior to issuing an operating license serve no purpose when persons seeking the hearing cannot identify with basis and specificity any significant flaws or shortcomings in the environmental analysis supporting prompt issuance of the license. *See* 10 C.F.R. § 2.714(b).

## **NEPA: ENVIRONMENTAL ANALYSIS**

The potential increase in occupational exposure from installation of SAMDAs after full-power operation has begun is insignificant compared to the general risks of nuclear energy generation, which have already been found to be small and acceptable.

## **NEPA: ENVIRONMENTAL ANALYSIS**

The environmental effects of electricity generation equivalent to one fuel cycle's full-power operation of Limerick Unit 2 are smaller for nuclear generation than for expected nonnuclear alternatives.

## **NEPA: COST/BENEFIT ANALYSIS**

Only financial costs that increase due to delay in the operating license should be counted in the dollar cost of postponing operation.

## **NRC: RESPONSIBILITIES UNDER NEPA**

Where it is uncontested that full-power operation for a period not to exceed the first fuel cycle will not foreclose implementation of any SAMDA under consideration should the Commission's decision at the conclusion of the litigation find SAMDA installation necessary, the only implication of full-power operation that need be considered by the Commission is the environmental effect of operating without SAMDAs for one fuel cycle.

## **TECHNICAL ISSUES DISCUSSED**

Severe-accident-mitigation design alternatives (SAMDAs).

## **MEMORANDUM AND ORDER**

### **INTRODUCTION**

For the reasons set forth below, the Nuclear Regulatory Commission ("NRC" or "Commission") has determined that the current record in this proceeding provides the necessary basis for authorizing the issuance of a license to the Philadelphia Electric Company ("PECo") to operate the Limerick Generating Station, Unit 2 ("Limerick") at full power. The Commission finds that the balance of factors set forth in 10 C.F.R. § 2.764(f)(2)(i) as well as consideration of environmental matters under the National Environmental Policy Act ("NEPA") favor commencement of operation now rather than waiting for the outcome of the proceeding currently pending before the Atomic Safety and Licensing Board ("Licensing Board") concerning severe-accident-mitigation design alternatives ("SAMDAs"). This decision is without prejudice to the Licensing Board decision, and the license is subject to amendment as a result of the outcome of that proceeding. Since we expect that there will be a Licensing Board decision on the merits of the SAMDA issue before the first refueling outage, we need not consider at this time whether the matter of full-power operation beyond the first refueling outage should be subject to further conditions based on the outcome of the Licensing Board proceeding. We note, however, based on material to be discussed in this Order, that any further requirements on the Licensee that might be reasonably foreseen to arise out of the Board's consideration of SAMDAs will not be foreclosed by the present authorization.

### **BACKGROUND**

On July 22, 1985, the Licensing Board issued its Fourth Partial Initial Decision ("PID") which resolved all remaining contested issues in favor of PECo and authorized the Director, Office of Nuclear Reactor Regulation, to issue PECo a full-power operating license for the Limerick Generating Station, Units 1 and 2, LBP-85-25, 22 NRC 101. The Commission issued a full-power operating license for Unit 1 on August 8, 1985.

On February 28, 1989, the U.S. Court of Appeals for the Third Circuit issued its decision in *Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719, which held that the agency had erred in dismissing a contention by intervenor Limerick

Ecology Action ("LEA") that sought to obtain consideration of SAMDAs for Limerick. The Court declared that, as part of its responsibilities under NEPA, the Commission had to give consideration to SAMDAs, and remanded the matter to the Commission for further proceedings.<sup>1</sup> On May 5, 1989, the Commission entered an order (unpublished) directing the Chairman of the Atomic Safety and Licensing Board Panel to convene a licensing board to conduct further proceedings on the issue of SAMDA consideration, consistent with the Court's directive.<sup>2</sup>

On June 5, 1989, PECo filed with the Commission a motion for clarification of the licensing status of Unit 2 pending completion of the ongoing adjudicatory proceeding. On July 7, 1989, the Commission issued CLI-89-10, 30 NRC 1, a Memorandum and Order responding in part to PECo's motion. In CLI-89-10, the Commission found that the Court's decision did not preclude low-power authorization for Unit 2. A low-power license was issued on July 10, 1989. However, the Commission deferred its consideration of full-power operation until its immediate effectiveness review under 10 C.F.R. § 2.764(f)(2).

On July 26, the Commission issued an order (unpublished) considering the impact of the Third Circuit's decision, the parties' filings, and the requirements of NEPA on the full-power license. The Commission noted that

the Third Circuit did not take issue with any of the agency's findings on NEPA issues save one: its failure to analyze under NEPA the additional matter of the alternative of further mitigation of the consequences of severe accidents through certain facility design changes. Left standing by the court are the NRC staff's assessments in the final FES that the risks of a severe accident itself are small, NUREG-0974, at 6-3; that operation of the Limerick generating station would have a minimal environmental impact for full power operation, *id.* at 6-4; and that for full power operation, there was an overall favorable balance of the benefits of the plant versus the environmental costs that could result, *id.* Thus, the basic NEPA framework supporting Limerick facility operation, including low-power testing, remains in place. Additionally, PECo estimates that delay in operation will increase the cost of Limerick Unit 2 by \$35.7 million dollars per month, and will increase the fuel costs of PECo's customers by \$11.9 million for each month of delay. PECo motion at 18.

Given these factors, the public interest does not dictate that a safe facility which is ready to operate should stand idle while litigation on SAMDAs proceeds if compliance with NEPA can otherwise be achieved.

Order at 4-5 (footnote omitted).

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<sup>1</sup> The Court did not enjoin, set aside, suspend, or determine the validity of the grant of an operating license to Limerick Units 1 and 2. *Limerick Ecology Action, supra*, 869 F.2d at 741 n.27.

<sup>2</sup> The Court also ordered the Commission to consider on remand a contention raised by the inmates of the Graterford Correctional Institution concerning the adequacy of the Limerick radiological emergency response plans. Pursuant to a stipulation by the parties to that proceeding, the Licensing Board dismissed the contention and terminated the proceeding on August 11, 1989. LBP-89-22, 30 NRC 137 (1989).

Accordingly, the order asked specific questions intended to elicit from the parties sufficient information to enable the Commission to determine whether full-power operation for a period up to the first refueling outage may take place during the pendency of the Licensing Board proceeding without compromising the aims of NEPA.<sup>3</sup>

On August 1 and 2, the parties responded to the specific questions asked by the Commission.<sup>4</sup> On August 9, PECO and the NRC Staff filed replies. LEA filed its reply on August 14.

## THE QUESTION OF FURTHER HEARINGS

LEA, in its reply, claims that the Licensing Board hearing must be completed before the Commission can authorize a license, and that the Commission must allow discovery and full adjudicatory hearings before it can make the NEPA determination posed in its July 26 order. In accordance with 10 C.F.R. § 2.764(f)(2), the Commission reviews all licensing board decisions authorizing issuance of full-power operating licenses before the NRC Staff can issue the license. Such a review does not give rise to hearing rights. *Oystershell Alliance v. NRC*, 800 F.2d 1201, 1206 (D.C. Cir. 1986); *accord, Eddleman v. NRC*, 825 F.2d 46, 48 (4th Cir. 1987). Nor does the Atomic Energy Act prevent a licensing decision from becoming effective prior to a review on the merits. *Oystershell Alliance*, 800 F.2d at 1206. Instead, the Commission's regulations provide only that the Commission will

review the matter on its own motion to determine whether to stay the effectiveness of the decision. An operating license decision will be stayed by the Commission, insofar as it authorizes other than fuel loading and low power testing, if it determines that it is in the public interest to do so, based on a consideration of the gravity of the substantive issue, the likelihood that it has been resolved incorrectly below, the degree to which correct resolution of the issue would be prejudiced by operation pending review, and other relevant public interest factors.

### 10 C.F.R. § 2.764(f)(2)(i).

This determination, which is without prejudice to further decisions on the merits on issues raised in the licensing proceeding, allows the Licensing Board's authorization of full-power operation to become effective while the

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<sup>3</sup> This time period was selected based on the hypothesis that any SAMDAs that might be installed following the Licensing Board proceeding could be installed during the first refueling outage. One of the questions presented to the parties attempted to ascertain whether this hypothesis was correct.

<sup>4</sup> LEA's August 1 response did not attempt to answer the questions, but alleged that the Commission's questions and the time given for response were inadequate, and that the Commission could not license Unit 2 until completion of the Licensing Board proceeding. On August 7, the Commission granted LEA additional time to file its reply.

resolution of contested issues continues through the administrative appeals process. *Oystershell Alliance*, 800 F.2d at 1206.

Ordinarily, in a Commission immediate effectiveness review under 10 C.F.R. § 2.764(f) the Commission decides whether a licensing board decision issued after full hearing and favorable to the applicant may be made effective so as to authorize full-power licensing pending further administrative appeals. The underlying principle is that the Commission itself, as opposed to its subordinate adjudicatory boards, must take direct responsibility for the important decision to permit a nuclear power plant to begin full-power operation. The instant case is unusual in that, while all contested safety issues have been fully heard and resolved, NEPA issues remain pending for hearing before the Licensing Board as a result of the Court's remand. However, NEPA itself does not always require resolution of all contested environmental issues and completion of the entire NEPA review process before the license can issue. See 40 C.F.R. § 1506.1. Thus, the presumption in the immediate effectiveness review rule that there has been a full licensing board decision on all contested issues is not necessarily applicable here. Nevertheless, the underlying principle of the immediate effectiveness review rule — that the Commission itself must take direct responsibility for the decision to allow commencement of full-power operations — still applies. Since the underlying principle is fully applicable, we believe we are justified in conducting this immediate effectiveness review.

In conducting this review we have followed the usual review procedures except that LEA was given two opportunities, rather than one, to file written comments with the Commission. The Commission does not hold formal hearings as a part of its effectiveness reviews (see *Eddleman v. NRC*, 825 F.2d at 50), and there is nothing in this case that warrants a departure from the usual practice. All of the facts relied upon for this decision are on the record of the pleadings filed with the Commission.

Even assuming *arguendo* that the Commission was required to offer LEA a formal hearing on the findings that form the basis for our decision to permit full-power operation of Unit 2 without waiting for the outcome of the SAMDA proceeding before the Licensing Board, for such a hearing to go forward LEA would have to have raised issues for hearing with adequate basis and specificity. See 10 C.F.R. § 2.714(b). In our order of August 7, 1989 (unpublished), granting LEA an extension of time for further comments, we specifically asked LEA to "state with specificity the portions of the NRC staff and applicant's response with which it disagrees, and outline insofar as possible the specific factual basis for the disagreement." Order of August 7 at 2. LEA's response of August 14 did not offer any such material. Rather than identify with basis and specificity any significant flaws or shortcomings in the factual case for concluding that a delay in full-power operation will result in greater environmental impacts and financial burdens than allowing full-power operation now, LEA simply asked

for another extension of time and admitted that it does not have the information to litigate these matters except "after adequate discovery and in the course of the required hearings." LEA Response of August 14 at 10.

The inadequacy of LEA's response makes clear that an additional hearing would serve no purpose. Even if LEA were granted the right to a hearing, that grant would not convey a right to conduct a random fishing expedition. A party to a hearing is not entitled to discovery unless and until that party succeeds in putting forward litigable contentions with basis and specificity. LEA's filings demonstrate LEA's inability to meet this threshold test. Accordingly, the Commission concludes that it is neither necessary nor appropriate to offer LEA a formal hearing on the issues that bear on our present decision. LEA remains, of course, a party to the hearing before the Licensing Board where LEA has the opportunity to litigate its views and concerns about SAMDAs.

## ENVIRONMENTAL ANALYSIS

The Commission's July 26 order requested an evaluation of the potential environmental impacts of permitting full-power operation before, rather than after, conclusion of the Licensing Board proceeding on SAMDAs. In this regard, the Commission requested an evaluation of the incremental increase in occupational exposure resulting from the installation of SAMDAs after one fuel cycle is completed; the difference in risk level associated with operating the plant without SAMDAs for one fuel cycle; and the environmental effect of using alternative replacement power. The NRC Staff was directed, and the other parties were invited, to:

1. Provide an evaluation of the incremental increase in occupational radiation exposure associated with postponing the installation of SAMDAs to the first refueling outage;
2. Provide an evaluation of the incremental environmental effects from the risk of severe accidents of operation of Limerick Unit 2 with no SAMDAs in place for one fuel cycle [note that NUREG-1068 and the references cited therein provide numerical estimates of the public risk (e.g., early and latent fatalities per year, person-rem per year) associated with full-power operation of the Limerick facilities];
3. Provide an evaluation of the incremental environmental effect of generating nonnuclear replacement energy equivalent to one fuel cycle's energy production by Limerick Unit 2;
4. Provide an evaluation of whether operation of Unit 2 for one fuel cycle would foreclose later installation of SAMDAs;

5. Provide an evaluation of the dollar cost resulting from a delay in starting up Limerick Unit 2 for a period of time equivalent to one fuel cycle.

The Commission has, after receipt of the parties' responses, analyzed the potential environmental impacts of permitting full-power operation before conclusion of the Licensing Board proceeding on SAMDAs. Our analysis follows.

## 1. Incremental Increase in Occupational Radiation Exposure

The possibility of increased occupational radiation exposure is the most obvious possible consequence of letting Limerick Unit 2 begin full-power operation now if the Commission later determines as a result of the ongoing hearing before the Licensing Board that installation of SAMDAs is desirable. Postponing SAMDA installation to the first refueling outage will require work to be performed in radiation fields caused by full-power operation, while installation could be done in a nearly radiation-free environment if full-power operation were delayed.

The potential increase in occupational exposure from installation of SAMDAs after full-power operation has begun turns out to be relatively small. PECo has estimated the increase in occupational radiation exposure for the spectrum of SAMDAs. PECo Response of August 2, Appendix A. The NRC Staff did not form its own estimate, but instead evaluated and agreed with PECo's estimate. NRC Staff Response of August 2 at 2-5. The largest estimate of occupational radiation exposure for any SAMDA contemplated, 416 person-rem, is less than half the average annual collective occupational dose that has been experienced for boiling water reactors such as Limerick (*see* NUREG/CR-4160 at ix), and corresponds to a risk of 0.04 premature cancer death in the work force involved. *See* CLI-89-10, *supra*, 30 NRC at 7.<sup>5</sup>

The insignificance of the increased risk can be better understood when compared to the general risks of nuclear energy generation discussed *infra*. The health effects of the occupational radiation exposure associated with implementation of SAMDAs in a plant that has experienced full-power operation for one fuel cycle are small compared to the general mortality and morbidity risks for nuclear energy generation, which have already been found by the NRC to be small and acceptable. In any event, this is a worst-case estimate based on the assumption that installation of SAMDAs is warranted — at this point, the need for installation of SAMDAs has not been established.

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<sup>5</sup> Even if the estimates of occupational radiation exposure for each SAMDA were totalled to arrive at a dose estimate for installation of all SAMDAs under consideration, the estimated exposure would total only 751 person-rem. This is still considerably less than the average annual collective occupational dose. Further, it is extremely unlikely that more than one or two SAMDAs would be installed, and it is not certain that the exposure in installing multiple SAMDAs would be additive.

## 2. Incremental Environmental Effects from the Risk of Severe Accidents for One Fuel Cycle

Any installation of SAMDAs that might ultimately be required would arguably reduce the severe-accident risk associated with operation of the facility. How much reduction could be achieved is not yet known but, obviously, SAMDAs cannot do more than reduce the severe-accident risk to zero. Thus, the severe-accident risk figures presented by the NRC Staff can be regarded as upper bounds to the reduction in risk that could result from the implementation of any SAMDA. This assumption that a SAMDA might reduce the severe-accident risk to zero is conservative in the context of the present NEPA analysis and tends to compensate for uncertainties in risk estimates and the possibility that the reduction in risk from the installation of SAMDAs is greater than we have assumed.<sup>6</sup>

The NRC Staff and PECo have independently estimated the risk of severe accidents. NRC Staff Response of August 5 at 5-8; PECo Response of August 2, Appendix A. Both report estimates of early fatalities, latent cancer fatalities, and person-rem. In addition, the Staff estimated the land area for long-term interdiction. The estimates are expressed in terms of consequences multiplied by the probabilities. The Staff's largest risk estimate, based on the entire region rather than limiting calculations to a 50-mile radius, is 0.008 early fatality, 0.06 latent cancer fatality, and 1000 square meters of land requiring long-term interdiction. Staff Response at 7.

The Staff's and PECo's estimates of severe-accident risk are in some disagreement. The Staff's estimates range from (approximately) a factor of 2 to a factor of 10 greater than PECo's, but are still low. Regarding this difference, it should be noted that both estimates are based upon the Limerick Probabilistic Risk Assessment and the Severe-Accident Risk Assessment ("SARA"), the lat-

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<sup>6</sup>The inclusion of severe-accident risk as an additive element in the total environmental impact involves a comparability question. Most environmental impacts are realistic expectation values in the sense that they are indeed expected to occur, whereas the severe-accident risks are actuarial numbers, calculated by multiplying a very low estimated frequency of occurrence by a large consequence should an accident occur. Thus, the severe-accident risk figures are not true expectation values. In actual fact, either a severe accident will *not* occur during the course of a fuel cycle, in which case there are no consequences, or a severe accident *will* occur, in which case the consequences will be much larger than the actuarial risk figures. An actuarial estimate such as this is a mathematical device which includes the low-frequency and high-consequence aspects in one number. Although the comparability question exists, the actuarial figures will nevertheless be used here, for the following reasons:

- (a) The actuarial figures attempt to include both the low frequencies and high consequences of severe accidents. No better method has presented itself.
- (b) Similar comparability questions abound in environmental impact studies.
- (c) A separate decision on the safety of the plant has already been made and was not challenged by LEA in the proceedings before the Third Circuit. This decision in effect states that the severe-accident frequency associated with full-power operation of the facility is sufficiently low as to be considered acceptable under the Atomic Energy Act.

ter of which dates back to 1983.<sup>7</sup> Both the Staff and PECO have attempted to update the 1983 SARA to reflect modifications to the plant that have occurred since that date. Years of experience with Limerick Unit 1 have provided some plant-specific data which PECO has used in this update, but which the Staff has not reviewed. Given this, and in view of the wide uncertainty bands of all PRAs, the difference is understandable.<sup>8</sup>

The severe-accident risk is only one of the environmental impacts of nuclear power plant operation. Although the implementation of one or more SAMDAs might arguably reduce the severe-accident risk, we agree with LEA that, in comparing the impacts of operation of the facility with the impact of delay (e.g., generation of electricity from alternative nonnuclear facilities), all the other components (i.e., the environmental impacts of normal or routine operation) should be included for an accurate comparative assessment of the incremental environmental impact of generating nonnuclear replacement energy equivalent to one fuel cycle's production. LEA Response of August 1 at 7. Moreover, these environmental effects of operation include all activities, from mining to waste disposal, needed to support the plant for the period in question.

The environmental effects of using nuclear energy for electric power generation include, in addition to the severe-accident risk, contributions from the mining, transportation, and refining of uranium ore, the fabrication of fuel elements, the normal effluents from the reactor facility, waste disposal, and the routine occupational radiation exposure of plant workers. Many of these effects are not directly related to radioactivity, but instead are analogous to the mortality, morbidity, and ecological effects of any industrial operation. All must be included in the evaluation of the environmental effects of the uranium fuel cycle.<sup>9</sup>

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<sup>7</sup> LEA purports to challenge the Staff's analysis. LEA Response of August 14 at 9-10. However, LEA provides no quantitative information to indicate that other figures would be appropriate. Further, as we have indicated, the Staff's figures are not new information. LEA had ample opportunity to challenge the Staff's figures in the course of the previous litigation.

Further, LEA attempts to expand the inquiry beyond severe-accident issues. See LEA Response of August 14 at 10-12 (discussing Crud-Induced Localized Corrosion). Such generic challenges go beyond the narrow question at hand. LEA may not use this immediate effectiveness proceeding to litigate or relitigate every Commission finding with which it disagrees.

<sup>8</sup> These estimates are "best" estimates as expressed by the parties presenting them. All of these numbers are subject to some uncertainty, i.e., each parameter has associated with it not only a "best" estimate but also a mathematical distribution about this estimate. Thus, it is recognized that true values may deviate somewhat from the estimates. Nevertheless, these estimates are the best estimates currently available, even though the possibility cannot be excluded that an incorrect conclusion could be reached. This would only happen, however, if the estimates associated with nuclear operation deviated considerably in one direction and the estimates associated with fossil-fueled generation deviated considerably in the other direction. While LEA challenges these estimates, it offers no alternative information.

<sup>9</sup> These fuel cycle impacts are set out quantitatively in great detail in the Commission's fuel cycle rule. See 10 C.F.R. § 51.51, "Table S-3n."

### **3. Incremental Environmental Impact of Generating Nonnuclear Replacement Energy Equivalent to One Fuel Cycle's Energy Production**

We have discussed at some length the environmental impacts of nuclear generation to emphasize the Commission's acute awareness of the environmental consequences of the action it is authorizing. However, the fact that operating Limerick Unit 2 will have environmental impacts cannot be said to act against operation of the plant before one also looks at the impacts of the alternatives to that operation. The only realistic alternative to letting Unit 2 begin to generate electricity is continued fossil-fuel generation that Limerick would replace. Electrical generation using fossil fuels is not environmentally inconsequential. The use of coal as a fuel for generation of electrical energy involves the mining and transportation of very large quantities of material. Coal mining involves significant occupational hazards as well as effects on the ecosystem, while transportation of large quantities of coal has significance as a hazard to the public. Finally, the effects of stack emissions must be considered.

Oil is generally less hazardous to produce at the wellhead than mining an equivalent quantity of coal. Also, stack emissions are generally much less. Of course, the use of oil to generate electricity also raises questions about additional cost and foreign policy and foreign trade considerations.<sup>10</sup>

It is possible, as LEA has done, to contemplate still other, more exotic sources of electrical energy, or still other alternatives such as conservation. LEA Response of August 14 at 13-17. However, none of these are practical alternatives in the short term, and LEA has produced no information to show that these alternatives are likely to be pursued to replace the power Limerick Unit 2 would generate if the plant were allowed to go to full power in the near future. Thus, the realistic alternative to full-power operation of Limerick Unit 2 is continued electrical generation based on coal and oil.

All of these effects must be evaluated quantitatively for both nuclear and nonnuclear generation, and the results balanced against each other, to arrive at an estimate of the incremental environmental impact of generating nonnuclear replacement energy.

The NRC Staff and PECo have independently evaluated the environmental effects of the generation of electrical energy equivalent to one fuel cycle's full-power operation of Unit 2, in terms of mortality and morbidity for both plant workers and the general public, for both nuclear generation and nonnuclear generation. Staff Response of August 2 at 9-16; PECo Response of August 2, Appendix A. In addition, both evaluated at least qualitatively the ecological

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<sup>10</sup> Unlike coal, oil-fired generation carries with it a possibility of accidents with severe environmental impacts, particularly if tanker transportation is necessary. Currently, quantitative estimates of the severe-accident risk associated with oil are lacking.

impacts of the two means of generation. Although the Staff's and PECo's estimates differ, which is not unexpected in areas such as this where there is no unanimity among the technical community, both estimates greatly favor nuclear generation as having the lesser environmental impact. The Staff's estimate, which is the less favorable to nuclear generation, nevertheless calculates a favorable balance in terms of mortality (6.2 fatalities for the fossil fuel option vs. 1.0 to 1.4 for nuclear) and morbidity (98 for fossil vs. 14 to 27 for nuclear). These figures imply one life lost for every 13 weeks that Limerick Unit 2 remains shut down and replacement power must be found.

LEA claims that the delay in operation until the SAMDA issue is litigated need not be as long as 15 months, and would be "probably only a few months at most." LEA Response of August 14 at 19. While we agree that the delay may not be as long as 15 months, we do not share LEA's optimism. LEA states that "much progress could be made in the litigation before the Commission need address the full power question at all, that is, while low power testing is underway." *Id.* Low-power testing began on August 12; the parties have not yet even agreed to a discovery schedule in the Licensing Board proceeding. See unpublished Licensing Board Order of August 15, 1989. It is difficult to see how the proceeding will be completed any time soon.<sup>11</sup>

#### 4. Foreclosure of Later Installation

Both the NRC Staff and PECo have stated that operation of Unit 2 would not make the installation of the SAMDAs under consideration physically impossible, and that the only difficulties expected concern matters of increased cost and increased occupational radiation exposure. NRC Staff Response of August 2 at 19; PECo Response of August 2, Appendix A. LEA did not address the issue of foreclosure.

Regarding increased cost of installation of SAMDAs after a fuel cycle's operation at full power, PECo has agreed that for purposes of evaluation of SAMDAs in the remand proceeding, the cost/benefit balance should be viewed as of the time of initial licensing without regard to any additional costs that might be associated with the implementation of a SAMDA after operation has begun. CLI-89-10, *supra*, 30 NRC at 8; June 5, 1989 Affidavit of Corbin A. McNall.

Even if the added costs were considered, the only costs envisioned would be the increase in occupational exposure, since the reactor is already built. In accordance with 10 C.F.R. Part 50, Appendix I, § II.D, the Commission uses

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<sup>11</sup> This is particularly true if LEA's actions in this immediate effectiveness proceeding are taken as an indication of its future actions in the Licensing Board proceeding. LEA has made late requests for two extensions of time and generally has produced little factual support for its positions despite a specific request from the Commission that it timely state the bases for its arguments. See unpublished Commission Order of August 7, 1989, at 2.

the value of \$1000 per whole-body person-rem for purposes of cost/benefit analysis. When that number is multiplied by the 416 person-rem dose that has been estimated for the SAMDA having the largest occupational dose (see discussion of question 1, *supra*), the increased cost of installing SAMDAs after the first fuel cycle may be estimated to be approximately \$416,000. Given the cost of keeping the facility shut down (see discussion of question 5, *infra*), such a cost is small and would not foreclose installation of SAMDAs.

Although the NRC Staff concedes that the occupational radiation exposures incurred during SAMDA installation after one fuel cycle would be greater than exposures incurred during installation prior to achieving reactor criticality, both the Staff and PECo have stated in their pleadings that the occupational dose associated with installing any of the SAMDAs under consideration is the same or less than that associated with typical outage maintenance activities. NRC Staff Response of August 2 at 19; PECo Response, Appendix A. Thus, the matter of increased occupational exposure will not foreclose the installation of SAMDAs.

## 5. Dollar Cost of Delay

In order to calculate the financial cost of delay if the issuance of the full-power license is deferred until the completion of SAMDA litigation, the parties have identified the costs likely to be incurred. PECo has identified three categories of costs: (1) the additional carrying costs allowed under Federal Energy Regulatory Commission ("FERC") accounting rules, which are capitalized as part of the project costs; (2) the additional cost of fuel to operate alternative generating sources; and (3) the operation, maintenance, and security costs ("O&M") at the plant during the delay period. PECo Response of August 2, Appendix A. The NRC Staff argues that the only cost that should be included is the additional fuel cost of operating other generating units for replacement power. LEA agrees with the Staff that carrying charges and O&M should not be included. LEA Response of August 14 at 18.

The Commission believes that the Staff is correct in asserting that only costs that increase due to the delay in the operating license should be counted. The fact that, as PECo asserts, FERC allows additional carrying costs to be capitalized as part of the project cost and therefore eventually recovered by ratepayers does not mean that carrying costs have in fact increased. That approach mixes capital costs and methods of capital recovery. If alternatively, PECo immediately reduces stockholder distributions in order to begin retiring capital costs, there

may be no additional indebtedness. As the Staff points out, recovery of the capital costs can be paid either by the stockholder or the ratepayers.<sup>12</sup>

We find, however, that one cost not included by the Staff should be included in light of the clarification provided by PECo in its August 9, 1989 reply. This clarification states that approximately 40% of the operation and maintenance expenses relate to activities that would not be continued following commercial operation. Accordingly, these expenses will be solely attributable to the delay.

We turn now to the dollar amounts of these costs. There are some differences between the PECo and NRC Staff estimates. This is to be expected given the nature of economic forecasting. Regarding O&M, the only estimate available, that provided by PECo, is \$43 million, or 40 percent of the total O&M during the delay period. This figure is reasonable based on current industry experience.

In its August 2 response, PECo estimates replacement power fuel costs of \$11.9 million per month, or \$178.5 million for 15 months. The NRC Staff derived an estimate of \$228 million (\$500,000 per day) for the same period. This is based on information contained in NUREG/CR-4012, which is used to obtain replacement power cost estimates for the agency's regulatory impact analyses. LEA's figure is \$12 million per month, an estimate virtually identical to the Licensee's estimate.<sup>13</sup> Each of these figures is acceptable within the errors of economic forecasting. Adding each of these figures to the estimated \$43 million in O&M, it is reasonable to estimate the total cost of a 15-month delay as between \$221.5 million and \$271 million.

LEA argues that the dollar cost of delay need not be as great as assumed by either PECo or the NRC Staff. LEA Response of August 14 at 19-25. LEA's arguments are based on faulty economic principles and unsupported forecasts.

The crux of the argument seems to be that both future costs of operation and capital costs should be included in deciding if and when the various generating plants should be operated. It is a long-established economic principle that the most efficient economic choice is to operate the system with the lowest future costs. As indicated above, sunk costs, i.e., in this case, capital costs, should not be used when deciding which plants to operate. This is why utilities practice "economy dispatching," i.e., the available plant with the lowest operating costs is connected to the grid when an increase in electrical demand occurs. Therefore, it does not necessarily make economic sense to stretch out the usefulness of those units that enjoy long-depreciated capital costs.

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<sup>12</sup>The above is consistent both with the NRC's past methodology in performing NEPA cost-benefit evaluations and with the Staff's methods of cost analysis for the regulatory impact analysis performed for agency rulemakings. See, e.g., *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-77-8, 5 NRC 503, 534 (1977); 47 Fed. Reg. 12,940, 12,942 (Mar. 26, 1982). ("Sunk costs" are not appropriately considered in an operating license cost/benefit balance.)

<sup>13</sup>LEA claims that these numbers are uncertain. Of course, economic forecasting is not and cannot be a precise science. Nevertheless, the numbers are the best available and are consistent with principles of economic forecasting and industry experience.

LEA is inconsistent in arguing that carrying charges on capital should not be included in the cost of delay of Limerick operation (*id.* at 18), but that capital costs should be included in deciding which plant to operate (*id.* at 19). In addition, LEA makes the unsupported claim that Limerick has some fixed lifetime which can simply be extended later if operation is delayed now. *Id.* Decisions on whether to continue to operate a plant are made on the basis of costs of continued operation, subject to appropriate regulatory requirements, rather than some fixed operating life.

Even if, as LEA asserts (*see* discussion *supra*), the delay were half of what is envisioned, 7 1/2 months, and even taking into account seasonal differences in power use, the dollar cost of delay would be in excess of \$100 million.

## CONCLUSIONS

NEPA is a procedural statute designed to ensure that the decisionmaker has considered the environmental effect of the available options before a decision is made that might foreclose any of those options. It is uncontested that full-power operation of Limerick Unit 2 for a period not to exceed the first fuel cycle will not foreclose implementation of any SAMDA under consideration should the Commission's decision at the conclusion of the litigation find SAMDA installation necessary. Thus, the only implication of full-power operation that need be considered in this immediate effectiveness review is the environmental effect of operating without SAMDAs for one fuel cycle as compared to keeping Limerick Unit 2 shut down until the conclusion of the Licensing Board proceeding. As indicated above, those effects have been found to be as follows:

- (1) A maximum risk of occupational radiation exposure of 416 person-rem or 0.04 premature cancer death in the work force involved if SAMDAs need to be installed after the plant has been irradiated for one fuel cycle.
- (2) A possible maximum increased risk from severe accidents of 0.008 early fatality, 0.06 latent cancer fatality, and long-term interdiction of 1000 square meters of land area, assuming an as yet unproven hypothesis that SAMDAs can lower the risks of severe accidents.
- (3) A favorable balance of overall environmental impacts compared to generation of replacement energy. The overall comparison of mortality and morbidity contemplates a difference of one life lost for every 13 weeks that Limerick Unit 2 remains shut down.
- (4) A cost saving to PECO, its shareholders, and ratepayers of between \$100 million and \$271 million.

Given these impacts, both the public interest and the relative environmental impacts favor the issuance of a full-power license for Limerick Unit 2. Accordingly, the NRC Staff is authorized to issue a full-power license to PECO to operate Limerick Unit 2 once it has made the requisite safety findings under 10 C.F.R. § 50.57.<sup>14</sup> This decision is without prejudice to the outcome of the adjudicatory proceeding currently pending before the Atomic Safety and Licensing Board.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 25th day of August 1989.

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<sup>14</sup>Earlier today, we received a "Second Supplemental Response of Intervenor Limerick Ecology Action, Inc., to Memorandum and Order of Commission, dated July 26, 1989, and Memorandum and Order of August 7, 1989." This response is dated August 24, 1989. This supplemental pleading does not provide any basis that would cause us to revise our conclusion in this matter as set forth in the text of this Memorandum and Order.

In addition, LEA's request for an administrative housekeeping stay is denied.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

**Administrative Judges:**

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

In the Matter of

Docket Nos. 50-443-OL  
50-444-OL  
(Offsite Emergency  
Planning Issues)

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

August 21, 1989

On appeals from LBP-89-10, 29 NRC 297 (1989), the Appeal Board (1) holds that the appeals will lie; (2) affirms the Licensing Board's denial of the motion of intervenor Seacoast Anti-Pollution League to reopen the record to accept a late-filed financial qualifications contention; and (3) reverses the denial of the motion of the intervenor Attorney General of Massachusetts for a waiver under 10 C.F.R. 2.758 of the electric utility exemption provisions of the Commission's financial qualifications regulations and certifies that motion to the Commission.

**RULES OF PRACTICE: APPEALABLE ORDERS**

As a general matter, a licensing board's action is final for appellate purposes where it either disposes of at least a major segment of the case or terminates a party's right to participate; rulings which do neither are interlocutory. *Toledo Edison Co.* (Davis-Besse Nuclear Power Station), ALAB-300, 2 NRC 752, 758 (1975).

## **RULES OF PRACTICE: APPEALABLE ORDERS**

As an exception to the general rule regarding finality for appealability purposes, an immediate appeal will lie from a licensing board ruling denying a motion seeking a waiver under 10 C.F.R. 2.758 of the application of a particular rule or regulation.

## **RULES OF PRACTICE: WAIVER OF RULES OR REGULATIONS**

In order to obtain a certification to the Commission of a petition (motion) for a waiver of a Commission rule or regulation, the petitioner (movant) must make a *prima facie* showing that (1) special circumstances with respect to the subject matter of the particular proceeding are such that application of the rule or regulation would not serve the purpose for which it was adopted; (2) the special circumstances undercut the rationale for the rule or regulation sought to be waived; and (3) there exists a significant safety problem related to that rule or regulation. 10 C.F.R. 2.758(b); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-88-10, 28 NRC 573 (1988), *reconsideration denied*, CLI-89-3, 29 NRC 234, and CLI-89-7, 29 NRC 395 (1989).

## **RULES OF PRACTICE: WAIVER OF RULES OR REGULATIONS**

### **FINANCIAL QUALIFICATIONS: CONSIDERATION IN OPERATING LICENSE PROCEEDINGS**

The combination of (1) the bankruptcy of the lead applicant and (2) the operation of a state "anti-CWIP" statute precluding taking construction work in progress costs into account for ratemaking purposes before the project is providing service to customers constitutes "special circumstances" within the meaning of 10 C.F.R. 2.758(b). Moreover, those special circumstances undercut the rationale for the provisions of 10 C.F.R. 50.33(f) and 50.57(a)(4) exempting an electric utility applicant for an operating license for a commercial nuclear power facility from the general requirement that the financial qualifications to conduct safe operation be demonstrated. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-88-10, 28 NRC 573 (1988), *reconsideration denied*, CLI-89-3, 29 NRC 234, and CLI-89-7, 29 NRC 395 (1989).

**RULES OF PRACTICE: WAIVER OF RULES OR REGULATIONS**  
**FINANCIAL QUALIFICATIONS: PUBLIC HEALTH AND SAFETY**  
**CONCERNS**

In the context of facility operation above five percent of rated power, a petition for a waiver of the electric utility exemption provisions of 10 C.F.R. 50.33(f) and 50.57(a)(4) based upon the combination of the bankruptcy of the lead applicant and the operation of a state "anti-CWIP" statute does establish the existence of a significant safety problem associated with the application of those rules.

**APPEARANCES**

**John Traficante**, Boston, Massachusetts (with whom **Stephen A. Jonas**, Boston, Massachusetts, was on the brief), for the intervenor **James M. Shannon**, Attorney General of Massachusetts.

**Robert A. Backus**, Manchester, New Hampshire, filed a brief for the intervenor Seacoast Anti-Pollution League.

**Thomas G. Dignan, Jr.**, Boston, Massachusetts (with whom **George H. Lewald**, **Kathryn A. Selleck**, **Jeffrey P. Trout**, **Jay Bradford Smith**, **Geoffrey C. Cook**, and **William Parker**, Boston, Massachusetts, were on the brief), for the applicants Public Service Company of New Hampshire, *et al.*

**Gregory Alan Berry** for the Nuclear Regulatory Commission staff.

**DECISION**

Before us are the appeals of the intervenors Attorney General of Massachusetts and Seacoast Anti-Pollution League (SAPL) from the Licensing Board's March 8, 1989 memorandum and order in this operating license proceeding involving the Seabrook nuclear facility.<sup>1</sup> In that issuance, the Board denied motions of the Attorney General and SAPL seeking to litigate the question of the Seabrook owners' financial qualifications to operate the facility in a safe manner in the event it receives a full-power license.

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<sup>1</sup> See LBP-89-10, 29 NRC 297.

More specifically, the Attorney General's motion requested a waiver, under 10 C.F.R. 2.758, of the provisions of 10 C.F.R. 50.33(f), and 50.57(a)(4), which, as amended in 1984, exempt an electric utility applicant for an operating license for a facility such as Seabrook from the general requirement that the financial qualifications to conduct safe operation be demonstrated.<sup>2</sup> For its part, the SAPL motion, supported by the intervenor New England Coalition on Nuclear Pollution (Coalition), asserted that, insofar as operation under a full-power license is concerned, the Commission waived the application of the exemption last December in CLI-88-10 when it dealt with the financial qualifications issue in the context of a low-power testing authorization.<sup>3</sup> On this theory, SAPL simply requested the acceptance of a late-filed contention to the effect that the applicants "have not demonstrated that they can provide reasonable assurance that they either have or can obtain the necessary funds to safely operate the Seabrook plant."<sup>4</sup>

We determine first that, contrary to the position taken by the NRC staff in an April 17, 1989 motion to strike the notices of appeal, LBP-89-10 is appealable at this time insofar as it denied the Attorney General's waiver petition. Because of its close relationship to this ruling, SAPL's challenge to LBP-89-10 now lies as well. Turning to the merits of the controversy, we reject the SAPL view respecting the effect of CLI-88-10 but conclude that that decision requires us to certify to the Commission the Attorney General's waiver petition.

## I.

The question of the present appealability of LBP-89-10 is a close one. On the one hand, it is settled that, "[a]s a general matter, a licensing board's action is final for appellate purposes where it either disposes of at least a major segment of the case or terminates a party's right to participate; rulings which do neither are interlocutory."<sup>5</sup> LBP-89-10 manifestly did not affect the right of either the Attorney General or SAPL to continue to participate in this operating license proceeding. And whether it can be said to dispose of a major (as opposed to merely a discrete) portion of this operating license proceeding appears to be doubtful at best. The Licensing Board still has for decision a host of issues. To be sure, none of those issues is concerned with financial qualifications matters; rather, all are in the realm of the adequacy of emergency response planning.

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<sup>2</sup> 49 Fed. Reg. 35,747, 35,752-53 (hereinafter referred to as the "1984 financial qualifications rule" or "1984 rule").

<sup>3</sup> 28 NRC 573 (1988), reconsideration denied, CLI-89-3, 29 NRC 234, and CLI-89-7, 29 NRC 395 (1989).

<sup>4</sup> [SAPL's] Motion to Accept Late-Filed Contention (January 25, 1989) at 8.

<sup>5</sup> Toledo Edison Co. (Davis-Besse Nuclear Power Station), ALAB-300, 2 NRC 752, 758 (1975). With exceptions not applicable here, interlocutory appeals are prohibited. See 10 C.F.R. 2.730(f).

But, standing alone, this consideration cannot serve to wrap the mantle of "major segment" around the unsuccessful endeavor of the Attorney General and SAPL to put the financial status of the applicants in issue. Indeed, were it otherwise, it would perforce follow that immediate appealability would attach to the rejection at the threshold of *any* proffered contention that had no relationship to matters previously accepted for litigation. Nothing in our jurisprudence could possibly support such a result.

On the other hand, we were careful in *Davis-Besse* to cast the finality test announced therein in terms that made it a general, not an absolute, rule. And where the entitlement of a party to a waiver of a regulation is at issue, we are satisfied that there is sufficient cause to avoid a slavish adherence to that test.

To begin with, the procedure established by 10 C.F.R. 2.758 for the consideration and disposition of waiver petitions is unique in many respects. It conveys the clear message that the Commission did not wish the treatment of waiver petitions to be controlled rigidly by the same rules that govern, for example, the handling on the trial and appellate level of contentions that are scrutinized for admissibility. Although the Licensing Board is usually the recipient of the waiver petition in the first instance, it is not empowered to grant it. Rather, the Board's role is confined to determining whether the petitioner has made a *prima facie* showing 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."<sup>6</sup> If, on the basis of the submissions before it, the Board concludes that such a showing has *not* been made, that is the end of the matter unless a different conclusion is reached on an appeal.<sup>7</sup> If however, the Board finds that the requisite showing *has* been made, its next step must be to certify the matter directly to the Commission. With or without the conduct of further proceedings to aid its determination, the Commission will thereupon decide for itself whether the requested waiver should be granted.<sup>8</sup>

In a real sense, then, section 2.758 creates a special procedure, separate from and ancillary to the basic licensing proceeding. That being so, it does no necessary violence to the fundamental concept of finality for appeal purposes to sanction an immediate appellate examination of a licensing board's disposition of a waiver petition filed under that section — whether that examination is in the form of review by us of the denial of the petition or, instead, stems from a Board certification to the Commission that the *prima facie* showing of special circumstances has been made. And it seems to us that good sense dictates that, irrespective of the determination arrived at by the licensing board in the

<sup>6</sup> See 10 C.F.R. 2.758(b).

<sup>7</sup> See 10 C.F.R. 2.758(c).

<sup>8</sup> See 10 C.F.R. 2.758(d).

particular case, all waiver questions receive their definitive resolution at as early a date as feasible. In the context of this case, we see nothing to commend an approach to appealability that would require the parties to wait until well after the ultimate initial decision on emergency response planning has issued to ascertain whether there should have been a waiver of the financial qualifications regulation in question.<sup>9</sup>

For these reasons, we entertain now the Attorney General's appeal from the adverse Licensing Board action on its waiver petition. As earlier seen, SAPL did not file a like petition. Because, however, its appeal from the same memorandum and order raises questions closely related to those presented by the Attorney General, it is appropriate in this unique circumstance to review the Licensing Board's entire decision at this time.

## II.

A. As earlier noted, SAPL's reading of CLI-88-10 undergirds its insistence that the financial qualifications issue it endeavors to raise is open to litigation without the need for a waiver of the 1984 rule. And the Attorney General similarly points to that decision as support for the proposition that his petition made out a *prima facie* case of entitlement to such a waiver. Consequently, it is important at the outset to take a close look not merely at what CLI-88-10 does and does not decide but, as well, at the reasoning that brought the Commission to the result it reached.

CLI-88-10 addressed two petitions seeking waivers of the 1984 financial qualifications rule to the extent necessary to require the lead applicant, Public Service Company of New Hampshire (Public Service), to demonstrate, prior to *low-power* operation, that it was financially qualified to operate the Seabrook facility at *low power*. SAPL and the Coalition, together with a third intervenor, the Town of Hampton, filed one of those petitions with the Licensing Board (hereinafter "SAPL petition"). While an appeal from the denial of that petition was pending before us, Public Service filed a petition in a federal bankruptcy court seeking reorganization under Chapter 11 of the Bankruptcy Code. At our invitation in light of this event, SAPL filed a supplemental brief and the Attorney General submitted his own waiver petition to us.

In ALAB-895,<sup>10</sup> we affirmed the Licensing Board's denial of the SAPL petition but certified the Attorney General's petition (as subsequently supplemented) to the Commission. We need not here rehearse in detail the bases upon which

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<sup>9</sup> As we understand it, that decision is now expected to issue by the end of this November. See Licensing Board Report to the Commission (July 6, 1989).

<sup>10</sup> 28 NRC 7 (1988).

that result was founded. Suffice it to say that we did not consider the bankruptcy proceeding to be sufficient of itself to provide the required *prima facie* showing. Rather, we thought the crucial consideration to be the fact, established in the Attorney General's second supplement, that the joint owner with the fourth largest interest in Seabrook (the Massachusetts Municipal Wholesale Electric Company) had ceased making its monthly contribution to the facility's operating costs and was endeavoring to get out of the project. As we saw it, that development — which meant that "as matters now stand, the applicants shortly will have more than an eleven percent shortfall in the funds necessary to operate Seabrook safely at low power" — carried the day for the Attorney General before us.<sup>11</sup>

In CLI-88-10, the Commission passed on not only our analysis of the matter, but also the claims of the various intervenors.<sup>12</sup> According to the Commission, there were three principal grounds asserted for a rule waiver: (1) the bankruptcy of Public Service; (2) New Hampshire's so-called "anti-CWIP" statute, under which costs of construction work in progress may not be included in a utility's rate base or allowed as an expense for ratemaking purposes before the construction project is "actually providing service to consumers";<sup>13</sup> and (3) the cessation of project payments by the Massachusetts Municipal Wholesale Electric Company.<sup>14</sup>

In the Commission's view, each of these considerations constituted a "special circumstance" for the purposes of the application of 10 C.F.R. 2.758. This conclusion stemmed from a determination that "[s]pecial circumstances are present only if the petition properly pleads one or more facts, not common to a large class of applicants or facilities, that were not considered either explicitly or by necessary implication in the proceeding leading to the rule sought to be waived."<sup>15</sup> On this score, the Commission observed that the circumstance of Public Service's bankruptcy "is unique to Seabrook" and that there was "no indication" in the rulemaking in 1984 "that utility bankruptcy was a condition taken into account."<sup>16</sup> It went on to make a similar observation with regard to both anti-CWIP statutes and the delay and cessation of project payments by joint owners:

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<sup>11</sup> *Id.* at 26.

<sup>12</sup> As the Commission noted, SAPL had petitioned for review of ALAB-895 and the Attorney General had asserted that certain portions of that decision were in error. *See* CLI-88-10, 28 NRC at 595.

<sup>13</sup> CLI-88-10 also decided other financial qualifications questions not here relevant.

<sup>13</sup> *See* N.H. Rev. Stat. Ann. 378:30-a.

<sup>14</sup> CLI-88-10, 28 NRC at 595. The Commission also took into account the undisputed fact that two smaller joint owners likewise were behind in their project payments. *Ibid.*

<sup>15</sup> *Id.* at 597.

<sup>16</sup> *Ibid.*

We do not believe that anti-CWIP statutes are the rule in the utility industry, and so we are not persuaded by the record before us that anti-CWIP statutes present generic, as opposed to case-specific issues. Moreover, there is no indication in the 1984 financial qualifications rulemaking that anti-CWIP statutes were considered. Finally, the delay and cessation of project payments by some of the minority owners also appear to be uncommon and a matter not considered in the financial qualifications rulemaking.<sup>17</sup>

These determinations brought the Commission to the “next critical issue”: “whether any of these special circumstances undercuts the rationale for the 1984 financial qualifications rule.”<sup>18</sup> As explained in the Statement of Consideration accompanying the rule, the essential rationale was that

case-by-case review of financial qualifications for all electric utilities at the operating license stage is unnecessary due to the ability of such utilities to recover, to a sufficient degree, all or a portion of the costs of construction and sufficient costs of safe operation through the ratemaking process.<sup>19</sup>

In combination, the Commission reasoned, the Public Service bankruptcy and the anti-CWIP statute undercut that rationale:

We think that it is apparent that PSNH bankruptcy and anti-CWIP, in combination, undercut this rationale. Under anti-CWIP the utility cannot, strictly speaking, specifically recover *any* portion of the costs of low-power testing. In most cases this may not be critical, given the fact that utilities generally have sufficient other funds derived through rates to carry them through temporary shortfalls and delays in rate recovery. Indeed the Commission recognized in its 1984 rulemaking that there could be phase-ins and other such delays in recovery of costs of construction or operation, and that such delays did not upset the rationale that rate setting would provide adequate funds. But here the utility’s bankruptcy clearly signals that something very unusual and serious has occurred because of a delay in rate increases — the utility is unable to meet all of its obligations to its creditors.<sup>20</sup>

That left the Commission one “remaining critical issue” to explore. In addition to holding that the “special circumstances” must undercut the rationale for the rule sought to be waived, the Commission determined that the petition “and other allowed papers” must indicate the presence of a significant safety problem related to that rule.<sup>21</sup> It then embarked upon an inquiry into whether a

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<sup>17</sup> *Id.* at 598.

<sup>18</sup> *Ibid.*

<sup>19</sup> 49 Fed. Reg. at 35,748.

<sup>20</sup> CLI-88-10, 28 NRC at 598 (footnote omitted; emphasis in original). The Commission found it “less clear that cessations of project payments undercut the logic of the rule” but assumed for the purpose of its discussion that such was the case. *Id.* at 599.

<sup>21</sup> *Id.* at 597.

waiver was needed to address such a problem on its merits.<sup>22</sup> This question was answered in the negative.

At the outset of its discussion of the matter, the Commission once again turned to the Statement of Consideration that accompanied the 1984 rule. From that administrative history, the Commission concluded that “[t]he reason for conducting a financial qualifications review and requiring a finding of financial qualifications is *solely* to provide some added assurance that a licensee would not, because of financial difficulties, be under pressure to take some safety shortcuts.”<sup>23</sup> The Commission continued:

Whatever may be the legitimacy of this safety purpose for full-power operation, it stretches reason to suppose that the safety rationale would have any bearing on a limited license for low-power testing. Shortcuts in safety at full power conceivably could avoid shutdowns or derating and thereby contribute to greater plant availability and revenue from power sales. But shortcuts in low-power testing safety will not lead to generation of more revenue that would benefit the plant owners. Low-power testing does not generate revenue from power sales. The *only* purpose of low-power testing is to further ensure plant safety by checking selected plant systems that cannot be checked without core criticality and confirming various operating parameters. There is every incentive to do the job well and no rational incentive to cut corners.<sup>24</sup>

The Commission did not, however, bring the discussion to a close at that point. Rather, it offered two additional reasons why a waiver of the 1984 rule was not needed to address a significant safety problem. For one thing, the amount of money in question was “relatively small” (3.5 million dollars over a period of a few months) and there was no reason to suppose that the applicants “would jeopardize the billions already invested in Seabrook merely to save a few hundred thousand or even a few million dollars needed for safe low-power testing.”<sup>25</sup> For another, the “safety risks of low-power testing are low.”<sup>26</sup>

In short, the waiver petitions ultimately failed before the Commission even though they alleged “special circumstances” that undercut the rationale for the 1984 rule. At least where low-power testing was concerned, those circumstances did not give rise to a significant safety problem necessitating a waiver of the rule.

B. We think it clear from the foregoing that the Licensing Board’s rejection of SAPL’s attempt to advance a full-power financial qualifications contention is correct. CLI-88-10 did not grant any waiver of the 1984 financial qualifications rule, especially insofar as concerns operation of the Seabrook facility above the

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<sup>22</sup> *Id.* at 599.

<sup>23</sup> *Id.* at 600 (emphasis in original).

<sup>24</sup> *Ibid.* (emphasis in original).

<sup>25</sup> *Ibid.*

<sup>26</sup> *Ibid.*

level authorized for low-power testing. To the contrary, that issue was not before the Commission, and thus in so many words it eschewed passing on whether such a waiver would be necessary in the interests of safety.<sup>27</sup> Consequently, both the filing and the grant of a waiver petition were conditions precedent to the admission of the SAPL full-power contention. Because SAPL did not even file such a petition, its appeal necessarily fails.

Accordingly, all we must consider at any length is the Attorney General's appeal. As earlier noted, evidently not subscribing to SAPL's erroneous reading of CLI-88-10, the Attorney General filed a waiver petition. The question that thus confronts us is whether he is right in his insistence that there exists the required *prima facie* showing for a waiver of the 1984 rule with respect to the authorization of full-power operation.

In his brief and at oral argument, the Attorney General placed heavy emphasis on factors said to flow directly from the bankruptcy of Public Service. We are told, for example, that, as a result of that development, there currently is considerable uncertainty as to who ultimately will own that utility's share of Seabrook. Further, according to the Attorney General, it cannot now be determined with assurance what body will fix the rates for Seabrook-generated electricity and whether there will be a sufficient market for that electricity at the rates that might be established. All this being so, the Attorney General maintains, it makes no difference for present purposes when the anti-CWIP statute might no longer serve as a bar to the inclusion of the costs of Seabrook construction in the rate base. Nonetheless, if we understand his argument correctly, the bankruptcy of the lead applicant precludes any assurance that the money required for safe operation under a full-power authorization will be available.

A not significantly different line of argument was before us in ALAB-895. In its supplemental brief submitted in the wake of the bankruptcy filing, SAPL argued that that filing, *per se*, required a grant of the requested waiver of the 1984 rule. This was said to be so because assurance no longer existed that the ratemaking process would provide the necessary funds to operate Seabrook. In this regard, SAPL opined that it was possible (albeit highly unlikely) that the bankruptcy judge would attempt to exercise rate-setting authority himself.<sup>28</sup>

In rejecting that claim, we pointed out that it did not amount to the required showing that the bankruptcy proceeding deprived Public Service and the other applicants of the financial resources to operate the facility safely at the low-power level then under consideration.<sup>29</sup> We are satisfied that the uncertainties to

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<sup>27</sup> See *supra* p. 129.

<sup>28</sup> See ALAB-895, 28 NRC at 19.

<sup>29</sup> *Ibid.* The Commission did not express disagreement with this conclusion in CLI-88-10.

which the Attorney General has alluded fall equally short of such a showing in a full-power context.

To begin with, there is no cause to speculate at this juncture respecting the ultimate ownership of the Public Service share of the facility. No transfer of that share to some other entity could be accomplished without Commission approval on an application seeking that approval.<sup>30</sup> In the event that (as the Attorney General hypothesizes might be the case) the prospective transferee were other than an electric utility, it would be required under existing regulations to submit information sufficient to demonstrate its financial qualifications to operate the facility safely.<sup>31</sup> At any rate, the Attorney General would be free to bring to the Commission's attention any information in his possession suggesting that, for one reason or another, the proposed ownership transfer threatened safe plant operation.<sup>32</sup>

There is no greater occasion to indulge in conjecture respecting what body will set Seabrook's rates and whether those rates will be set at a level that will assure a sufficient market for the electricity generated by the facility. The 1984 rule is predicated on the assumption that, no matter who is charged with the rate-setting function, the established rates will produce revenues adequate to cover the expenses attendant upon safe operation. The matter of the application of the anti-CWIP statute to one side, we perceive no justification for questioning the validity of that assumption here. This much is clear: the bankruptcy filing does not, of itself, counter the assumption.

Rejection of the Attorney General's principal thesis leaves us to consider the impact of the Commission's discussion in CLI-88-10, summarized above, upon the waiver petition at hand. Because the Attorney General raised this matter as a secondary argument,<sup>33</sup> we asked the applicants at oral argument to address in a supplemental memorandum questions directed to determining when, following the issuance of a full-power authorization, Public Service might expect to begin to receive revenues now denied to it because of the anti-CWIP statute. The other parties were given an opportunity to respond to the answers provided by the applicants.

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<sup>30</sup> See 10 C.F.R. 50.80. In this connection, it appears from an examination of the text of the license authorizing low-power operation of Seabrook (License No. NPF-67, dated May 26, 1989) that it was issued to Public Service, who had applied for the license "acting for itself and as agent and representative" of the other listed utilities with ownership interests in Seabrook. The license further recites, in a footnote on its first page, that Public Service "has exclusive responsibility and control over the physical construction, operation and maintenance of the [Seabrook] facility." In these circumstances, it would appear that the provisions of section 50.80 would come into play even if, as we understand there is a possibility, the Public Service share of Seabrook were acquired by an entity (such as Northeast Utilities) that already has an ownership share of Seabrook either directly or through a subsidiary (e.g., the Connecticut Light and Power Company in the case of Northeast Utilities).

<sup>31</sup> See 10 C.F.R. 50.80(b) read in conjunction with 10 C.F.R. 50.33(f).

<sup>32</sup> See 10 C.F.R. 50.80(c).

<sup>33</sup> See Brief of the Attorney General (April 21, 1989) at 2 n.1.

In a July 25, 1989 filing, the applicants furnished to us a memorandum that their counsel had received from a member of a Concord, New Hampshire law firm whose opinion on the questions had been solicited.<sup>34</sup> The memorandum noted that, in terms, the anti-CWIP statute prohibits recovery through the ratemaking process of costs associated with utility plant construction until the plant is "actually providing service to consumers."<sup>35</sup> Although there has been no judicial or regulatory decision applying this language to a particular set of facts, the memorandum continued, the New Hampshire Supreme Court has applied to the anti-CWIP statute the canon of statutory construction that statutes are to be interpreted in accordance with their plain language if possible.<sup>36</sup> Because the statute "contains no references to licenses or to technical requirements for specified operating levels" as a condition precedent to lifting the CWIP prohibition, New Hampshire counsel reasoned that the prohibition will disappear as soon as the facility is "providing net generation to the grid."<sup>37</sup>

The memorandum then moved on to the question whether there will be a "regulatory delay between the time the legal test has been satisfied and the date when revenues actually begin to flow."<sup>38</sup> The response was that some such delay "can be expected."<sup>39</sup> We are referred to both the requirement that utilities provide 30-days advance notice of an intent to file for a change in rate schedules and the statutory directive that any such change cannot take place for an additional 30 days after the filing has been accomplished.<sup>40</sup> Beyond that, the New Hampshire Public Utilities Commission (PUC) is authorized to suspend the effectiveness of tariff changes during the pendency of an investigation.<sup>41</sup> Although in the instance of a Seabrook rate case, such a suspension could extend for as much as 18 months,<sup>42</sup> New Hampshire statutes establish procedures that may ameliorate the resultant regulatory delay. Under one such procedure, the utility may place the suspended new rate schedule in effect six months after the originally proposed effective date by posting a bond to secure repayment to customers of any difference between revenues collected under that schedule and rates that would have been collected under the rate schedule the Public

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<sup>34</sup> See July 18, 1989 memorandum from Martin L. Gross to Thomas G. Dignan (hereinafter "Gross Memorandum"), appended as Attachment A to Applicants' Response to Appeal Board Questions at Oral Argument (July 25, 1989). We were informed at oral argument that the applicants would seek the views of New Hampshire counsel on this matter of New Hampshire law. None of the other parties responded to the memorandum.

<sup>35</sup> See N.H. Rev. Stat. Ann. 378:30-a.

<sup>36</sup> See Gross Memorandum at 1 (citing *Appeal of Public Service Co. of New Hampshire*, 125 N.H. 46, 480 A.2d 20 (1984)).

<sup>37</sup> *Id.* at 2.

<sup>38</sup> *Ibid.*

<sup>39</sup> *Ibid.*

<sup>40</sup> See N.H. Code Admin. R. PUC 1603.02; N.H. Rev. Stat. Ann. 378:3.

<sup>41</sup> See N.H. Rev. Stat. Ann. 378:6, I.

<sup>42</sup> See N.H. Rev. Stat. Ann. 378:6, II.

Utilities Commission ultimately determines to be just and reasonable.<sup>43</sup> Under another procedure, the PUC may allow (but is not required by statute to do so) temporary rates to be in effect during the pendency of an investigation of a proposed rate increase.<sup>44</sup>

The foregoing makes it plain that, as a proximate result of the operation of the anti-CWIP statute, an authorization of full-power operation is scarcely likely to be accompanied by an *immediate* increase in revenues by reason of the receipt of such an authorization.<sup>45</sup> There is, of course, no way of ascertaining at this juncture how long the "regulatory delay" might be. This will necessarily depend upon such factors as when (accepting New Hampshire counsel's reading of the anti-CWIP statute) the facility commences "providing net generation to the grid"; whether the Public Utilities Commission suspends the effectiveness of the proposed tariff changes pending an investigation; and, if so, whether that Commission authorizes a temporary rate increase in the interim. But, whether the regulatory delay is relatively brief or extended, the fact remains that it is highly probable that, for some interval at least, Seabrook would be operating above the five-percent level (perhaps significantly so) with no additional revenues flowing to Public Service attributable to the Seabrook facility itself.<sup>46</sup>

Applying CLI-88-10 to this factual setting, it is not difficult to conclude that the same "special circumstances" discerned there are equally present here: Public Service remains in a bankruptcy proceeding, the anti-CWIP statute will still have an effect upon the utility's revenues when and if a full-power authorization is forthcoming; and (insofar as we have been told) the Massachusetts Municipal Wholesale Electric Company, *inter alia*, continues to default on its project payments. Inasmuch as the Commission determined in CLI-88-10 that, in combination, the first two of those "special circumstances" undercut the rationale for the 1984 financial qualifications rule, we reach what the Commission deems to be the ultimate "critical issue": is there evidence of a significant safety problem warranting a waiver of the 1984 rule?<sup>47</sup>

We have seen that in CLI-88-10 the Commission determined that the waiver petitions did not present a significant safety problem in the context of low-

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<sup>43</sup> See N.H. Rev. Stat. Ann. 378:6, III.

<sup>44</sup> See N.H. Rev. Stat. Ann. 378:27; *Public Service Co. of New Hampshire v. State*, 102 N.H. 66, 150 A.2d 810 (1959). The effect of the temporary rates upon the PUC's final disposition of the rate case is spelled out in N.H. Rev. Stat. Ann. 378:29, 378:30.

<sup>45</sup> But for the anti-CWIP statute, the Seabrook construction costs presumably would have long ago found their way into Public Service's rate base.

<sup>46</sup> As the Commission noted in CLI-88-10, it recognized in promulgating the 1984 rule that there "could be phase-ins and other such delays in recovery of costs of construction or operation, and that such delays did not upset the rationale that rate setting would provide adequate funds." See *supra* p. 128. But, as we have also seen, the Public Service bankruptcy and the anti-CWIP statute were factors that were not taken into account in the assessment in 1984 of the significance of regulatory delay.

<sup>47</sup> See *supra* pp. 128-29.

*power* operation. As the Commission implicitly acknowledged in confining its determination to low-power operation, however, the reasons assigned for that conclusion do not have the same lack of significance for operation above the five-percent level. First, according to the Commission, the exclusive purpose of the agency's review of an applicant's financial qualifications is "to provide some added assurance that a licensee would not, because of financial difficulties, be under pressure to take some safety shortcuts."<sup>48</sup> Although the Commission found that this safety purpose had no legitimacy for low-power operation because low-power testing generates no revenues to benefit plant owners, it acknowledged that "[s]hortcuts in safety at full power conceivably could avoid shutdowns or derating and thereby contribute to greater plant availability and revenue from power sales."<sup>49</sup> Here, the bankruptcy petition of Public Service (a situation that the Commission has stated "clearly signals that something very unusual and serious has occurred"), the continued effect of the New Hampshire anti-CWIP statute, and the cessation of joint owner project payments in the context of full-power operation all go to the heart of the purpose of a financial qualifications review — i.e., safety.<sup>50</sup> Nor can the safety rationale underlying the agency's financial qualifications review be dismissed lightly. In adopting the 1984 rule, while the Commission noted that a case might be made that there is no connection between the agency's financial review and safe plant operation, it specifically declined to foot the rule on such a conclusion.<sup>51</sup> Thereafter in 1987, because of this nexus between financial health and safety, the Commission adopted a rule requiring all licensees to notify the agency upon the filing of bankruptcy petitions, and it specifically rejected the suggestion that electric utility licensees should be exempt from the requirement.<sup>52</sup> Thus, in the circumstances presented and under the Commission's analysis, operation above five percent, unlike low-power testing, potentially gives rise to a "significant safety problem" warranting waiver of the 1984 rule.

Second, the Commission found in CLI-88-10 that the shortfall of 3.5 million dollars needed to conduct low-power testing over a three-month period was sufficiently small in relation to the amount already invested in Seabrook that it "strain[ed] credibility" to suppose the applicants would jeopardize their substantially greater investment over such a sum.<sup>53</sup> But, in contrast to the situation at low power, given the amount of any shortage of funds for full-power operation caused by the cessation of project payments and the anti-CWIP

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<sup>48</sup> 28 NRC at 600.

<sup>49</sup> *Ibid.*

<sup>50</sup> *See id.* at 598.

<sup>51</sup> 49 Fed. Reg. at 35,751.

<sup>52</sup> 52 Fed. Reg. 1292-93 (1987). *See also* 10 C.F.R. 50.71(b) (requiring annual financial reports and certified financial statements from commercial reactor licensees).

<sup>53</sup> 28 NRC at 600.

statute (as well as the duration of time the plant may operate with such deficits at levels above low power), it is not incredulous that corner-cutting might take place.

Finally, the Commission concluded in CLI-88-10 that "the safety risks of low-power testing are low."<sup>54</sup> In that regard, the Commission pointed to its recent rulemaking involving emergency planning and preparedness requirements for nuclear power fuel loading and low-power testing. In the Statement of Consideration accompanying the promulgation last September of amendments to 10 C.F.R. 50.47(d), the Commission explicitly noted that, on a reexamination of the matter, it had "reaffirmed the safety conclusion that the safety risk to the public from low power testing is significantly less than the risk to the public from full power operation."<sup>55</sup> At a later point in its discussion of the justification for the section 50.47(d) amendments, the Commission observed that "it is highly unlikely that members of the general public would be exposed to dangerous levels of radiation following an accident at low power."<sup>56</sup> Yet just the opposite potentiality is associated with full-power operation.

In light of the foregoing considerations, we certify the Attorney General's waiver petition to the Commission pursuant to 10 C.F.R. 2.785(d). Under the analysis set forth in CLI-88-10, all of the elements for a rule waiver are met with respect to the public utility exemption of the financial qualifications regulations for full-power operation. The "special circumstances" found to exist in CLI-88-10 are still present, and there is no apparent reason for a departure from the Commission's conclusion in that decision that the combination of two of those circumstances — the Public Service bankruptcy and the anti-CWIP statute — undercuts the rationale for the 1984 financial qualifications rule. Given these factors, and the obvious safety differences between low-power testing and operation appreciably above the five-percent level, we feel constrained by the reasoning in CLI-88-10 to certify the Attorney General's waiver petition to the Commission.

There is an additional reason for sending this matter to the Commission. The Commission closed CLI-88-10 with a critical comment aimed at the staff's action in opposing any rule waiver, while simultaneously conducting an "informal" review to ensure there is reasonable assurance that Public Service has sufficient financial resources to operate Seabrook safely. Relying on *Union of Concerned Scientists v. NRC*,<sup>57</sup> the Commission admonished the staff that it "cannot have it both ways — it cannot advise the Commission that there are no

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<sup>54</sup> *Ibid.*

<sup>55</sup> 53 Fed. Reg. 36,955, 36,956 (1988).

<sup>56</sup> *Id.* at 36,959. Cf. *Philadelphia Electric Co. (Limerick Generating Station, Units 1 and 2)*, CLI-89-10, 30 NRC 1, 6, reconsideration denied, CLI-89-15, 30 NRC 96 (1989).

<sup>57</sup> 735 F.2d 1437 (D.C. Cir. 1984), cert. denied, 469 U.S. 1132 (1985).

grounds for a rule waiver, and at the same time conduct its informal licensing review as if a waiver was in fact needed."<sup>58</sup> Although the staff tells us that it nevertheless may still informally investigate the financial condition of Public Service in order to determine if there is a financial problem,<sup>59</sup> we think the court's holding in *Union of Concerned Scientists* and the Commission's clear statement in CLI-88-10 are to the contrary. In short, whether the financial qualifications of Public Service present a material licensing issue — and thus are open to *litigation* by interested parties — cannot be determined by the staff's *answer* to the ultimate question whether Public Service is financially qualified to operate Seabrook safely, as the staff would have it. Indeed, if the financial qualifications of Public Service are to be reviewed by this agency at all, they can only be reviewed by granting the rule waiver, which, in turn, means that the parties must be afforded an opportunity for a hearing on that subject. Because, like the Commission, we believe the "utility's bankruptcy clearly signals that something very unusual and serious has occurred," we think the unique circumstances under which the agency can review Public Service's financial condition thus provide an additional reason for certifying the Attorney General's waiver petition to the Commission.

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The staff's motion to strike the notices of appeal is *denied*; the Licensing Board's denial in LBP-89-10, 29 NRC 297, of the SAPL motion to reopen the record to accept a late-filed financial qualifications contention is *affirmed*; and the Licensing Board's denial in LBP-89-10 of the Attorney General's motion seeking a waiver of the 1984 financial qualifications rule in the context of a full-power authorization is *reversed*, and the Attorney General's motion is *certified* to the Commission.

It is so ORDERED.

FOR THE APPEAL BOARD

Barbara A. Tompkins  
Secretary to the  
Appeal Board

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<sup>58</sup> CLI-88-10, 28 NRC at 602.

<sup>59</sup> App. Tr. 97-99.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

**Before Administrative Judges:**

**Morton B. Margulies, Chairman**  
**Jerry Harbour**  
**Jerry R. Kline**

In the Matter of

Docket Nos. 50-352-OL

50-353-OL

(ASLBP No. 89-587-03-OL-R)

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

August 11, 1989

The parties in having satisfied Intervenors' contention prior to hearing permits the Licensing Board to dismiss the contention and terminate the proceeding.

**MEMORANDUM AND ORDER**  
(Terminating Proceeding)

On August 7, 1989, counsel for the Federal Emergency Management Agency, State Correctional Institution at Graterford inmates, Pennsylvania Department of Corrections, Pennsylvania Emergency Management Agency, Philadelphia Electric Company, and Nuclear Regulatory Commission Staff jointly submitted to the Licensing Board a request for dismissal of the remaining contention of the Graterford inmates and termination of the proceeding.

The subject Graterford inmate contention raised as an issue whether the radiological emergency response plan relating to the prison complies with the standard of 10 C.F.R. § 50.47(b)(15) inssofar as radiological emergency response training is provided to civilian personnel (e.g., bus and ambulance drivers) who

may be called upon to assist in the event of an emergency that would require evacuation of Graterford. The heart of the issue is whether the drivers who would be used to evacuate Graterford would receive adequate training as distinguished from being offered adequate training.

The Commission instituted this proceeding by Order of April 14, 1989, in response to a remand of the U.S. Court of Appeals for the Third Circuit in its decision in *Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719 (3d Cir. 1989). The Court granted the inmates' petition for review which challenged the Commission's exclusion of consideration of whether an offer of training will satisfy the requirement that training be provided to the evacuation plan participants.

On May 30, 1989, the parties submitted to the Licensing Board a stipulation in which they agreed, *inter alia*, that all bus and ambulance drivers will be employees of the Pennsylvania Department of Corrections; that they will receive specified requisite training, and that appropriate changes will be made in the Graterford Radiological Emergency Response Plan.

They further agreed that the concerns expressed by the Graterford inmates in their remaining contention have been met and that there is reasonable assurance that the radiological response plan relating to the Graterford prison complies with the standard of section 50.47(b)(15).

The parties went on to stipulate that the remaining contention of the inmates shall be dismissed and the proceeding terminated, effective on notification to the Licensing Board and the parties by the Pennsylvania Department of Corrections that at least seventy-five of the drivers have received the described training.

We accepted and approved the stipulation, except as to the process proposed for dismissing the contention and terminating the proceeding. Rather than permitting the termination of the proceeding upon mere notice of a participant, which in effect would result in ceding our jurisdiction, we stated, "We would have no hesitancy about passing upon a request by the parties for dismissal and termination of the proceeding when seventy-five of the drivers have been trained, the condition provided for in the Stipulation." LBP-89-14, 29 NRC 487, 489 (1989).

In the parties' request of August 7, 1989, calling for the dismissal of the contention and termination of the proceeding, they report that as of July 18, 1989, a total of 100 employees of the Pennsylvania Department of Corrections who would serve as bus and ambulance drivers in an actual radiological emergency have completed their training. Further, the 100 trained employees meet the requirement of the revised Radiological Emergency Response Plan for the State Correctional Institution at Graterford, which calls for sixty-six trained drivers and an additional thirty-four in reserve.

The complaint of the Graterford inmates has been satisfied without the need for a formal hearing. No further health or safety issue remains. The Licensing

Board is unaware of any reason why the request of the parties for concluding the proceeding should not be granted.

Based on the foregoing, the request of the parties for dismissal of the Graterford inmates' contention and termination of the proceeding is hereby granted. The proceeding is terminated.

It is so ORDERED.

FOR THE ATOMIC SAFETY AND  
LICENSING BOARD

Morton B. Margulies, Chairman  
ADMINISTRATIVE LAW JUDGE

Bethesda, Maryland  
August 11, 1989

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD PANEL**

**Before Administrative Judge:**

**Charles Bechhoefer**

**In the Matter of**

**Docket No. 70-36-MLA  
(ASLBP No. 89-593-01-MLA)  
(Special Nuclear Materials  
License No. SNM-33)**

**COMBUSTION ENGINEERING, INC.  
(Hematite Fuel Fabrication Facility)**

**August 18, 1989**

The Presiding Officer grants one petition to intervene in a materials licensing proceeding, defers action on the petitions of three other persons or organizations, and seeks further information concerning all of the intervention petitions.

**ATOMIC ENERGY ACT: HEARINGS**

The right to a hearing in materials license cases, as in other licensing proceedings, arises from section 189a of the Atomic Energy Act, 42 U.S.C. § 2239(a).

**RULES OF PRACTICE: INFORMAL HEARINGS**

The Commission has implemented the statutory right to a hearing in materials license cases through its informal procedures at Subpart L of 10 C.F.R. Part 2.

**RULES OF PRACTICE: INTERVENTION**

Under the informal hearing procedures at Subpart L of 10 C.F.R. Part 2, a grant of intervention is based on factors similar to those governing intervention

in more formal adjudications: *viz*, a requirement of appropriate standing or interest, a statement of how a petitioner's interest may be affected by the proceeding, and identification of "areas of concern" to the petitioner. 10 C.F.R. § 2.1205(d). The areas of concern must be germane to the licensing action — i.e., they must "fall generally within the range of matters that properly are subject to challenge" in the proceeding. 54 Fed. Reg. 8269, 8272 (1989).

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

In an informal materials license proceeding, the standing requirement is similar to that in formal adjudications, except that presumptions based on distance of residency or workplace from a facility are not applicable. Proximity of a residence or workplace remains a relevant consideration in conjunction with the circumstances of each case as they relate to the particular petitioner and the particular material which is the subject of the application.

#### **RULES OF PRACTICE: INFORMAL HEARINGS**

Because no local public document room is normally available at the time a petition for intervention must be filed in a materials license proceeding, a necessary concomitant of a meaningful right to a fair hearing is that a petition for intervention need provide only the minimal amount of detail essential to determine that a petitioner has standing and seeks to raise germane issues.

#### **RULES OF PRACTICE: FILING REQUIREMENTS**

Although a request for a hearing in an informal proceeding must normally, under 10 C.F.R. § 2.1203(b), be filed with the NRC Office of the Secretary, where a *Federal Register* notice directs that hearing requests be filed with the NRC Executive Director for Operations, a filing with the Executive Director but not the Secretary is proper.

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

A legislator cannot establish standing to intervene on behalf of unnamed constituents. He may, however, intervene as a private citizen, assuming he otherwise has standing to do so.

## **RULES OF PRACTICE: INTERVENTION**

Under the informal hearing procedures, an expression by a petitioner of concerns comparable to certain of the matters dealt with by the Staff in its Safety Evaluation Report or Environmental Assessment fulfills the requirement of germaneness of issues sought to be litigated.

## **RULES OF PRACTICE: INTERVENTION**

An organization may participate in an NRC proceeding either on its own behalf or as a representative of at least one member. To participate on behalf of a member, the organization must identify the member and demonstrate that the member has standing and has authorized the organization to represent his or her interests.

## **MEMORANDUM AND ORDER** **(Requests for a Hearing)**

By notice in the *Federal Register* of May 24, 1989 (54 Fed. Reg. 22,510-11), the Nuclear Regulatory Commission provided an opportunity for a hearing on the proposed amendment of the materials license of Combustion Engineering, Inc. (CE or Applicant) to authorize the installation and use of additional pellet production lines at its facility in Hematite, Missouri. CE currently carries on most of its pellet production activities at a facility in Windsor, Connecticut, and it plans to transfer these operations to its Hematite facility (which already has the capability to perform this type of activity). To carry on the additional activities at Hematite, three new buildings are to be constructed. Requests for a hearing and petitions for leave to intervene have been filed by four persons or organizations (three of them through a joint petition).

This proceeding is subject to the informal hearing procedures set forth in 10 C.F.R. Part 2, Subpart L ("Informal Hearing Procedures for Adjudications in Materials Licensing Proceedings," 10 C.F.R. §§ 1201-1263). On July 24, 1989, the undersigned was designated as Presiding Officer, and I have appointed Administrative Judge Jerry R. Kline, an environmental scientist, to assist me in taking evidence and preparing a suitable record for review. 54 Fed. Reg. 31,749 (Aug. 1, 1989).

For reasons set forth below, I am granting one of the petitions and seeking additional information concerning each of the petitions.

## A. Background

The requests for a hearing now pending before me consist of a petition, dated June 21, 1989, from State Senator Jeremiah W. (Jay) Nixon (who represents the area in which the CE facility is located), and a joint petition, dated June 22, 1989, submitted by Ms. Martha Dodson (of Crystal City, MO), Ms. Karen Sisk (of Imperial, MO), and the Coalition for the Environment (of St. Louis, MO). These requests were each filed within the time limit specified in the *Federal Register* notice and hence were timely. By answers dated June 30, 1989, and July 7, 1989, respectively, the Applicant opposed each of the petitions. The NRC Staff, by letter dated August 3, 1989, exercised its option to decline to participate in the proceeding. *See* 10 C.F.R. § 2.1213.<sup>1</sup>

## B. Applicable Requirements

The right to a hearing in materials license cases, as in other licensing proceedings, arises from section 189a of the Atomic Energy Act, 42 U.S.C. § 2239(a). The Commission has implemented this statutory hearing right in materials license cases through its informal procedures at Subpart L of 10 C.F.R. Part 2. 54 Fed. Reg. 8269, 8270 (Feb. 28, 1989). These informal procedures establish a significantly different and less structured methodology for providing a hearing than do the procedures for formal adjudications set forth at Subpart G of 10 C.F.R. Part 2. But, reflecting the common derivation of the hearing rights, a grant of intervention under the informal procedures is based on factors similar to those governing intervention in more formal adjudications: *viz*, a requirement of appropriate standing or interest in the proceeding (which is "based upon the standards that are enunciated in § 2.714 for formal adjudications," *see* 54 Fed. Reg. at 8272), a statement of how a petitioner's interest may be affected by the proceeding, and identification of "areas of concern" to the petitioner (comparable to the "aspects" requirement of 10 C.F.R. § 2.714(a)(2)). 10 C.F.R. § 2.1205(d). These "areas of concern" must be germane to the licensing action under review — i.e., they must "fall generally within the range of matters that properly are subject to challenge" in the proceeding. 54 Fed. Reg. at 8272.

Procedurally, the Presiding Officer in an informal proceeding is afforded considerable discretion in developing information to determine whether a petitioner possesses the requisite standing. As indicated above, the standing requirement is similar to that in formal adjudications. Consistent with the nature of the matters under consideration in an informal proceeding, and the lower potential

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<sup>1</sup> With respect to issues as to which I find that resolution would be aided materially by Staff participation, I retain the option of permitting or requesting the Staff to participate. 10 C.F.R. § 2.1213.

radiation exposure attendant to materials license (as distinguished from reactor license) activities, the Commission has modified the method for demonstrating that a petitioner's interest may be affected by a licensing action; it has indicated that the so-called "fifty-mile radius" rule which governs reactor licensing proceedings is not applicable in materials licensing cases. At the same time, the Commission rejected a presumption of a lack of standing for persons residing or working more than 5 miles from a facility. 54 Fed. Reg. at 8272.

That does not mean, however, that proximity of a person's home or workplace to a facility is not relevant to standing. All that is changed is the applicable presumptions, particularly as a result of the wide variety of types of materials covered by materials license applications and the differing effects produced by each type. The standing of a petitioner in each case is thus to be based upon the circumstances of the case as they relate to the particular petitioner (and the particular material which is the subject of the application).

Reflecting the common statutory derivation of the formal and informal hearing procedures, the informal procedures, while differing in material respects from the formal procedures, do not appear to have been intended to make it more difficult to attain intervention in an informal proceeding than in a formal one. A meaningful opportunity for a hearing must of course be offered. *City of West Chicago v. NRC*, 701 F.2d 633, 645 (7th Cir. 1983). This is particularly significant in view of the lack of local availability of material bearing upon a materials license application. Unlike a reactor licensing proceeding, no local public document room is available in an informal proceeding at the time a petition for intervention must be filed. As a practical matter, therefore, it is more difficult for a petitioner in an informal proceeding to develop information in order to set forth exactly how an application might affect its interest and hence its standing to participate in a proceeding. That being so, a necessary concomitant of a meaningful right to a fair hearing is that a petition for intervention need provide only the minimal amount of detail essential to determine that a petitioner has standing and seeks to raise germane issues.

In its opposition to these petitions, the Applicant has advanced a variety of arguments, some of which I deem to be hyper-technical in view of the informal nature of the hearing, to demonstrate that each of the petitioners lacks standing or for some other reason should not participate.<sup>2</sup> However, CE has fairly pointed to deficiencies in the statements of standing of some of the petitioners.

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<sup>2</sup> For example, with respect to both petitions, the Applicant cites 10 C.F.R. § 2.1203(b) for the proposition that "a request for a hearing must be filed with the Office of the Secretary" (Applicant's Answer to Sen. Nixon, dated June 30, 1989, at 3; Applicant's Answer to Joint Petition, dated July 7, 1989, at 4). Whatever may be the requirement with respect to pleadings generally, these petitions, which were addressed to the Executive Director for Operations, complied precisely with the terms set forth in the *Federal Register* notice with respect to the filing of hearing requests (54 Fed. Reg. at 22,511). This notice appears to have effectively modified the general

(Continued)

For reasons spelled out below, I conclude that the statement of standing of one of the petitioners (Ms. Dodson) is marginally adequate (although susceptible to greater clarity with respect to the relationship of her intervention to that of other petitioners) and that the others include information which indicates that, except for technical omissions, the petitioners likely have standing to participate. For that reason, I am granting leave for the various petitioners to supplement their petitions in certain respects, should they wish to do so.

### C. Petition of Sen. Jeremiah W. (Jay) Nixon

Turning to the specific petitions, State Senator Nixon specifically seeks a public hearing on the application.<sup>3</sup> He states that he represents the area in which the facility is located in the state senate and also that he is a landowner, lifetime county resident, and avid fisherman of Joachim Creek (which is said to run "behind the facility"). Sen. Nixon then lists a number of his concerns, including increased radiation, effect of approval of the application on water quality, changes in transportation patterns, volume of waste produced at the plant, storage and disposal of this waste, potential accidents, and emergency procedures.

In opposition to this petition, the Applicant correctly observes that a legislator cannot establish standing to intervene on behalf of unnamed constituents. He may, however, intervene as a private citizen, assuming he otherwise has standing to do so. *See, e.g., General Electric Co.* (GE Test Reactor, Vallecitos Nuclear Center), LBP-79-28, 10 NRC 578 (1979). The petition does not state, however, whether Sen. Nixon wishes to participate individually or as a representative of his constituents.

To the extent Sen. Nixon wishes to participate as a representative of his constituents, his petition would have to be denied for lack of standing. However, if Sen. Nixon wishes to participate in this proceeding in an individual capacity, he should so advise me, on the schedule set forth later in this opinion. He should also provide additional details concerning his standing — e.g., such matters as the proximity of the land he owns or of his residence to the facility, and the frequency, extent, and location of his fishing activities *viz-a-viz* the facility. At this stage of the proceeding, absent the local availability of the case files, Sen.

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pleading requirement of 10 C.F.R. § 2.1203(b). *See also* 10 C.F.R. §§ 2.1203(e), 2.1205(e) (regarding service of requests for a hearing). The Applicant's position in this regard must therefore be rejected; both petitions were properly filed.

<sup>3</sup>Sen. Nixon's petition, dated June 21, 1989, was preceded by a telefaxed Memorandum dated June 19, 1989, also requesting a hearing. Both the Memorandum and the Petition were timely filed.

The Applicant comments that the petition it received was unsigned. I have copies of both a signed petition and an unsigned copy, which must have been the one transmitted to the Applicant.

Nixon need only provide a brief statement of how his interests may plausibly be affected by the concerns he has set forth.

As stated earlier, the concerns themselves need only be a concise statement "sufficient to establish that the issues the [petitioner] desires to raise regarding the licensing action fall *generally* within the range of matters that properly are subject to challenge in such a proceeding." 54 Fed. Reg. at 8272 (emphasis supplied). I find that Sen. Nixon's stated concerns with, *inter alia*, the proposal's increase in radiation discharges and in its effects on water quality parallel matters discussed in the Staff's recently issued Safety Evaluation Report and Environmental Assessment<sup>4</sup> and, hence, are sufficient at this stage of the proceeding to be deemed matters properly subject to challenge.

Pending my receipt of further advice from Sen. Nixon, I am deferring action on his proposed intervention.

#### D. Joint Petition

The joint petition includes hearing requests of two individuals (Ms. Dodson and Ms. Sisk) and an organization (the Coalition for the Environment). The request does not state whether the two individuals are members of the organization or whether each of the petitioners seeks to intervene personally or as a member of the group. The petition notes that service can be made on the representative of the Coalition, leading me to believe that the petition may be a joint one, with one intervention intended. Before I finally determine the nature of the requested intervention, however, I am affording each of the three petitioners the opportunity to supplement their petition. As of this time, I will treat the petitioners separately for determining standing.

1. Ms. Dodson states that she lives approximately 7 miles downwind from the plant, that the plant is located on Joachim Creek approximately 15 miles from where it empties into the Mississippi River, and that she obtains her drinking water from wells located on the Mississippi River "just downstream." More importantly, Ms. Dodson states that she is an owner of undeveloped land approximately 3 miles downwind of the plant. She expresses concern about the increased "potential for a criticality accident and for the release of greater amounts of radioactive and hazardous chemicals, particulates, and gases into the atmosphere, Joachim Creek [on which her property is situated], the groundwater, and onto land in all directions" (Petition at 1).

Ms. Dodson goes on to express concern about the lack of trained and equipped emergency responders and health care facilities in the county in the event of an accident at the plant or "along the routes over which radioactive

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<sup>4</sup> Safety Evaluation Report (SER) re: Startup and Test of New Pellet Production Lines and Use of Additional Warehouse Space, dated July 28, 1989, at 1; Environmental Assessment (EA), dated May 17, 1989, at 3.

materials are delivered to and from the plant." She also expresses concern about the potential for accidents resulting from the increased quantity of certain nuclear materials allegedly to result from the proposed amendment, and about the adequacy of roads to handle an evacuation. Her final expression of concern relates to certain aspects of facility design, such as seismic capability of new structures and the ability of the site and its structures to withstand flooding (Petition at 2, 4). (Except with respect to new structures, the seismic and flood matters have been previously reviewed and are thus not relevant to the proposed amendment.)

The Applicant would have me reject the joint petition for a variety of reasons. First, it states that the statements of concern are so broad and general that "no matters are placed in issue" (Applicant's Answer at 3). This objection, however, overstates the requirement for an expression of concern at this early stage of the proceeding. It seeks a statement of issues comparable to that which must be provided at a later date pursuant to 10 C.F.R. § 2.1233(c). The Commission, however, specifically rejected such a requirement. It stated:

This type of requirement likely is not practicable under the present regulatory scheme. . . .  
It would not be equitable to require an intervenor to file its written presentation setting forth all its concerns without access to the hearing file.

54 Fed. Reg. at 8272. The statement need only be sufficient to establish that the issues sought to be raised are germane to the proceeding — i.e., that they fall generally within the range of matters that are subject to challenge in the proceeding — so that the additional step of providing a presentation of issues under 10 C.F.R. § 2.1233 becomes warranted. *Id.* By expressing concerns comparable to certain of the matters dealt with by the Staff in its SER or EA (such as gaseous or effluent discharges from the facility), Ms. Dodson has fulfilled the requirement for germaneness.

To demonstrate that her interests may be affected by the results of the proceeding, Ms. Dodson need only show that her stated concerns could have an impact on her interests, which in this instance are property interests located 3 and 7 miles, respectively, from the plant, and a drinking water source located somewhat more than 15 miles from the plant. Ms. Dodson asserts that the effluent discharges would have an adverse effect on her drinking water supply; perforce that would include an adverse effect on her riverfront property only 3 miles from the plant. A petitioner need not show that the effect on its interest is likely, only that it is plausible. Although presumptions as to distance do not, in themselves, provide a basis without more for determining that a petitioner has standing, Ms. Dodson's stated concerns go beyond that and provide a basis for determining that Ms. Dodson has set forth an effect on her interests sufficient to confer standing. Whether these concerns are justified, however, is a matter for

consideration when the merits of issues in controversy are reached. Cf. *Virginia Electric and Power Co.* (North Anna Nuclear Power Station, Units 1 and 2), ALAB-522, 9 NRC 54, 56 (1979) (standing in formal proceeding involving expansion of spent fuel pool, where 50-mile presumption was questioned).

In short, Ms. Dodson has satisfied the requirements for intervention in this proceeding, and I am granting her petition insofar as it seeks intervention in her individual capacity. If Ms. Dodson rather seeks to participate only as a result of membership in Coalition for the Environment, she should so advise me, on the schedule set forth later in this opinion. In that circumstance, she should also authorize the Coalition to represent her — a step she may take only if she is a member of that organization. (Alternatively, should the Coalition be admitted as a party, she may agree that the Coalition is to be the lead intervenor on certain or all issues.)

2. Ms. Sisk's concerns parallel those of Ms. Dodson. She additionally expresses concern (as a registered nurse) for the health of her minor children resulting from emissions from the facility. Her interests, however, are not as precisely set forth as those of Ms. Dodson. She provides her address and states that she is a resident of Jefferson County but does not indicate the location of that address *vis-a-vis* the plant. She also does not provide any additional explanation of a mechanism for plant discharges to affect either her property or her children. That being so, I have no way of determining whether her concerns may plausibly affect her property.

It appears, however, that with minor technical corrections, Ms. Sisk's petition could be modified to reflect more clearly whether her interests may indeed be plausibly affected by the concerns she has set forth. I am providing her an opportunity to do so, on the schedule set forth later in this opinion. In the meantime, I am deferring action on her petition.

In addition, as with Ms. Dodson, Ms. Sisk has not indicated whether she wishes to intervene personally or through membership in the Coalition. When clarifying her petition, Ms. Sisk should indicate the manner in which she wishes to intervene and, if a member of the Coalition, whether she wishes the Coalition to represent her interests.

3. The Coalition for the Environment represents itself as a nonprofit public interest organization "serving" local organizations and citizens concerned with the environment. It states that it has over 28,000 dues-paying members in Missouri, Illinois, and Kansas, many of whom live within 50 miles of the plant and some of whom live in Jefferson County. No individual member is identified as authorizing intervention and as providing standing for the organization to intervene in a representative capacity. The Coalition adopts the concerns as set forth by the other two joint petitioners.

An organization may participate in an NRC proceeding either on its own behalf or as a representative of at least one member. *Houston Lighting and*

*Power Co.* (South Texas Project, Units 1 and 2), ALAB-549, 9 NRC 644, 646-47 (1979); *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), LBP-82-43A, 15 NRC 1423, 1437 (1982); *Consumers Power Co.* (Palisades Nuclear Plant), LBP-79-20, 10 NRC 108, 112-13 (1979). To participate on behalf of a member, the organization must identify the member and demonstrate that the member has standing to participate on his or her own behalf and has authorized the organization to represent his or her interests. *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-535, 9 NRC 377, 390-96 (1979); *Limerick*, LBP-82-43A, *supra*, 15 NRC at 1437; *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), LBP-78-37, 8 NRC 575, 583 (1978).

The Coalition has not advanced any organizational interest which would serve to establish standing to participate on its own behalf. It apparently seeks to participate as a representative of certain members, but it has neither identified those members nor shown that any particular members have standing and have authorized such representation.

Therefore, the papers before me do not provide sufficient information for me to determine whether the Coalition has standing. Because the Coalition's petition indicates that the members it wishes to represent may well have standing, however, and taking into account the authorization of Ms. Dodson and Ms. Sisk to have papers served on the Coalition's representative, it appears that the Coalition may be able to establish that it has standing to intervene in a representative capacity. I am therefore deferring action on the Coalition's petition and will permit the Coalition to supplement its petition to provide the information outlined above. (The Coalition should also indicate whether a particular member who seeks Coalition representation was a member at the time the Coalition filed its petition and, if not, when the member joined the organization.)

#### E. Other Matters

1. As a result of my granting of one of the petitions before me, the NRC Staff is required within 30 days to create a hearing file, containing documents relevant to this proceeding. 10 C.F.R. § 2.1231. The Staff may either provide this file to the parties or establish a local public document room. In any event, the Staff should send me such documents (except for those which have already been provided to me by it or the Secretary).

2. The supplements to the various requests for a hearing and petitions for leave to intervene which I have authorized to be filed should be filed (mailed) to me by Tuesday, September 5, 1989. (The information in these filings is of a type where a hearing file would not normally have been established.) The Applicant may file a response by Monday, September 18, 1989. Thereafter,

I will rule on whether any additional petitions should be granted or whether there should be a modification in the one petition which I have thus far granted (to reflect possible representation of Ms. Dodson by the Coalition, or possible consolidation of Ms. Dodson with other potential intervenors whose petitions may be granted).

3. I will issue a Notice of Hearing in the near future. That notice will, *inter alia*, provide an opportunity for limited appearance statements, as authorized by 10 C.F.R. § 2.1211.

4. In a letter to the Staff dated July 12, 1989, CE recognizes that the two petitions before me each appear to solicit additional information about the proposed amendment. CE suggests that the Staff schedule an informational public meeting to provide further explanations of the proposal.

I have been informally advised by the Staff that it intends to conduct such a meeting. This meeting, of course, is separate and apart from the hearing sought by the petitioners in this proceeding. Attendance at the informational meeting would not affect a petitioner's opportunity to become a party in this proceeding. However, if a petitioner, through the informational meeting, determined that any or all of its concerns were not warranted, it should so advise me.

#### F. Order

For the reasons stated, it is, this 18th day of August 1989, ORDERED:

1. The request for a hearing and petition for intervention of Ms. Martha Dodson is *granted*.

2. Action is *deferred* on the petitions of Sen. Jeremiah W. (Jay) Nixon, Ms. Karen Sisk, and the Coalition for the Environment.

3. Supplements to the various intervention petitions, as described in this opinion, may be filed (mailed) by Tuesday, September 5, 1989. The Applicant may file a response by Monday, September 18, 1989.

4. This Memorandum and Order, to the extent it grants an intervention petition, is subject to appeal to the Atomic Safety and Licensing Appeal Board pursuant to the terms of 10 C.F.R. § 2.1205(n). Any appeal must be filed within ten (10) days of service of this Memorandum and Order. The appeal may be

supported or opposed by any party by filing a counter-statement within fifteen (15) days of service of the appeal brief.

Charles Bechhoefer, Presiding  
Officer  
ADMINISTRATIVE JUDGE

Bethesda, Maryland  
August 18, 1989

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

**Morton B. Margulies, Chairman**  
**Jerry Harbour**  
**Frederick J. Shon**

In the Matter of

Docket Nos. 50-352-OL-2

50-353-OL-2

(ASLBP No. 89-589-04-OL-R2)  
(Design Alternatives)

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

August 30, 1989

The parties in having satisfied Intervenor's contention prior to hearing permit the Licensing Board to dismiss the contention and terminate the proceeding.

**MEMORANDUM AND ORDER**  
(Terminating Proceeding)

On August 25, 1989, counsel for Limerick Ecology Action, Inc. (LEA), Philadelphia Electric Company (PECo), and the U.S. Nuclear Regulatory Commission Staff (Staff) jointly submitted a motion to the Licensing Board requesting that the Board accept a settlement agreement entered into by LEA and PECo, that LEA's contention be dismissed with prejudice, that LEA be dismissed as a party to the proceeding, and that the proceeding be terminated. The motion and settlement agreement are attached and made a part hereof.

The subject LEA contention alleges that the Commission violated the National Environmental Policy Act of 1969 (NEPA) by failing to adequately consider severe-accident-mitigation design alternatives (SAMDAs).

The Commission had instituted this proceeding by Order of May 5, 1989, in response to a remand of the U.S. Court of Appeals for the Third Circuit in its decision in *Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719 (3d Cir. 1989).\* The Court granted LEA's petition for review which challenged the Commission's lack of consideration of SAMDAs under NEPA.

In a Memorandum and Order of July 18, 1989 (LBP-89-19, 30 NRC 55), the Licensing Board delineated the SAMDAs that were to be considered by the agency in the subject proceeding. Staff on August 16, 1989, issued a supplement to NUREG-0974, "Final Environmental Statement Related to the Operation of Limerick Generating Station, Units 1 and 2." In the "Supplement to the Environmental Statement, Limerick Generating Station, Units 1 and 2," Staff, pursuant to NEPA, considered the designated SAMDAs. It concluded that "[t]he staff has discovered no substantial changes in the proposed action as previously evaluated in the FES that are relevant to environmental concerns nor significant new circumstances or information relevant to environmental concerns and bearing on the licensing of Limerick Generating Station, Units 1 and 2."

*Id.* at 1.

As part of the settlement agreement in which LEA obligates itself to request dismissal of the proceeding with prejudice, PECO commits itself to providing LEA with *quid pro quos*. The Licensing Board has reviewed the settlement agreement, including the obligations of the signatories and concludes that the agreement's provisions are not inconsistent with the statutes and regulations under which the NRC functions. Neither is there any interpretation of the settlement agreement, contained in the joint motion, that is contrary to regulation. In accordance with the Commission's longstanding policy of encouraging fair and reasonable settlements of contested initial licensing issues, the Licensing Board accepts the settlement agreement.

The complaint of LEA has been satisfied without the need for a formal hearing. There is no issue in controversy. The Licensing Board is unaware of any reason why the request of the parties for concluding the proceeding should not be granted.

Based upon the foregoing, the joint motion of the parties to dismiss LEA's contention with prejudice, to dismiss LEA as a party to the proceeding and to terminate the proceeding is hereby granted. The proceeding is terminated.

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\*The only other issue remanded by the Court involved a contention by the inmates of the State Correctional Institution at Graterford that related to radiological emergency plans. The proceeding was terminated by a Licensing Board Memorandum and Order of August 11, 1989, LBP-89-22, 30 NRC 137.

It is so ORDERED.

THE ATOMIC SAFETY AND  
LICENSING BOARD

Jerry Harbour  
ADMINISTRATIVE JUDGE

Frederick J. Shon  
ADMINISTRATIVE JUDGE

Morton B. Margulies, Chairman  
ADMINISTRATIVE LAW JUDGE

Bethesda, Maryland  
August 30, 1989

**JOINT MOTION FOR TERMINATION OF PROCEEDINGS**

On February 28, 1989, the United States Court of Appeals for the Third Circuit issued its decision in *Limerick Ecology Action, Inc. v. NRC*, 689 F.2d 719 (3d Cir. 1989) remanding to the Nuclear Regulatory Commission ("NRC") for consideration a contention that severe accident mitigation design alternatives ("SAMDAs") must be considered for the Limerick Generating Station.

On May 5, 1989, the Commission issued an Order requiring further proceedings before an Atomic Safety and Licensing Board ("Licensing Board") in compliance with the Opinion of the Third Circuit. A prehearing conference was held June 6, 1989, to define the issues in the proceeding. On July 18, 1989, the presiding Licensing Board issued a Memorandum and Order ruling on which of the proposed SAMDAs fall within the scope of the Commission's Order of May 5, 1989. The parties were in the process of conducting informal discovery on these alternatives. In the meantime, Limerick Ecology Action ("LEA") and Philadelphia Electric Company ("PECo") entered into discussions for the purpose of resolving LEA's SAMDA contention, the only contention in this proceeding, and have reached an agreement settling LEA's concerns as set forth in the attached Settlement Agreement. On August 16, 1989, the NRC Staff issued its Supplement to the Final Environmental Statement to consider the question of SAMDAs.

This Board has previously encouraged the parties to work together towards settlement of outstanding issues (Prehearing Conference Tr. at 27, 37). This is consistent with longstanding Commission policy supporting the dismissal of proceedings by reason of the parties' settlement.\* Accordingly, the NRC Staff, LEA, and PECO hereby jointly move the Board to accept the attached Settlement Agreement, dismiss LEA's contention with prejudice, dismiss LEA as a party to this proceeding, and terminate the proceeding.

Licensee, LEA, and the NRC agree that nothing in the Settlement Agreement in any way restricts the right of LEA to communicate to the Commission any safety information it may have or obtain. Respectfully submitted,

Joseph Rutberg  
Counsel for United States  
Nuclear Regulatory  
Commission Staff

Charles W. Elliott  
Poswistilo, Elliott & Elliott  
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1747 Pennsylvania Avenue, N.W.  
Washington, D.C. 20006  
Counsel for Philadelphia  
Electric Company

August 25, 1989

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\*See, e.g., 10 C.F.R. § 2.759; *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (1981); *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-830, 23 NRC 59, 60 (1986); *Texas Utilities Electric Co.* (Comanche Peak Steam Electric Station, Units 1 and 2), Memorandum and Order (Dismissing Proceedings) (July 13, 1988); *Public Service Electric and Gas Co.* (Hope Creek Generating Station), LBP-85-6A, 21 NRC 468 (1985); *Rochester Gas & Electric Corp.* (R.E. Ginna Nuclear Plant, Unit 1), LBP-84-34, 20 NRC 769 (1984); *Gulf States Utilities Co.* (River Bend Station, Units 1 and 2), LBP-84-51, 20 NRC 1478 (1984).

## SETTLEMENT AGREEMENT

WHEREAS, the United States Court of Appeals for the Third Circuit issued an opinion on February 28, 1989, granting, *inter alia*, a petition for review filed by Limerick Ecology Action ("LEA") in *Limerick Ecology Action, Inc. v. NRC*, Nos. 85-3431, 86-3314, and 87-3508, ordering the Nuclear Regulatory Commission ("NRC" or "Commission") to consider severe accident mitigation design alternatives ("SAMDAs") for the Limerick Generating Station; and

WHEREAS, the Commission issued an Order on May 5, 1989, requiring further proceedings before an Atomic Safety and Licensing Board in compliance with the Opinion of the Court of Appeals and a prehearing conference before the duly appointed Atomic Safety and Licensing Board was conducted on June 6, 1989, in furtherance of the Order of the Commission; and

WHEREAS, the Philadelphia Electric Company ("PECo") is the owner and operator of the Limerick Generating Station, Units 1 and 2, and whereas Unit 1 is operating and Unit 2 is ready to receive a full power operating license; and

WHEREAS, Limerick Ecology Action is a party-intervenor in the remand proceeding; and

WHEREAS, on November 23, 1988, the NRC issued Generic Letter No. 88-20 which required each utility operating a nuclear power plant to initiate an Individual Plant Examination ("IPE") to identify any plant-specific vulnerabilities to severe accidents and to report the results to the Commission on a schedule described therein;

WHEREAS, LEA and Philadelphia Electric Company agree that settlement of all the issues in the manner described herein is in the best interest of each party;

NOW THEREFORE PHILADELPHIA ELECTRIC COMPANY AND LIMERICK ECOLOGY ACTION IN CONSIDERATION OF THE MUTUAL PROMISES, COVENANTS, AND AGREEMENTS CONTAINED HEREIN AND INTENDING TO BE LEGALLY BOUND, HEREBY AGREE AS FOLLOWS:

1. PECo and LEA shall execute in good faith the programs, plans, commitments, and agreements contained in this Settlement Agreement ("Agreement").
2. PECo shall add an individual designated by LEA and qualified in the field of nuclear power plant technology, including probabilistic risk assessment methodology, to its IPE outside review team consisting of expert individuals from outside the Company. The purpose of the outside review team is to critically review, and make recommendations relating to the IPE process and results for the Limerick Generating Station. PECo shall have the right to reasonably screen the individual selected by LEA for qualification and conflict of interest considerations.

3. PECo shall pay reasonable and necessary consulting fees and expenses for the designated individual at his or her customary rate.

4. The individual designated by LEA shall have complete access to all written material and individuals within the Company and consultants associated with the IPE process, and shall be able to attend all meetings and briefings related to the IPE outside review team process and participate in escorted tours of the facility, subject to execution of customary agreements relating to nondisclosure of proprietary material, and security, safety, fitness for duty, radiological protection, and similar considerations to the same extent as other members of the outside review team. The individual designated by LEA shall not use any of the information obtained from PECo or its consultants or work-product in any other forum in a manner adverse to the interests of PECo.

5. The individual designated by LEA shall be permitted to discuss his work and views relating to the status, progress, and results of the IPE with persons associated with the PECo IPE effort for Limerick and LEA and, to the extent such individual deems necessary, to have his separate views included within the documentation associated with the IPE process for consideration by PECo management and by the NRC. The outside review team's responsibilities shall cease upon submittal of the final IPE report to the NRC.

6. PECo shall include consideration of improvements to existing methods of venting, such as discharging the existing 6-inch vent outside the enclosure where it presently terminates, as part of the IPE process.

7. PECo shall evaluate and implement, as appropriate to the Limerick-specific design, certain modifications which have been implemented at the Pilgrim Nuclear Generating Station, i.e., plugging certain drywell spray nozzles, if necessary, and provide the ability to crosstie the fire water system into the Residual Heat Removal System to permit the diesel-operated fire pump to serve as an alternative drywell spray source. At the conclusion of its evaluation, PECo shall describe in writing to LEA its plans for the modifications to be made pursuant to this paragraph.

8. PECo shall describe in writing to LEA the status of the implementation of Emergency Procedure Guidelines ("EPG") Rev. 4 into its Transient Response Implementation Plan procedures and the schedule for full implementation of EPG Rev. 4, currently scheduled for the end of 1989. PECo commits to full implementation of EPG Rev. 4 within a reasonable period of time.

9. PECo represents that it has made modifications related to the improvement of the reliability of the Automatic Depressurization System ("ADS") at the Limerick Generating Station based upon the recommendations of NUREG/CR-4920, Vol. 2, Assessment of Severe Accident Prevention and Mitigation Features: BWR, Mark II Containment Design. PECo shall describe in writing to LEA the modifications relating to the ADS it has made.

10. PECo shall describe in writing to LEA the steps it has taken to reduce the number of scrams associated with Limerick operation and, as to scrams that may occur, the formal program for investigating and taking corrective action to assure that they do not recur.

11. PECo shall evaluate independently of the IPE process the need to replace any chatter-prone relays and breakers in risk-significant systems with chatter-resistant designs and implement those modifications warranted as the result of its evaluation. The evaluation shall commence within 45 days of the effective date of this Agreement. At the conclusion of its evaluation, PECo shall describe its evaluation and plans regarding chatter-prone relays and breakers to LEA in writing.

12. PECo shall evaluate the potential need for other risk reduction measures during the course of the IPE process.

13. PECo shall evaluate seismic design risk reduction possibilities, including the need for modifications to the reactor enclosure and control structure wall, as part of the IPE process.

14. PECo shall give a representative, designated in writing by LEA and to be escorted by a PECo employee, access to the Limerick Generating Station with 48 hours written notice to the Plant Manager, Limerick Generating Station, P.O. Box A, Sanatoga, Pennsylvania 19464, for the purposes of a site tour of reasonable duration. Such tour is subject only to restrictions on access related to safety, security, radiological protection, and similar considerations. Such access shall be limited to no more than semiannually in the calendar years 1990 and 1991 and once per quarter in the calendar years 1992 and 1993. Thereafter, no right of access under this Agreement shall exist.

15. PECo shall provide to a designated representative of LEA a copy of all licensing-related documents and correspondence from it to the NRC relating to Limerick Generating Station, with reasonable dispatch, for a period of 4 years from the date of execution of this Agreement.

16. PECo shall make contributions to community recycling programs for educational programs promoting the energy savings of recycling and energy efficient practices in the total amount of \$10,000.00 to be chosen by it. However, at least \$5,000.00 shall be designated for Recycling Services, Inc. of North Coventry Township for such programs. Within 15 days of the effective date of this Agreement, LEA shall submit a list of additional projects for consideration under this paragraph. All contributions under this paragraph shall be made within 45 days of the termination of this proceeding by the presiding Atomic Safety and Licensing Board.

17. PECo shall make a payment to LEA in the amount of \$55,000.00 to reimburse it for costs associated with the SAMDA proceeding, such payment not to be used for any purpose hostile to the current or future interests of PECo.

Payment of this amount to LEA shall be made within 45 days after termination of the SAMDA proceeding by the presiding Atomic Safety and Licensing Board.

18. LEA shall withdraw from the SAMDA proceeding and shall make no further filings in this proceeding except as are necessary to execute this Paragraph; and shall request dismissal of the proceeding with prejudice. LEA shall expeditiously take all actions reasonably necessary to accomplish the end of terminating litigation relating to the SAMDA matter before the Licensing Board. In this regard, LEA shall execute the Joint Motion for Termination of Proceedings attached to this Agreement concurrently with the execution of this Agreement for submission to the presiding Atomic Safety and Licensing Board.

19. LEA shall not challenge directly or indirectly any matter related to SAMDAs, risk reduction, or the IPE process or results related to Limerick Generating Station before the NRC, any successor to such agency, or before any court.

20. LEA shall not oppose issuance, either before the NRC or any court, of a full power operating license for Limerick Unit 2 or otherwise challenge its validity.

21. LEA shall designate to PECo in writing a representative to receive correspondence and other written material prepared pursuant to this Agreement. All correspondence relating to this Agreement directed to PECo shall be sent to Director of Licensing, Nuclear Group, Philadelphia Electric Company, 955 Chesterbrook Boulevard, Wayne, Pennsylvania 19087.

22. Any modifications or other measures required to be taken by PECo under this Agreement shall be contingent on obtaining any required NRC approvals, and any necessary modifications made pursuant to this Agreement may be scheduled such that construction and testing coincides with planned refueling or other planned outages as time permits.

23. By executing this Agreement neither party acknowledges or admits the correctness of any other party's position on any matters related to this proceeding or any other proceeding regarding the Limerick Generating Station.

24. This Agreement supersedes all prior representations, negotiations, and understandings of the parties hereto, whether oral or written, and constitutes the entire agreement of the parties with respect to matter hereof. This Agreement shall not be changed or superseded, except by mutual agreement in writing signed by the duly authorized representatives of LEA and PECo. This Agreement shall be binding on and inure to the benefit of any successors or assigns of the parties. It is expressly understood, however, that nothing in this Agreement shall prevent the Company from fulfilling any legal or regulatory requirement of the NRC, or its successors, whether contained in the NRC Operating License or other letter or directive of such Commission, its successors or representatives, whether oral or in writing.

25. This Agreement shall be effective upon execution by both parties.

26. The undersigned warrant and represent that they are authorized to execute this Settlement Agreement on behalf of their respective party.

FOR PHILADELPHIA ELECTRIC  
COMPANY

August 25, 1989

Corbin A. McNeill, Jr.  
Senior Vice President-Nuclear

FOR LIMERICK ECOLOGY  
ACTION, INC.

August 25, 1989

David Stone  
Officer

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

**Guy A. Arlotto, Deputy Director**

In the Matter of

Docket No. 030-07099  
(License No. 45-11496-01)

APPLIED RADIANT ENERGY  
CORPORATION  
(Lynchburg, Virginia)

August 24, 1989

The Deputy Director of the Office of Nuclear Material Safety and Safeguards denies a petition filed by Ms. Kristen Albrecht, on behalf of the National Coalition to Stop Food Irradiation (NCSFI), requesting action with regard to the Applied Radiant Energy Corporation (ARECO). NCSFI requested the NRC to suspend the use of cesium-137 sealed sources by ARECO based on the assertion that the cesium-137 sealed sources used by ARECO are the same type of sources that have leaked at Radiation Sterilizers, Inc., in Decatur, Georgia.

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

**I. INTRODUCTION**

By letter dated March 23, 1989 (Petition), the National Coalition to Stop Food Irradiation (NCSFI or Petitioner) requested the Nuclear Regulatory Commission (NRC or Commission) to initiate enforcement action involving the Applied Radiant Energy Corporation (ARECO). NCSFI, specifically, requests that NRC suspend the use of cesium-137 sealed sources by ARECO. The basis asserted for the requested action by NCSFI is that the cesium-137 sealed sources used by ARECO are the same type of sources that have leaked at Radiation Sterilizers, Inc. (RSI), in Decatur, Georgia. The Petition has been treated as a request pursuant to 10 C.F.R. § 2.206 of the Commission's regulations.

For the reasons stated below, NCSFI's request is denied. My Decision in this matter follows.

## II. BACKGROUND

One of the peacetime uses of nuclear energy that has evolved since the early 1960s is the use of irradiators to sterilize medical and pharmaceutical disposable supplies. The source of gamma rays used for sterilization is primarily cobalt-60 and, more recently, cesium-137, a byproduct of the fission of uranium-235. There are currently about forty licensed irradiators in the United States. Of these, only four have been licensed to use cesium-137 sealed sources.

The first commercial facility to use the cesium-137 sealed sources was licensed by NRC on April 8, 1985. The irradiator, owned by Radiation Sterilizers, Inc. (RSI), is located in Westerville, Ohio. A second irradiator (Iotech, Inc.) in Northglenn, Colorado, was licensed by the Agreement State\* of Colorado for use of the cesium-137 sealed sources on June 14, 1985. At the Iotech facility, the cesium-137 sealed sources are stored in a dry environment. Since that time, two additional facilities were also licensed to use cesium-137 sealed sources in 1986. These are located at RSI in Decatur, Georgia (an Agreement State\*), and the Applied Radiant Energy Corporation in Lynchburg, Virginia. In all cases the cesium-137 sealed sources are leased from the U.S. Department of Energy (DOE) for use by these companies.

ARECO originally obtained a byproduct material license on January 24, 1966, to use sealed sources in an irradiator for process radiation operations. In September 1985, ARECO requested an amendment to its license to possess and use cesium-137 sealed sources. On July 10, 1986, NRC amended the license to allow the possession and use of the cesium-137 sealed sources. In November 1986, twenty-five (25) of the cesium-137 sealed sources were loaded into the ARECO irradiator pool.

## III. DISCUSSION

The cesium-137 sealed sources have been used at ARECO without incident since November 1986. However, on June 6, 1988, RSI in Decatur notified the Agreement State of Georgia's Department of Human Resources (DHR) that an event had occurred which resulted in the automatic lock-in-place of

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\*Pursuant to subsection 274b of the Atomic Energy Act of 1954, as amended, Colorado is one of twenty-nine (29) States that have entered into effective agreements with NRC, or the former Atomic Energy Commission, which transfer to these states the authority to license and regulate the possession and use of certain radioactive materials within their borders.

the source system underwater. Preliminary measurements showed higher-than-normal radiation levels at the surface of the pool. Samples of pool water were collected and analyzed. The results showed elevated levels of cesium-137 dissolved in the pool water, indicating that one or more of the cesium-137 sealed sources had breached.

Since this was the first recorded instance of a leaking cesium-137 source, a joint federal/state task force consisting of departments from the State of Georgia and the NRC, and later the Food and Drug Administration (FDA) and the U.S. Environmental Protection Agency (EPA), was established. As a result of the task force recommendations and after discussions with RSI, the State of Georgia formally requested that the DOE manage an effort to identify the leaking capsule, develop a plan for its safe removal, and oversee the cleanup and recovery activities at RSI. DOE responded to the State of Georgia's request and promptly sent personnel to RSI in Decatur.

Environmental monitoring performed by NRC and the State detected no cesium-137 radioactivity outside the building. Radiation surveys of automobiles, clothing, and residences of the RSI employees were conducted by state personnel. These surveys showed that one employee had measurable radioactive contamination in an automobile and that two others had contamination in their residences. The NRC coordinated with the cognizant state radiological health agencies an effort to survey all the packages and the distribution centers in the United States and Canada that were shipped products by RSI. The results showed pinpoint contamination on the exterior surfaces of several shipping containers. These containers were disposed of as radioactive waste.

As a consequence of the leakage of cesium-137 sources at RSI in Decatur, Georgia, NRC obtained appropriate commitments from ARECO and sent a confirmatory action letter on June 13, 1988. This letter confirmed that ARECO would implement further stringent monitoring procedures, including testing of all containers that were removed from the pool; monitoring of all personnel as they exit the pool area for contamination; adjusting the source leak detector to a specific, more sensitive, radiation level alarm point; and collecting and analyzing a pool water sample for contamination on a weekly basis. Further, ARECO agreed to discontinue operation and immediately notify the NRC if any contamination was indicated by any of the above procedures.

Although the ARECO sealed sources have the same design as those used at RSI in Georgia, the cesium-137 sealed sources at RSI are subjected to entirely different conditions than are the sealed sources at ARECO. At RSI, the sealed sources are stored in a pool of water and are moved to open air, above the water, within the irradiation chamber, to irradiate the product.

Once the irradiation time is completed, the sources are quickly dropped into the pool and are cooled very quickly. This up-and-down cycling causes the sealed sources to be cooled when in the pool and to heat up when out of the

water. Several thousand of these thermal cycles occurred before there was any indication of a leaking source at the RSI facility.

In contrast, at ARECO the sealed sources are stored and remain in a pool of water at all times. During operation, the product is placed in watertight canisters, and the canisters are lowered into the pool near the sources. Accordingly, the sealed sources at the ARECO facility are not subjected to the extreme changes in operating temperature experienced at the RSI facility. Moreover, the DOE encapsulated about 1500 sealed sources with this design. These sealed sources were stored in a water-filled pool at its Hanford facility for about 20 years without a reported incident.

Although the evaluation of the leaking sources at the RSI facility is not yet complete, the cause of the source leakage and subsequent contamination at RSI appears to be associated with thermal shock due to movement of the sources in and out of the pool. For this reason, the NRC suspended the use of the cesium-137 sealed sources at RSI in Westerville, Ohio, which conducted operations similar to those of RSI in Georgia. RSI voluntarily suspended its operations at the Decatur, Georgia facility.

DOE is continuing its investigations with regard to the cause of the RSI incident and plans to issue a report on its findings. I believe that continued operation at ARECO during the completion of DOE's investigation presents minimal risk to the public health and safety. The good experience with storage of these sealed sources at the DOE Hanford facility under conditions similar to those at ARECO indicates a small probability of any sealed source leakage. Further, ARECO has implemented procedures that will immediately identify sealed-source leakage that could result in radioactive contamination of employees or the product. Radiation monitoring at ARECO has been increased to provide early detection of radioactive contaminants in pool water and is sufficient to provide time to take action to mitigate the consequences of any radioactive leakage that might occur. ARECO has demonstrated adequate facilities, equipment, and procedures to provide reasonable assurance of protection of the public health and safety.

Due to the significant difference in operating conditions between the ARECO facility and the two RSI facilities, there is no reason to believe that the cesium sources at ARECO will exhibit the leaking that occurred at the RSI facility. Moreover, the additional monitoring and testing by ARECO, confirmed in our June 13, 1988 confirmatory action letter, will provide early detection of a leaking source should one occur for any reason. Consequently, I do not believe that the incident at RSI justifies NCSFI's request. If upon completion of the DOE investigation, the Commission determines that continued use of the cesium-137 sealed sources at ARECO will not provide reasonable assurance that the public health and safety will be protected, appropriate action will be taken.

#### **IV. CONCLUSION**

The Petitioner seeks the initiation of a proceeding to suspend the use of the cesium-137 sealed sources by ARECO. The institution of a proceeding pursuant to 10 C.F.R. § 2.202 is appropriate only where substantial health and safety issues have been raised. *See Consolidated Edison Co. of New York* (Indian Point, Units 1, 2, and 3), CLI-75-8, 2 NRC 173 (1975), and *Washington Public Power Supply System* (WPPSS Nuclear Project No. 2), DD-84-7, 19 NRC 899, 923 (1984). This is the standard that I have applied to concerns raised by the Petitioner in this Decision to determine whether the requested action is warranted.

For the reasons discussed above, I conclude that no substantial health and safety issues have been raised by the Petitioner. Accordingly, the Petitioner's request for action pursuant to section 2.206 is denied. As provided in 10 C.F.R. § 2.206(c), a copy of this Decision will be filed with the Secretary of the Commission for the Commission's review.

**FOR THE NUCLEAR  
REGULATORY COMMISSION**

**Guy A. Arlotto, Deputy Director  
Office of Nuclear Material Safety  
and Safeguards**

Dated at Rockville, Maryland,  
this 24th day of August 1989.



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Kenneth M. Carr, Chairman**  
**Thomas M. Roberts**  
**Kenneth C. Rogers**  
**James R. Curtiss**

**In the Matter of**

**Docket No. OI-4-89-008**

**JOSEPH J. MACKTAL**

**September 11, 1989**

The Commission denies a motion for reconsideration of CLI-89-14, in which the Commission had declined to disqualify itself from deciding any future matters involving the Petitioner.

**DISQUALIFICATION: STANDARDS**

**RULES OF PRACTICE: DISQUALIFICATION**

When a party requests the disqualification of an individual member of a tribunal, such as a Commissioner, that individual must make the initial decision. However, when a party requests the disqualification of more than one member of a tribunal, those members may issue a joint opinion in response to the motion.

**DISQUALIFICATION: STANDARDS**

**RULES OF PRACTICE: DISQUALIFICATION**

Each individual member of the Commission decided the question of his own qualifications; no member of the Commission ruled on another member's right to participate. In this case, the Commissioners simply saw no reason to issue four separate opinions.

## MEMORANDUM AND ORDER

### I. INTRODUCTION

This matter is before us on a motion by Mr. Joseph J. Macktal, asking that the Commission reconsider CLI-89-14, 30 NRC 85 (1989), in which the Commission declined to disqualify itself from deciding any future matters involving Mr. Macktal. For the reasons stated herein, we deny the motion for reconsideration.

### II. FACTUAL BACKGROUND

The facts are well known to those involved in this matter. We have set them out at length in our previous decisions and find no reason to restate them at any length here. *See Texas Utilities Electric Co.* (Comanche Peak Steam Electric Station, Units 1 and 2), CLI-89-6, 29 NRC 348 (1989); *In re Joseph J. Macktal*, CLI-89-12, 30 NRC 19 (1989) ("Macktal 1"); *In re Joseph J. Macktal*, CLI-89-13, 30 NRC 27 (1989) ("Macktal 2"); *In re Joseph J. Macktal*, CLI-89-14, 30 NRC 85 (1989) ("Macktal 3").

Briefly, the Commission's Office of Investigations ("OI") issued a subpoena to Mr. Macktal on June 3, 1989, seeking the specific details of his allegations regarding (1) a "bribe" to induce him to withdraw an employment discrimination claim before the Department of Labor ("DOL") and (2) safety defects at Comanche Peak. The subpoena requested Mr. Macktal's appearance on June 15, 1989, at the NRC's OI Office in Arlington, Texas, less than 2 hours' drive from his residence.

Subsequently, Mr. Macktal filed a motion for a protective order seeking to condition his appearance before OI. The Commission denied that request on June 22, 1989, and established a new return date of July 6, 1989. *See Macktal 1*. On July 3, shortly before the date he was to appear before Commission representatives, Mr. Macktal filed a motion seeking reconsideration of that decision. The Commission denied that request on July 5, 1989, noting that the request did not stay Mr. Macktal's required appearance. *See* 10 C.F.R. § 2.771(c). *See Macktal 2*.

Mr. Macktal also filed a motion on July 3 seeking disqualification of the entire Commission from reviewing any further matters involving him. The Commission denied this motion on August 16, 1989. *See Macktal 3*. Mr. Macktal immediately filed a motion for reconsideration of that decision. It is that motion which now lies before us.

### III. ANALYSIS

Mr. Macktal bases his request on nine specific considerations which fall into three general categories. First, Mr. Macktal disputes the factual accuracy of specific statements in CLI-89-14 (Motion, §§ 1, 2, 4, and 5). Second, Mr. Macktal complains generally about the Commission's treatment of "whistleblowers" and specifically about its treatment of his concerns (*id.*, ¶ 6). Third, Mr. Macktal faults the application of the disqualification tests by the Commission in CLI-89-14 (*id.*, §§ 3, 7, 8, and 10).

As to the claims of factual inaccuracy in CLI-89-14, Mr. Macktal has not presented any information that provides us with any reason to modify our earlier decision. Simply put, the Commission has been attempting to conduct a legitimate inquiry into some matters raised by Mr. Macktal. The inquiry is a matter within the Commission's responsibility and authority, in support of which the Commission's subpoena powers have been appropriately invoked. 42 U.S.C. § 2201c. Mr. Macktal has as yet failed to comply with the subpoena.

Mr. Macktal argues that the NRC Commissioners are biased and should be disqualified from further involvement in his "case," but he does not make any showing why individual Commissioners cannot participate fairly in decisions concerning the obtaining or use of information from him relevant to the Commission's jurisdiction. We believe that the record indicates sensitivity to his concerns. Not only did we delete the portion of our decision in CLI-88-12 that Mr. Macktal found offensive, but we also have directed OI to grant confidentiality to him if he can demonstrate that he meets the applicable criteria for confidential treatment. *See Macktal I, supra.* We also agreed to select a date for return of the subpoena that Mr. Macktal's attorneys advised us was convenient to both Mr. Macktal and to themselves. *Id.* Finally, we selected a date that provided Mr. Macktal with 30 days' notice of the time for appearance from the issuance of the original subpoena. *Id.*

Finally, we see no merit in Mr. Macktal's dissatisfaction with our application of disqualification tests in CLI-89-14 and accordingly no reason to disturb our earlier decision. We see no bias or prejudice, pervasive or otherwise, real or apparent, in the Commission's interactions with Mr. Macktal.

However, Mr. Macktal does raise a matter that will benefit from clarification here. He alleges that the Commissioners failed to decide individually whether to recuse themselves, contrary to established agency procedure. We did not depart from prior practice in CLI-89-14. When a party requests the disqualification of an individual member of a tribunal, such as a Commissioner, that individual must make the initial decision. *See, e.g., Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), CLI-84-20, 20 NRC 1061 (1984)* (request for disqualification of Chairman Palladino). However, when a party requests the disqualification of more than one member of a tribunal, those members may

issue a joint opinion in response to the motion. *See, e.g., Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-88-29, 28 NRC 637 (1988) (request for disqualification of two members of a licensing board).

In this case, Mr. Macktal requested the disqualification of all four current members of the Commission. Each member of the Commission reviewed that request and concluded that he could review matters arising in the future involving Mr. Macktal. The Commission then issued a joint opinion ruling on the request. Each individual member of the Commission decided the question of his own qualifications; no member of the Commission ruled on another member's right to participate. We simply saw no reason to issue four separate opinions.

#### IV. CONCLUSION

We have reviewed the considerations advanced by Mr. Macktal and find that none of those considerations causes us to reconsider our decision in CLI-89-14. There continues to be no justification for us to disqualify ourselves from any proceeding to inquire into Mr. Macktal's allegations. Therefore, we deny the motion.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 11th day of September 1989.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Kenneth M. Carr, Chairman**  
**Thomas M. Roberts**  
**Kenneth C. Rogers**  
**James R. Curtiss**

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 15, 1989

The Commission denies Applicants' request for an exemption from the requirement to conduct an onsite emergency planning exercise within 1 year before issuance of a full-power license. Applicants made their request under 10 C.F.R. § 50.12; the Commission has, therefore, considered and rejected it under that rule. Because the Commission wishes to expedite this decision so that the parties will have it promptly for planning purposes, and because it had the views of the parties and of the Staff, who would decide a section 50.12 petition in the first instance, the Commission rendered this decision even though the request should not have been brought directly to the Commission. The Commission directs the Staff to issue its report on the exercise no later than October 16, 1989.

**RULES OF PRACTICE: EXEMPTION REQUESTS**

Applicants' assertions of harm from delay of an "endless loop" of exercises are speculative and do not support an exemption.

## **RULES OF PRACTICE: EXEMPTION REQUESTS**

The Commission has reservations whether *indirect* costs of compliance with the rule, such as ensuing litigation or costs flowing from delays caused by litigation, are properly considered in evaluating an exemption request.

## **REGULATIONS: INTERPRETATION (10 C.F.R. §§ 2.758, 50.12)**

## **RULES OF PRACTICE: EXEMPTION REQUESTS; PETITION FOR WAIVER**

The Commission need not parse out the distinctions between a petition for waiver under 10 C.F.R. § 2.758 and a request for exemption under 10 C.F.R. § 50.12. It does, however, emphasize a similarity: neither is intended under the rules to be brought directly to the Commission. It would, therefore, expect that except in the most exceptional circumstances, which are not present here, such requests will be filed with the appropriate board or staff officer.

## **EMERGENCY PLANNING: EXCEPTIONS TO REGULATIONS**

## **EMERGENCY PLANS: PUBLIC HEALTH AND SAFETY**

## **REGULATIONS: INTERPRETATION (10 C.F.R. § 50.12)**

Putting aside the question whether it is legally permissible to balance safety and the need for power, the Commission finds in this case the generalized projections of need for power are insufficient to outweigh, under 10 C.F.R. § 50.12(a)(2)(vi), the public interest that underlies the safety provisions of the Commission's emergency planning rules.

## **ADMINISTRATIVE PROCEDURE ACT: EXPEDITED PROCEEDINGS**

## **LICENSING DECISIONS: EXPEDITION AND THOROUGHNESS**

## **RULES OF PRACTICE: EXPEDITED PROCEEDINGS**

The Commission believes that procedures for expedition can alleviate Applicants' concerns without working any unfairness on other parties and without diminishing the protection provided to the public by the emergency planning regulations. The Commission's responsibility under the Administrative Procedure Act to decide cases within a reasonable time makes it appropriate for it to establish expedited procedures when necessary.

## ORDER

This Order responds to "Applicants' Application for an Exemption from the Requirement of 10 CFR Part 50, Appendix E, Section IV.F.1, for the Conduct of an Exercise of the Licensees' Onsite Emergency Plans Within One Year Before Issuance of a Full-Power Operating License" ("Application" or "exemption request"), dated August 11, 1989. On consideration of the Application and the parties' responses,<sup>1</sup> all of which unequivocally opposed the exemption, the Commission denies the Applicants' exemption request for the reasons briefly stated below.

Dispensing with a comprehensive recitation of the nearly 8 years of this licensing proceeding, we begin with the current schedule. The Atomic Safety and Licensing Board set November 30, 1989, as its target date to issue a decision that will decide all remaining presently admitted contentions in this proceeding. Included in that decision will be the resolution of the contentions relating to the Applicants' emergency plan for those portions of the emergency planning zone located in the Commonwealth of Massachusetts, and to the full-participation emergency exercise conducted in June 1988. Lacking the admission of any new contention, the order expected on November 30, 1989, would have the potential to authorize issuance of the full-power license and conclude this proceeding.

Pursuant to the Commission's regulation, from which Applicants seek relief in their instant petition, if more than a year has passed since a full-participation exercise, an exercise of the Applicants' onsite plan must be held within 1 year before license issuance.<sup>2</sup> That circumstance has transpired, and an exercise has been scheduled for the last week in September.

Intervenors have stated that they want the opportunity to litigate the results of the exercise. Applicants are concerned that such litigation could be protracted, causing delay in issuance of a license, and ultimately eventuating in the need for a full-participation exercise in June 1990, beginning an "endless loop of litigation." *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-88-9, 28 NRC 567, 570 (1988).

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<sup>1</sup>The following responses were filed: New England Coalition on Nuclear Pollution's Opposition to Applicants' Request for an Exemption from the Requirement to Exercise the Onsite Emergency Plan Within a Year Prior to Issuance of Operating License or, in the Alternative, Request for a Hearing on Applicants' Application, dated August 21, 1989; Response of MassAG to Applicants' Application for an Exemption from the Requirement of 10 C.F.R. Part 50, Appendix E, Section IV.F.1, dated August 21, 1989; Response and Objection to Applicants' Application for an Exemption from the Requirement of 10 C.F.R. Part 50, Appendix E, Section IV.F.1, dated August 21, 1989, and filed by the Seacoast Anti-Pollution League (SAPL); and NRC Staff Response to Applicants' Application for an Exemption from 10 C.F.R. Part 50, Section IV.F.1 (Onsite Exercise One Year Before Full Power License), dated August 28, 1989.

<sup>2</sup>The full-participation exercise must be repeated if necessary to meet the requirement that such an exercise be held within 2 years of issuance of the operating license.

Applicants' made their request under 10 C.F.R. § 50.12, the Commission has, therefore, considered it under the provisions of that rule.<sup>3</sup> For the reasons stated by the Staff,<sup>4</sup> we find that Applicants have made an insufficient showing under 10 C.F.R. § 50.12(a)(2)(ii).

Under 10 C.F.R. § 50.12(a)(2)(iii), we find that Applicants' assertions of harm from delay of an "endless loop" of exercises are speculative. Moreover, as to financial costs, we have reservations whether *indirect* costs of compliance with the rule, such as ensuing litigation or costs flowing from delays caused by litigation, are properly considered in evaluating an exemption request. This is so because those very grounds that would most support the need for an adjudication would be those most likely to cause delays. In such circumstances the rule would work at a contrary purpose to the regulatory purpose inherent in affording an opportunity for hearing.

Finally, Applicants urged a public interest exception due to an alleged need for power. Putting aside the question whether it is legally permissible to balance safety and need for power, we find in this case the generalized projections of need for power are insufficient to outweigh, under 10 C.F.R. § 50.12(a)(2)(vi), the public interest that underlies the safety provisions of the Commission's emergency planning rules.

The Commission believes that given the fact that the onsite plan has previously been exercised and adjudicated, in the event the exercise provides the occasion for any admissible contention,<sup>5</sup> procedures for expedition can alleviate Applicants' concerns without working any unfairness on other parties and without diminishing the protection provided the public by the Commission's emergency planning regulations. As we have had occasion to say before, we believe that our responsibility under the Administrative Procedure Act to decide cases within a reasonable time makes it appropriate for us to establish expedited procedures when necessary. *Shoreham*, CLI-88-9, *supra*, 28 NRC at 570. In this regard, we direct the Staff to issue its report on the exercise no later than October 16, 1989.

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<sup>3</sup> In light of our decision we need not parse out the distinctions between a petition for waiver under 10 C.F.R. § 2.758 and a request for an exemption under 10 C.F.R. § 50.12. We do, however, emphasize a similarity: neither is intended under the rules to be brought directly to the Commission. We would, therefore, expect that except in the most exceptional circumstances, which are not present here, such requests will be filed with the appropriate board or staff officer. The Commission is kept informed of the course of adjudicatory proceedings and has the authority to direct that such a matter be forwarded to it directly when that is warranted. In this instance, because we wish to expedite this decision so that the parties will have it promptly for planning purposes, and because we have the views of the parties and of the Staff, who would decide a section 50.12 petition in the first instance, the Commission will render a decision.

<sup>4</sup> See Staff Response at 8-13. Insofar as Intervenors have made like arguments we agree with them as well.

<sup>5</sup> In order to have any contention on an exercise considered in a hearing, Commission case law establishes the need to allege a fundamental flaw. See *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-903, 28 NRC 499 (1988). In addition, the criteria for late-filed contentions are applicable to any contentions filed on the onsite exercise, as they are to all contentions filed after the original date by which contentions are due.

The Applicants' exemption request is denied.<sup>6</sup>  
It is so ORDERED.

For the Commission<sup>7</sup>

SAMUEL J. CHILK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 15th day of September 1989.

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<sup>6</sup>Any request for a hearing on the exemption request is also denied.  
<sup>7</sup>Commissioner Curtiss did not participate in this Order.



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

**Administrative Judges:**

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

In the Matter of

Docket No. 50-335-OLA  
(SFP Expansion)

**FLORIDA POWER & LIGHT  
COMPANY**  
**(St. Lucie Nuclear Power Plant,  
Unit 1)**

September 20, 1989

The Appeal Board affirms the Licensing Board's initial decision, LBP-89-12, 29 NRC 441 (1989), sustaining the agency's earlier issuance of an operating license amendment to Florida Power & Light Company permitting the reracking of the St. Lucie Unit 1 spent fuel pool to increase its capacity.

**RULES OF PRACTICE: BRIEFS**

The Commission's Rules of Practice require that "[a]n appellant's brief must clearly identify the errors of fact or law that are the subject of the appeal." 10 C.F.R. § 2.762(a)(1).

**RULES OF PRACTICE: BRIEFS**

A party's appellate brief must contain sufficient information and argument to allow the appellate tribunal to make an intelligent disposition of the issues sought to be raised on appeal. *See Carolina Power and Light Co.* (Shearon

Harris Nuclear Power Plant), ALAB-856, 24 NRC 802, 805 (1986); *id.*, ALAB-843, 24 NRC 200, 204 (1986); *id.*, ALAB-837, 23 NRC 525, 533-34 (1986); *Pennsylvania Power and Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-693, 16 NRC 952, 955-57 (1982); *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 NRC 397, 413, *reconsideration denied*, ALAB-359, 4 NRC 619 (1976).

### **RULES OF PRACTICE: BRIEFS**

As in the case of all litigants, the intervenors must bear full responsibility for any possible misapprehension of his arguments caused by the inadequacies of his brief. *See Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Units 1 and 2), ALAB-739, 18 NRC 335, 338 n.4 (1983).

### **RULES OF PRACTICE: APPELLATE REVIEW**

An Appeal Board will only "reject or modify [factual] findings of the Licensing Board if, after giving its decision the probative force it intrinsically commands, we are convinced that the record compels a different result." *Niagara Mohawk Power Corp.* (Nine Mile Point Nuclear Station, Unit 2), ALAB-264, 1 NRC 347, 357 (1975).

### **EVIDENCE: EXPERT WITNESS**

It is well established that an expert witness may rely upon analyses performed by others. *See Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 718 (1985), *aff'd in part and review otherwise declined*, CLI-86-5, 23 NRC 125 (1986), *remanded in part on other grounds sub nom. Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719 (3d Cir. 1989).

### **RULES OF PRACTICE: BURDEN OF PROOF**

It is the applicant that bears the ultimate burden of proof in NRC operating license amendment proceedings and not the NRC staff. Thus, the adequacy of the staff's review is not the proper focus for such proceedings. *See Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-728, 17 NRC 777, 809 (1983).

## APPEARANCES

Campbell Rich, Stuart, Florida, intervenor pro se.

Harold F. Reis, Michael A. Bauser, and Patricia A. Comella, Washington, D.C., and John T. Butler, Miami, Florida, for the applicant, Florida Power & Light Company.

Patricia A. Jehle and Bernard M. Bordenick for the Nuclear Regulatory Commission staff.

## DECISION

Campbell Rich, a pro se intervenor in this operating license proceeding, has appealed the Licensing Board's May 9, 1989, initial decision<sup>1</sup> sustaining the agency's grant of an amendment to the applicant, Florida Power & Light Company, permitting the reracking of the St. Lucie Unit 1 spent fuel pool to increase its capacity. For the reasons that follow, we affirm the Licensing Board's decision.

### I.

On August 31, 1987, the Nuclear Regulatory Commission published a notice in the *Federal Register* that it was considering issuing a license amendment to the applicant authorizing an increase in the St. Lucie Unit 1 spent fuel pool storage capacity from 728 to 1706 fuel assemblies.<sup>2</sup> Among other things, the notice stated that the proposed expansion was to be achieved by reracking the fuel pool with high-density storage racks employing Boraflex as a neutron absorber for criticality control.<sup>3</sup> According to the notice, the rack vendor had licensed at least ten other racks of essentially the same design so no new or improved technology would be employed in either the construction or analysis of the new

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<sup>1</sup> LBP-89-12, 29 NRC 441.

<sup>2</sup> 52 Fed. Reg. 32,852.

<sup>3</sup> As stated by the Licensing Board,

Boraflex is an effective entrapp[er] of neutrons. It is produced by uniformly dispersing Boron carbide particles in a polymeric silicone encapsulant, which performs as the matrix element. The neutron-absorbing element is Boron. Since 1980, 85% of all high-density racks ordered by U.S. utilities have used Boraflex as the preferred "poison" material for neutron absorption. This involved twenty-three separate U.S. commercial nuclear power plants.

LBP-89-12, 29 NRC at 448 (citations omitted).

racks.<sup>4</sup> The notice further indicated that the Commission was considering making a "no significant hazards" determination with respect to the license amendment; thus the notice also set forth the NRC staff's analysis of how the applicant's amendment application met the standards contained in 10 C.F.R. § 50.92(c) for making such a determination.<sup>5</sup>

In response to the notice, Campbell Rich, a resident of the immediate area of the St. Lucie facility, filed a request for a hearing and a petition to intervene in the proceeding. Thereafter, on March 4, 1988, the staff issued an environmental assessment and a finding that the applicant's proposed spent fuel pool expansion posed no significant radiological hazard.<sup>6</sup> Pursuant to the Commission's regulations, once the staff has made a "no significant hazards" determination, the amendment may be issued immediately and any hearing is held subsequently to determine if the amendment shall remain in effect.<sup>7</sup> The Licensing Board then granted Mr. Rich's petition to intervene, admitting seven of his proffered contentions.<sup>8</sup>

After dismissing one of the admitted contentions on the intervenor's own motion and granting the applicant's motion for summary disposition as to part or all of four others, the Licensing Board heard evidence on the remaining portions of three contentions.<sup>9</sup> At the three-day hearing, the applicant and the staff each presented three expert witnesses and numerous exhibits, while the intervenor presented no evidence and confined his case to cross-examining the applicant and staff witnesses. On each of the issues before it, the Board then found that the preponderance of the evidence favored the applicant. It concluded, therefore, that the previously issued license amendment should remain in effect.<sup>10</sup> In reaching its decision, however, the Board placed a condition upon the amendment, requiring that the applicant design a program to assess the effect of irradiation on the Boraflex panels if certain test samples placed in the spent fuel pool are subjected to gamma radiation equal to, or greater than,  $1 \times 10^8$  rads.<sup>11</sup>

## II.

According to his appellate papers, the "[i]ntervenor is appealing the [Licensing] Board's Decision as regards the issues surrounding the integrity of Boraflex

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<sup>4</sup> 52 Fed. Reg. at 32,852-53.

<sup>5</sup> *Id.* at 32,853-55.

<sup>6</sup> 53 Fed. Reg. 7065 (1988).

<sup>7</sup> See 10 C.F.R. § 50.91(a)(4).

<sup>8</sup> See LBP-88-10A, 27 NRC 452, *aff'd*, ALAB-893, 27 NRC 627 (1988).

<sup>9</sup> See LBP-88-27, 28 NRC 455 (1988).

<sup>10</sup> LBP-89-12, 29 NRC at 446-60.

<sup>11</sup> *Id.* at 458-59.

as suggested by Contention 3 and Contention 6.”<sup>12</sup> As litigated, contention 3 claimed that the effects of heat and radiation on Boraflex panels used in spent fuel pool racks have not been adequately considered or analyzed, while contention 6 alleged that the use of Boraflex in high-density racks from the Joseph Oat Corporation is a new and unproven technology. While the intervenor identifies the Licensing Board’s decision respecting these two contentions as the focus of his appeal, his eight-page appellate filing fails to identify clearly and to brief adequately the “issues surrounding” these contentions that the intervenor purports to raise. The Commission’s Rules of Practice require that “[a]n appellant’s brief must clearly identify the errors of fact or law that are the subject of the appeal.”<sup>13</sup> We have pointed out repeatedly that a party’s appellate brief must contain sufficient information and argument to allow the appellate tribunal to make an intelligent disposition of the issues sought to be raised on appeal.<sup>14</sup> Here, the intervenor’s brief comports with neither the letter of the regulations nor the spirit of our decisions. Nevertheless, because we do not hold a pro se intervenor to the same standard that we expect a lawyer to meet,<sup>15</sup> we have tried, as best we can, to glean from the intervenor’s appellate papers the essence of the errors he alleges. As in the case of all litigants, however, the intervenor must bear full responsibility for any possible misapprehension of his arguments caused by the inadequacies of his brief.<sup>16</sup>

As best we can discern from his brief, the intervenor raises no questions of law. Rather, he only challenges several of the Licensing Board’s factual findings with respect to contentions 3 and 6. Although the intervenor never mentions the standard of review for such findings, it must be remembered that “we are not free to disregard the fact that the Licensing Boards are the Commission’s primary fact finding tribunals.”<sup>17</sup> Hence we will only “reject or modify findings of the Licensing Board if, after giving its decision the probative force it intrinsically commands, we are convinced that the record compels a different result.”<sup>18</sup> In other words, “we must be persuaded that the record evidence as a whole compels

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<sup>12</sup> Intervenor’s Appeal of Initial Decision (June 16, 1989) at 1 [hereinafter “Intervenor’s Brief”].

<sup>13</sup> 10 C.F.R. § 2.762(d)(1).

<sup>14</sup> See *Carolina Power and Light Co.* (Shearon Harris Nuclear Power Plant), ALAB-856, 24 NRC 802, 805 (1986); *id.*, ALAB-843, 24 NRC 200, 204 (1986); *id.*, ALAB-837, 23 NRC 525, 533-34 (1986); *Pennsylvania Power and Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-693, 16 NRC 952, 955-57 (1982); *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-355, 4 NRC 397, 413, *reconsideration denied*, ALAB-359, 4 NRC 619 (1976).

<sup>15</sup> See *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-772, 19 NRC 1193, 1247 (1984), *rev’d in part on other grounds*, CLI-85-2, 21 NRC 282 (1985); *Public Service Electric and Gas Co.* (Salem Nuclear Generating Station, Unit 1), ALAB-650, 14 NRC 43, 50 n.7 (1981), *aff’d sub nom. Township of Lower Alloways Creek v. Public Service Electric & Gas Co.*, 687 F.2d 732 (3d Cir. 1982).

<sup>16</sup> See *Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Units 1 and 2), ALAB-739, 18 NRC 335, 338 n.4 (1983).

<sup>17</sup> *Northern Indiana Public Service Co.* (Bailly Generating Station, Nuclear 1), ALAB-303, 2 NRC 858, 867 (1975).

<sup>18</sup> *Niagara Mohawk Power Corp.* (Nine Mile Point Nuclear Station, Unit 2), ALAB-264, 1 NRC 347, 357 (1975).

a different conclusion and we will not overturn the hearing judge's findings simply because we might have reached a different result had we been the initial fact finder."<sup>19</sup>

In his brief, the intervenor seemingly argues that several of the Licensing Board's findings regarding contentions 3 and 6 are erroneous. The record as a whole, however, does not support his claims. This is not surprising because the intervenor offered no affirmative evidence at the hearing to support his two contentions, and all testimony and documentary exhibits on the contentions were presented by experts for the applicant and the staff. The Licensing Board made its findings based upon this expert testimony and our review of the record satisfies us that those findings are thorough, fully supported by the evidence, and correct. Thus, under the standard applicable for reviewing factual findings, they must be affirmed.

1. Although the argument heading in his brief reads "The effect of exposure to elevated temperatures on Boraflex," the intervenor does not appear to question the Licensing Board's findings on this subject. Rather, as best we can tell, the intervenor seems to complain that the trial Board's findings on the combined effect of heat and radiation on Boraflex are not supported by credible evidence.<sup>20</sup>

In its decision, the Licensing Board found that the NRC required the testing of Boraflex under physical conditions more severe than the environment to which the material would be exposed in actual use before the agency accepted it as an appropriate neutron-absorbing material. In its fully supported findings, the Board detailed the history of heat aging tests at 350°F and long-term pressure bomb tests at 240°F in a boric acid solution, to which Boraflex was subjected in order to establish its stability under excessive environmental conditions. It also found that the St. Lucie Unit 1 spent fuel pool temperature hovers around 100°F, which is well below the qualifying test temperatures, and that Boraflex will never be exposed to temperatures in excess of 200°F anywhere in the St. Lucie pool.<sup>21</sup>

The Board made fully supported findings on the effects of radiation on Boraflex as well.<sup>22</sup> For example, it found that radiation exposure tests were conducted on Boraflex at the Ford nuclear research reactor at the University of Michigan. Although none of the published results of the various exposure tests reported on the combined effect of temperature and radioactivity per se, "[s]ince the reactor temperatures are much higher in the reactor than in the spent fuel pool, synergistic effects of heat and radiation would be included in the reported in-reactor irradiation studies."<sup>23</sup> As support for this latter determination, the

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<sup>19</sup> *General Public Utilities Nuclear Corp. (Three Mile Island Nuclear Station, Unit No. 1)*, ALAB-881, 26 NRC 465, 473 (1987).

<sup>20</sup> Intervenor's Brief at 1-3.

<sup>21</sup> LBP-89-12, 29 NRC at 449. See Singh, fol. Tr. 139, at 14.

<sup>22</sup> LBP-89-12, 29 NRC at 450-51.

<sup>23</sup> *Id.* at 449.

Board cited the testimony of one of the staff's expert witnesses, Dr. James Wing, a chemical engineer at the NRC. But the intervenor, in effect, claims that he discredited this witness with his cross-examination, so his testimony should be disregarded. Even accepting the intervenor's position for the sake of argument, the Board's finding on the combined effect of heat and radiation on Boraflex is amply and independently supported by the testimony of Dr. Krishna P. Singh, one of the applicant's expert witnesses. Dr. Singh is currently president of Holtech International, a company engaged in the design and supply of spent fuel pool storage racks for the domestic and international nuclear power plant industry. This company is the subcontractor responsible for the design, analysis, and licensing of the St. Lucie racks for the rack vendor and manufacturer (and Dr. Singh's former employer), the Joseph Oat Corporation. By education, Dr. Singh holds B.S., M.S., and Ph.D. degrees in mechanical engineering, and he has extensive experience in the design of spent fuel storage racks utilizing Boraflex.<sup>24</sup> In his direct testimony, Dr. Singh specifically stated that the extensive tests run on Boraflex at the Ford reactor between 1979 and 1981 were designed to identify the physical and chemical characteristics of this material under a variety of radiation levels, radiation rates, and severe environments, including temperatures substantially greater than those found in the St. Lucie pool.<sup>25</sup> Thus, the intervenor has presented nothing that undercuts the support of the Licensing Board's finding on this matter.

2. Once again his argument is far from clear, but the intervenor also asserts that the Licensing Board found "that shrinkage of 3-4% is to be anticipated during the normal service life of the material."<sup>26</sup> He further claims that the "Licensee's own witness, Dr. Turner, provided data that showed shrinkage of 4% and even greater at radiation levels that will be encountered by the material in

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<sup>24</sup> Singh, fol. Tr. 139, Exh. A.

The intervenor also seems to suggest that Dr. Singh, contrary to the Licensing Board's determination (LBP-89-12, 29 NRC at 447), was not a qualified expert because "he was, in fact, a metallurgical specialist and not a chemist and so must rely upon the work and knowledge of others with regards to the integrity and suitability of the polymer, Boraflex." Intervenor's Brief at 2. The short answer to what appears to be his belated attempt to have Dr. Singh disqualified as an expert witness is that the intervenor failed to raise a timely objection to this witness's qualifications below, so he cannot now be heard to complain. Moreover, the intervenor is simply wrong when he states that Dr. Singh testified he was "a metallurgical specialist." Dr. Singh holds a doctorate in mechanical engineering and has had educational course work in organic and analytical chemistry. There can be no real question as to his qualifications to testify on the matters at hand. Further, the intervenor's claim that Dr. Singh is somehow unqualified, because he relied upon the knowledge of other experts for data on the properties and suitability of Boraflex, is totally without merit. It is well established that an expert witness may rely upon analyses performed by others. See *Philadelphia Electric Co. (Limerick Generating Station, Units 1 and 2)*, ALAB-819, 22 NRC 681, 718 (1985), *aff'd in part and review otherwise declined*, CLI-86-5, 23 NRC 125 (1986), remanded in part on other grounds sub nom. *Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719 (3d Cir. 1989). Here, Dr. Singh primarily relied upon the expertise of Dr. Stanley E. Turner, a nuclear chemist and co-witness, whose qualifications the intervenor has not challenged. See Singh, Tr. 146-47; Turner, fol. Tr. 139, Exh. A.

<sup>25</sup> Singh, fol. Tr. 139, at 15.

<sup>26</sup> Intervenor's Brief at 3.

service.”<sup>27</sup> In light of this purported finding and evidence, the intervenor appears to argue that the Licensing Board somehow erred in sustaining the license amendment because it contains “a dimensional change [limitation] of 2.5% from the original” for the Boraflex material.<sup>28</sup> What is clear from this argument is that the intervenor badly misapprehends the Licensing Board’s decision, the record evidence, and the license amendment.

Contrary to the intervenor’s allegation, the Licensing Board simply did not find that it was anticipated that the Boraflex would shrink three to four percent during the normal service life of the material.<sup>29</sup> Nor did Dr. Turner testify that Boraflex shrinkage would be four percent or greater. Instead, he indicated that *dimensional* changes of the Boraflex samples would be on that order.<sup>30</sup> Indeed, Dr. Turner stated that actual measurements of Boraflex samples in spent fuel pools showed a maximum *shrinkage* of 2 to 2.5 percent, but for purposes of determining the magnitude of the effective multiplication factor for criticality concerns, he assigned a conservative value of four percent shrinkage for the calculations.<sup>31</sup> Contrary to the intervenor’s apparent belief, however, dimensional changes and shrinkage are not synonyms, as those terms are used in the evidentiary record. Dimensional variations include changes in addition to just shrinkage.<sup>32</sup>

Further, and again contrary to the intervenor’s apparent belief, the license amendment authorizing the reracking of the St. Lucie Unit 1 spent fuel pool contains no license condition or acceptance criteria on the high-density racks to the effect that a dimensional change in the Boraflex of no more than 2.5 percent from the original is all that is permitted. As best we can determine, the intervenor has confused the license amendment with a statement found in the staff’s Safety Evaluation Report describing the applicant’s in-service surveillance testing program.<sup>33</sup> That program is not part of the license amendment; rather it is part of the applicant’s plant procedures for St. Lucie.<sup>34</sup> As the Licensing Board stated in describing that ancillary testing program, “[a]lthough Boraflex is expected to satisfactorily perform its intended function, the surveillance program ensures that any radiation effects beyond those expected and accommodated in the design will be detected well in advance (probably years) of the need for remedial action.”<sup>35</sup> In short, the record does not support the intervenor’s charges.

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<sup>27</sup> *Id.*

<sup>28</sup> *Id.*

<sup>29</sup> See LBP-89-12, 29 NRC at 450-51, 459.

<sup>30</sup> Turner, Tr. 387.

<sup>31</sup> Turner, fol. Tr. 139, at 6-7.

<sup>32</sup> See Turner, Tr. 403-06.

<sup>33</sup> See Staff Exh. 1 at 5.

<sup>34</sup> Weinkam, fol. Tr. 139, at 3.

<sup>35</sup> LBP-89-12, 29 NRC at 453.

3. Finally, the intervenor appears to complain about the Licensing Board's findings concerning the normal use of Region 1 of the spent fuel pool and the effects on criticality of possible gap formation in the Boraflex panels of the racks in that region.<sup>36</sup> In its decision, the Licensing Board reviewed the design and construction of both Region 1 and Region 2 storage racks, noting that "[t]he essential difference between Region 1 and Region 2 storage rack modules is that the Region 1 racks are provided with additional neutron-absorbing material in the form of Boraflex so as to control the higher potential reactivity that would result with fresh nuclear fuel."<sup>37</sup> It found that the racks for both regions were appropriately designed to take into account shrinkage caused by irradiation of Boraflex and that the Region 1 racks were specially designed to allow for controlled gap formation at designated points.<sup>38</sup> The Board also found that the applicant had appropriately evaluated the effects on criticality caused by the formation of such gaps and that the formation of gaps would not challenge the margin of the staff's acceptance criterion for criticality.<sup>39</sup> Further, the Board determined that "[s]pent fuel is normally discharged to Region 2, while Region 1 is used to store fresh [unirradiated] fuel prior to refueling and for contingencies such as the possible need for a full-core offload."<sup>40</sup> It concluded, therefore, that "shrinking and subsequent gap formation should thus be nonexistent or minimal in the Region 1 racks."<sup>41</sup> The Board indicated, however, that "[t]he one exception which does result in some gamma irradiation of Region 1 cells occurs because of the in-service surveillance program which [applicant] has undertaken . . . [that] includes two cells in Region 1 with separate sets of sample coupons."<sup>42</sup> Because the applicant's test program intentionally exposes two cells of one of the Region 1 racks to gamma radiation, the Board imposed a license condition on the amendment designed to monitor the integrity of this Region 1 rack.<sup>43</sup>

We have reviewed the record underlying all of the Licensing Board's findings on the design and construction of the high density racks and the adequacy of the applicant's criticality calculations and can find no reasonable basis for the charges the intervenor levels at these findings. The Board's findings are all well supported and adequately explained. Specifically, the record evidence is clear on the normal use of Region 1 of the spent fuel pool and the Board's findings in this regard are correct. There simply is no record support for the intervenor's assertions, and it appears he has confused the meaning of reactivity

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<sup>36</sup> Intervenor's Brief at 4-8.

<sup>37</sup> LBP-89-12, 29 NRC at 445.

<sup>38</sup> *Id.* at 451.

<sup>39</sup> *Id.* at 451-52.

<sup>40</sup> *Id.* at 459.

<sup>41</sup> *Id.*

<sup>42</sup> *Id.*

<sup>43</sup> *Id.*

and radioactivity in his reading of the record. Nor is there any basis for his apparent claims that the applicant's criticality calculations are somehow suspect and cannot form the basis for the Board's findings because the staff did not independently verify them. With minor exceptions not relevant here, it is the applicant that bears the ultimate burden of proof in NRC operating license amendment proceedings and not the staff. Thus, contrary to the intervenor's apparent belief, the adequacy of the staff's review is not the proper focus for such proceedings.<sup>44</sup>

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For the foregoing reasons, we *affirm* the Licensing Board's decision in LBP-89-12, 29 NRC 441, sustaining the staff's earlier issuance of the operating license amendment.

It is so ORDERED.

FOR THE APPEAL BOARD

Barbara A. Tompkins  
Secretary to the  
Appeal Board

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<sup>44</sup> See *Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2)*, ALAB-728, 17 NRC 771, 809 (1983).

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judge:

Charles Bechhoefer

In the Matter of

Docket No. 70-36-MLA  
(ASLBP No. 89-593-01-MLA)  
(Special Nuclear Materials  
License No. SNM-33)

**COMBUSTION ENGINEERING, INC.**  
(Hematite Fuel Fabrication Facility)

September 25, 1989

The Presiding Officer in a materials license proceeding grants two additional intervention petitions and defers action on another. The Presiding Officer schedules the filing of issues by Intervenors and a prehearing conference to define and clarify the issues in controversy and to consider the remaining intervention petition. Based on information derived from the hearing file, he also poses questions to the Applicant and NRC Staff on a safety matter suggested by the expressed concerns of Intervenors.

**RULES OF PRACTICE: INTERVENTION**

An organization that, although filing a timely intervention petition, bases its standing on representation of named members who joined the organization after that filing must be considered a late-filing petitioner. A Presiding Officer may admit the organization only after balancing the factors set out in 10 C.F.R. § 2.1205(k)(1) applicable to late-filed petitions.

## **RULES OF PRACTICE: INTERVENTION**

In an informal proceeding, the critical factors governing late-filed petitions are more limited than those applicable to similar petitions filed in formal proceedings. A Presiding Officer may, however, look to all the factors set out in 10 C.F.R. § 2.714(a)(1) applicable to formal proceedings for guidance in determining whether to accept a late-filed petition in an informal proceeding.

## **RULES OF PRACTICE: INFORMAL HEARINGS**

Although the Rules of Practice for informal hearings do not specifically require the filing by Intervenors in each case of statements of issues, a Presiding Officer may require such a filing where necessary to clarify the issues and to avoid having Intervenors prepare complete cases on issues that may not in fact be litigable.

## **MEMORANDUM AND ORDER** **(Additional Intervention Petitions, Issues, and Schedules)**

By my Memorandum and Order (Requests for a Hearing) dated August 18, 1989, LBP-89-23, 30 NRC 140 (hereinafter LBP-89-23), I granted the request for a hearing and petition for intervention of Ms. Martha Dodson. I deferred ruling on petitions submitted by Sen. Jeremiah W. (Jay) Nixon, Ms. Karen Sisk, and the Coalition for the Environment. I requested certain additional information from each of the petitioners (as well as from the Intervenor, Ms. Dodson) concerning certain aspects of their petitions and established a schedule for submission of this information.

Timely supplements to their intervention petitions were filed by Ms. Dodson on August 22, 1989, by Sen. Nixon on September 2, 1989, and by Ms. Sisk and the Coalition for the Environment, respectively, on September 5, 1989. The Applicant filed its response on September 18, 1989.

For reasons set forth below, I am granting the intervention petitions of Sen. Nixon (in his individual capacity) and of Ms. Sisk (also as an individual). As of this time, the Coalition has not established its standing to participate but, before finally ruling on its petition, I will permit the Coalition to provide further information if it wishes to do so. I am scheduling a prehearing conference on October 25, 1989, to define and clarify matters properly at issue in the proceeding and also to permit the Coalition to provide further information concerning its petition.

### **1. Petition of Sen. Nixon**

In LBP-89-23, I determined that Sen. Nixon's stated concerns were sufficient to constitute matters properly subject to challenge in this proceeding. I also determined that Sen. Nixon would not have standing to intervene as a representative of his constituents, but that he might have standing to intervene as an individual. I provided Sen. Nixon with an opportunity to supplement his petition if he wished to intervene in his individual capacity.

In his supplement, Sen. Nixon indicated that he does wish to intervene in his individual capacity, and he set forth his interest in terms of a residence close to the facility, use of roads and by-ways of the area with great frequency, and use of Joachim Creek near the facility for recreational purposes. The Applicant offers no additional objections beyond those previously expressed (concerning Sen. Nixon's statement of concerns, as well as his standing to participate in a representative capacity) to Sen. Nixon's participation as an individual. I find that Sen. Nixon has adequately established his standing to intervene as an individual and, given my earlier determination that his statement of concerns was adequate, that he should be admitted in his individual capacity as an Intervenor.

### **2. Petition of Ms. Karen Sisk**

In LBP-89-23, I determined that Ms. Sisk's stated concerns were sufficient for intervention but that she had not adequately described how the interests she had set forth would be affected by the amendment. I gave her an opportunity to supplement her petition, and she did so. She described the location of her residence and other property near the facility, and she reiterated her concerns about both accidental and routine emissions from the facility.

Ms. Sisk also expresses her wish to intervene both individually and as a member of the Coalition for the Environment. The Applicant objects to her participation in both capacities but offers no new objection (beyond those previously expressed with regard to her concerns) to her individual participation. (The Applicant continues to question the relevancy to this proceeding of certain of her concerns.)

I find that, in her individual capacity, Ms. Sisk has satisfied the requirements for intervention, and I am admitting her in that capacity. I will treat her request to be admitted as a member of the Coalition when I deal with the Coalition's petition, *infra*.

### **3. Petition of Coalition for the Environment**

In LBP-89-23, I determined that the Coalition appeared to seek admission as a representative of certain members, some of whom it referred to as residing in

Jefferson County; but that, since it had not identified any members who sought to be represented by the Coalition and had authorized the Coalition to represent them, it had not fulfilled the requirements for intervention in a representative capacity. I authorized the Coalition to supplement its petition.

In its supplement, the Coalition identified two members — Ms. Dodson and Ms. Sisk — for the purpose of establishing its standing in a representative capacity. Both of these individuals possess adequate standing and, indeed, have each been admitted to this proceeding on the strength of that standing.

The Applicant strongly objects to the admittance of the Coalition on the basis of these two members, who are identified as having joined the Coalition in August 1989 (primarily as a result of my ruling in LBP-89-23 that the Coalition had to identify specific members), and, *perforce*, after the time when intervention petitions were required to be filed. The Applicant asserts first that, on the basis of these two members, the petition must be regarded as late-filed (without adequate justification for the late filing), citing *Washington Public Power Supply System* (WPPSS Nuclear Project No. 2), LBP-79-7, 9 NRC 330, 335 (1979). That opinion denied the petition of an organization which, after the time when intervention petitions had to be filed, sought to enlist members near the site in order to fulfill its standing requirements.

The lateness question, while present as the result of the tardy joining of the organization of members on whom standing is based, would not necessarily preclude admission of the Coalition. Another Licensing Board admitted an organization whose member on whom standing was based was presumed to have joined the organization after the date for filing of intervention petitions; that Board balanced the factors for late intervention petitions and found that they favored admission of the organization, even if deemed to be late. *Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), LBP-79-10, 9 NRC 439, 448 n.3 (1979). In affirming that ruling, the Appeal Board remarked that the organization could be considered "'late' . . . only in a legalistic sense" (its petition in fact having been filed a day early, as is the case here) and that the applicant could not reasonably complain that the "late" intervention would unreasonably delay the proceeding. *Id.*, ALAB-549, 9 NRC 644, 648-49 (1979).

In an informal proceeding of this type, only two factors technically govern late-filed intervention petitions — (1) whether the lateness was excusable, and (2) whether grant of a late-filed request would result in any undue prejudice or injury to other participants. 10 C.F.R. § 2.1205(k)(1). Here, the lateness appears to be attributable to legal inexperience and hence is excusable, and grant of intervention status to the Coalition would not seem to produce further delay in the proceeding or prejudice to any other participant. For that reason, I would be prepared to overlook the technical, legalistic lateness of the Coalition.

However, another objection to the Coalition's participation advanced by the Applicant is more significant. In the first place, it is not clear to me that

Ms. Dodson and Ms. Sisk are in fact seeking to be represented by the Coalition. Ms. Dodson states (in her August 22, 1989 filing) that she wishes to intervene personally, although she is willing to permit the Coalition to serve as lead intervenor. For her part, Ms. Sisk indicates that she wishes to intervene *both* as an individual and as a Coalition member; she also states that she wishes the Coalition to serve as lead intervenor (Supplemental Information dated September 5, 1989). As the Applicant observes, Ms. Sisk's expressed desire to participate as an individual negates her authorization for the Coalition to represent her interests. The most that can be said is that she has authorized the Coalition to serve as lead intervenor with regard to issues of common interest.

Finally, it is not clear to me whether Ms. Sisk may simultaneously represent herself and also be represented by an organization. The Applicant claims that she may not do so, but it cites no authority for this proposition. Nor am I aware of any precedent on this question. It appears sensible, however, not to afford a party two bites at the apple, at least where, as here, the Coalition has not indicated whether it is advancing any claims that the individual members are unwilling or unable to advance on their own behalf.

In an informal proceeding of this type, the lateness factors set forth in 10 C.F.R. §§ 2.714(a)(1)(iii) and (iv) are not technically applicable, but in my opinion they are generally relevant to my determination whether to admit the Coalition as a late-filed intervenor. I have no information that would indicate whether or not the Coalition would assist in the development of a sound record, and it also appears that the Coalition's interest may be adequately represented by existing parties — i.e., Ms. Dodson and Ms. Sisk. On the basis of the record as it now stands, I would have to deny intervention to the Coalition on the basis of these considerations.

At the prehearing conference which I am scheduling, I will permit the Coalition to provide further clarification of the status of its proposed intervention. By that time, it will be required to have filed a more definitive statement of any issues it wishes to raise. Beyond that, it has mentioned certain unnamed members in Jefferson County, but if the Coalition wishes to rely on any members other than Ms. Dodson or Ms. Sisk, it will have to identify them. Pending receipt of further information, I am deferring any ruling on the Coalition's intervention petition.

#### 4. Statement of Issues

Following the admission of intervenors as parties to the proceeding, the next course of action under the informal hearing rules would be for parties to submit written presentations, under oath or affirmation, of their arguments and documentary data, informational material, and other supporting written evidence. This presentation must describe in detail any deficiency or omission in the license

application, with particular references provided. The relief sought must also be detailed. 10 C.F.R. §§ 2.1233(c) and (d).

In this proceeding, however, it appears that there may well be disputes as to whether certain matters referenced by the Intervenors in their statements of concern may in fact be litigable. In my opinion, there are outstanding questions as to the scope of the proposed license amendment and the effects that may be engendered by it. In addition, there are unresolved questions concerning the petition of the Coalition. Failure to resolve these questions prior to the submission of written presentations under 10 C.F.R. § 2.1233 would likely result in unnecessary paperwork for many parties. For that reason, I have decided that the most efficient manner to supplement the record in this regard would be to hold a prehearing conference, as authorized by 10 C.F.R. § 2.1209(c), preceded by a filing of issues in dispute (but not full statements of their cases) by all Intervenors and petitioners.<sup>1</sup>

As suggested by the Applicant in its September 18, 1989 filing, the statement of issues should demonstrate the deficiencies or omissions in the license application, the relationship (or "nexus") of the issues to the proposed license amendment, and the source of the Intervenor's (or petitioner's) belief that there are deficiencies or omissions in the application. In particular, an explanation of the relationship to the license application of the alleged unplanned release of radioactivity on August 28 or 29, 1989, referenced by Ms. Sisk and by the Coalition, would be useful.

Finally, based on certain of the concerns set forth by the Intervenors, and after examination of the hearing file, I am identifying one safety matter for which I am posing questions to the Applicant and NRC Staff pursuant to 10 C.F.R. § 2.1233(a). These questions are set forth below.

The prehearing conference will be held on Wednesday, October 25, 1989, beginning at 9:00 a.m., at the Student Center Building, Viking Room, Jefferson College, Hillsboro, Missouri. On the evening of Tuesday, October 24, 1989, I will hear oral limited appearance statements pursuant to 10 C.F.R. § 2.1211(a). The limited appearance session will take place from 7:00 to 9:30 p.m. (or until the last person present has delivered his or her statement, whichever is earlier) at the Arts and Sciences Building, Little Theatre, Jefferson College, Hillsboro, Missouri. Although limited appearance statements are not considered part of the decisional record, I may ask the parties to develop information for the record

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<sup>1</sup>I advised all parties by telephone of my intent to hold a prehearing conference, and all parties except the Applicant favored that approach. The Applicant, while agreeing that statements of issues were desirable, opined that I should await receipt of those statements before determining whether a prehearing conference was necessary. However, there are sufficient areas where written statements of issues by parties will inevitably call for followup inquiries such as, for example, the scope of the proceeding and matters that may be affected by the license amendment. For that reason, it would appear that waiting for the statements of issues before determining whether a prehearing conference should be convened would unnecessarily delay the proceeding.

(or at least have the Staff consider information) concerning matters raised in such statements and not directly covered by issues identified by the parties.

## 5. Questions for Applicant and Staff

In their statements of concerns, each of the Intervenors has mentioned potentials for criticality accidents and releases of radioactive chemicals, particulates, and gases. My examination of the hearing file has brought to light a question concerning the criticality standard that ought to be applied in this proceeding.

Thus, as part of its May 1, 1989 application for a license amendment, and again in the further information filed on August 18, 1989, the Applicant has set forth certain criticality considerations as part of its description of the process of filling of bulk storage hoppers. It states that "the  $K_{eff}$  is  $0.9744 \pm 0.0032$ ." It is my understanding, however, that the  $K_{eff}$  normally found acceptable by the NRC Staff is 0.95. See ANSI/ANS-8.1-1983, as incorporated in NRC Regulatory Guide 3.4, "Nuclear Criticality Safety in Operations with Fissionable Materials at Fuels and Materials Facilities," Rev. 2 (March 1986). In addition, the current license includes a provision limiting the  $K_{eff}$  to not in excess of 0.95 unless specifically authorized (License SNM-33, Amendment 13, ¶31). Therefore, I have the following questions:

*Applicant:*

1. What justification are you providing for using a  $K_{eff}$  greater (i.e., less conservative) than 0.95?
2. What changes in your application, if any, would result if you were to be limited to a  $K_{eff}$  of 0.95 or less?
3. What would be the effect on your operations if I were to include a provision in your amended license comparable to ¶31 of your current license, covering the information submitted in ¶8.3.4.1 of your amendment application?

*Staff:*

1. What is your current policy for permitting a  $K_{eff}$  less conservative than 0.95?
2. Do you plan to include a provision comparable to ¶31 of the current license to cover the higher  $K_{eff}$  included in the May 1, 1989 application or the August 18, 1989 statement of additional information?

Answers to the foregoing questions should be provided to all parties and petitioners prior to the prehearing conference. (If the Staff review is not yet at the stage where it can answer my second question to it, it can so state.) Although these questions are likely to be discussed at the prehearing conference, the Staff,

which is not a party to the proceeding, may limit its answers to written answers; it need not participate at the prehearing conference, although it is invited to do so, irrespective of its party status.

## 6. Settlement

I urge all parties to attempt to settle any issues in this proceeding. The prehearing conference that I am scheduling could usefully serve as a medium to settle outstanding issues. I call upon all parties to attempt to resolve their differences in this manner.

## 7. Order

For the reasons stated, it is, this 25th day of September 1989, ORDERED:

1. The intervention petitions of Sen. Jeremiah W. (Jay) Nixon and Ms. Karen Sisk are hereby *granted*. Action on the petition of the Coalition for the Environment is *deferred*.

2. All Intervenors and petitioners must file a statement of proposed issues no later than Wednesday, October 18, 1989, using *express mail* for copies intended for the Applicant and for me. (If ordinary mail is preferred, the statements should be filed by Monday, October 16, 1989.) The Applicant and NRC Staff are requested to provide responses to the questions posed by me at p. 193, *supra*.

3. A prehearing conference is scheduled for Wednesday, October 25, 1989, beginning at 9:00 a.m., at the Student Center Building, Viking Room, Jefferson College, Hillsboro, Missouri. On the prior evening, I will entertain oral limited appearance statements, from 7:00 to 9:30 p.m. (or such earlier time as would permit the last person present to make his or her statement), from persons who are not parties (or petitioners) in the proceeding. These statements will be heard at the Arts and Sciences Building, Little Theatre, Jefferson College, Hillsboro, Missouri.

Charles Bechhoefer, Presiding Officer  
ADMINISTRATIVE JUDGE

Bethesda, Maryland  
September 25, 1989

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

B. Paul Cotter, Jr., Chairman  
Harry Foreman  
Jerry R. Kline

In the Matter of

Docket No. 55-08347  
(ASLBP No. 88-577-02-EA)  
(Operator License No. 6010-2)  
(EA 88-164)

MAURICE P. ACOSTA, JR.  
(Reactor Operator License for  
San Onofre Nuclear Generating  
Station, Units 2 and 3)

September 28, 1989

The Licensing Board sustains an order of the NRC Executive Director of Operations suspending the reactor operator license of Mr. Acosta and refusing to renew it on the grounds of Mr. Acosta's positive tests for use of marijuana. In sustaining the Director, the Board rejects a test that would have balanced a good work record against a positive test for marijuana use.

**REACTOR OPERATOR LICENSES: FITNESS FOR DUTY  
(DRUG USE)**

Simply questioning the chain of custody is not sufficient to defeat the representation that the chain of custody over urine samples used to perform drug use tests was properly maintained.

## **REACTOR OPERATOR LICENSES: FITNESS FOR DUTY (DRUG USE)**

Absent evidence of error, a suggestion of chain-of-custody errors is rejected where multiple samples or the same samples are analyzed by multiple laboratories with chain-of-custody procedures, and each test by each laboratory is consistent with each other, and where different and independent chemical tests of a sample result in consistent findings.

## **REACTOR OPERATOR LICENSES: FITNESS FOR DUTY**

The duties of a reactor operator are complex and require the continuous exercise of clear judgment. An impairment of that judgment constitutes a threat to the public health and safety.

## **REACTOR OPERATOR LICENSES: FITNESS FOR DUTY (DRUG USE)**

A balancing of a predominantly good work record and frequent negative drug use test results against three positive drug use tests must be rejected because even the infrequent use of marijuana by a reactor operator poses too serious a danger to public health and safety.

## **REACTOR OPERATOR LICENSES: REVOCATION/SUSPENSION**

Where a reactor operator was afforded opportunities to cease drug use and retain his position as a licensed operator after each of two previous positive drug use tests but failed to do so, the repeated use of drugs is sufficient to cause his operator's license to be revoked, and his prior work record, however favorable, is not a factor that can alter that result.

## **REACTOR OPERATOR LICENSES: REVOCATION/SUSPENSION**

Under the Atomic Energy Act a license can be suspended for any reason for which it would not have been issued initially and a record of marijuana consumption over a 2-year period would have barred the issuance of a license. Thus, the Commission may decline to renew a license on these grounds because such conduct prevents the Commission from having reasonable assurance that the operator could continue to operate a nuclear reactor competently and safely.

## **REACTOR OPERATOR LICENSES: REVOCATION/SUSPENSION**

The risk posed by repeated use of marijuana is, pursuant to the Atomic Energy Act, of such magnitude as to warrant the Commission to suspend immediately a reactor operator's license pursuant to 10 C.F.R. § 55.61 and to refuse to renew that license pursuant to 10 C.F.R. § 55.57.

### **INITIAL DECISION**

By letter dated July 1, 1988, Maurice P. Acosta timely appealed<sup>1</sup> the suspension of, and refusal to renew, his Reactor Operator's License by the Nuclear Regulatory Commission (NRC or Commission). The Commission's action was taken on June 15, 1988. 53 Fed. Reg. 24,383 (1988). Following appointment of this Board and discovery, a hearing was held in San Diego, California, on May 24-25, 1989. Mr. Acosta did not present any testimony at the hearing.

For the reasons set forth within, we uphold the Staff's decisions with respect to Mr. Acosta's license.

#### **I. STATEMENT OF THE CASE**

On July 1, 1982, Maurice P. Acosta received a license to operate the Unit 2 and 3 reactors at the San Onofre Nuclear Generating Station owned and operated by the Southern California Edison Company (SCE). The license was renewed most recently on July 1, 1986, for a 2-year period, and, on May 12, 1988, another request for renewal was filed.

In September of 1984, SCE published its policy concerning off-duty drug use which, *inter alia*, barred marijuana use by people like Mr. Acosta who had unescorted access to protected areas. Tr. 15-21; NRC Staff Exh. 5. The SCE program evolved from phased disciplinary actions of varying severity to, in 1986, termination after the third positive drug test.

NRC requires that such license applicants state that they have no drug or narcotic habit on NRC Form 396, and, since 1987, NRC has required an evaluation of license applicants by a medical practitioner which includes an evaluation for drug abuse. 10 C.F.R. §§ 55.21, 55.33 (1988).

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<sup>1</sup>The appeal was not received by the Licensing Panel until mid-August; this Board was appointed August 18, 1988. The time to complete discovery was extended, and, following trial, a briefing schedule was established. Staff's proposed findings of fact and conclusions of law were timely filed, but appellant failed to file anything.

On June 15, 1988, the NRC Executive Director for Operations issued an unpublished "Order Suspending License (Effective Immediately) and Denial of Application for Renewal of License" (the Order). The Order recited that under the SCE drug testing program Mr. Acosta had tested positive for marijuana on March 6, 1986, May 12, 1986, and May 28, 1988, and that after each of these initial screening tests had been confirmed, SCE had counseled Acosta to emphasize that his access authorization to the reactors was contingent on abstaining from the use of illegal drugs. Following the third confirmation, SCE administratively suspended Acosta's protected area access. Staff Exh. 1.

As authority for suspending and refusing to renew Mr. Acosta's license, the Executive Director's Order stated that

The character of the individual, including the individual's exercise of sound judgment, is a consideration in issuing an operator license. *See* Section 182a of the Atomic Energy Act of 1954, as amended. In determining whether or not an individual seeking a license to be a reactor operator has the necessary character, including sound judgment, the Commission may take into account a history of illegal drug use by the applicant.

*Id.* at 2. Section 182 of the Atomic Energy Act, as amended (the Act) specifies the factors, including character, to be considered by the Commission in issuing a license and authorizes Commission issuance of implementing regulations. 42 U.S.C. § 2232(a) (1988 ed.). Those regulations are found in Part 55 of Title 10 of the Code of Federal Regulations.

Subsection (a) of section 186 of the Act provides in pertinent part that

Any license may be revoked . . . because of conditions revealed by . . . any report, record, or inspection or other means which would warrant the Commission to refuse to grant a license on an original application . . . or failure to observe the terms and provisions of this Act or of any regulation of the Commission.

42 U.S.C. § 2236(a) (1988 ed.). *See also* 10 C.F.R. § 55.61(b)(2) (1988).

While recognizing that Acosta's positive tests "did not necessarily establish that the Licensee was incapacitated at the time the samples were taken," the Order stated that Acosta's history suggested a "pattern of behavior and lack of sound judgment that may be inimical to the public health and safety." Staff Exh. 1 at 3. Consequently, the Executive Director concluded that the Commission did not have reasonable assurance that Acosta would perform his duties "with sufficient alertness and ability to safely operate . . ." the San Onofre nuclear reactors. *Id.* Finding that Mr. Acosta's history of positive drug tests established adequate grounds under section 186 of the Act and implementing regulations and that permitting Acosta to conduct licensed activities would be inimical to the public health and safety, the Executive Director for Operations suspended Mr. Acosta's license and refused to renew it. Staff Exh. 1 at 3-4.

In his July 1, 1988 answer and request for hearing, Mr. Acosta cited an April 15, 1985, and a March 11, 1987 Appraisal of Work Performance, issued before and after the first two positive marijuana tests, reporting that his reliability and professionalism exceeded SCE's requirements.<sup>2</sup> The letter enclosed the performance appraisals and twenty-nine co-workers' testimonials to Mr. Acosta's competence and professionalism. He argues strongly that his ability to serve as a reactor operator was never impaired in 16 years of nuclear work, including 8 years' service at SCE, and that his performance was so satisfactory that SCE had selected him for senior reactor operator license training.

During opening statements, Mr. Acosta's counsel argued<sup>3</sup> that two of the positive tests resulted from passive inhalation. On cross-examination, Mr. Acosta's counsel questioned the reliability of the tests themselves, both with respect to chain-of-custody procedures and the threshold level for making a positive finding of active marijuana use.

## II. DECISION

### A. Results of Mr. Acosta's Tests

#### 1. *The Southern California Edison Testing Program*

Under the SCE testing program,<sup>4</sup> all urine samples collected from San Onofre personnel are first collected and labeled in San Onofre facilities. After collection the samples are split; one part, or aliquot, goes to SCE laboratories for preliminary assessment of temperature, specific gravity, and chemical screening, and the other aliquot is reserved to send to a contractor laboratory if SCE analyses show a possible positive result on drug screening. Tr. 39-40. The contractor laboratory analyzes at least three separate aliquots of samples sent to them. All must be positive before the laboratory declares a positive result. Tr. 40. A total of four aliquots is therefore analyzed for each urine sample. Tr. 44. Chain-of-custody documents prepared by SCE are forwarded to the

<sup>2</sup> SCE reactor operator appraisals are conducted biannually. Mr. Acosta's next appraisal was scheduled for August 1989. See Transcript of October 18, 1988 Prehearing Conference at 27.

<sup>3</sup> Counsel also argued that the SCE random drug screening program violated Mr. Acosta's rights against unreasonable search and seizure under the fourth amendment to the Constitution and violated his right to privacy under article 1 of the California Constitution. Tr. 6-7. Neither constitutional argument was pursued further, and we find no reason to consider them in this Decision.

<sup>4</sup> The Staff subpoenaed three witnesses to testify on the SCE drug-testing program. Albert Eugene Talley, an SCE employee, currently manages the substance abuse program at the San Onofre plant and previously had a staff role in developing the company policy on drug abuse. Tr. 14-17. Dr. Louis Jambor is toxicology manager for SmithKline Laboratories in Van Nuys, California, and holds a Ph.D. in analytical chemistry. Tr. 107-08. Dr. Alan Kelitz is Laboratory Director at BPL Toxicology Laboratory, a part of Central Diagnostic Laboratory (CDL) in Tarzana, California, holds a Ph.D., and has extensive experience managing toxicology laboratories. Tr. 153-55.

contractor laboratories with each urine sample that is sent. The contractor laboratory maintains the permanent chain-of-custody records. Notations made by SCE personnel are also forwarded to the contractor laboratory, and forms containing notations made by SCE employees are retained by SCE. Tr. 170-74. SCE has performed about 40,000 drug tests since its program began. Tr. 84. No evidence was offered to suggest that any tester at the San Onofre site ever falsified drug test data. Tr. 78.

The most widely used tests for marijuana (and the ones used to analyze Mr. Acosta's samples) are the Enzyme-Multiplied Immunoassay Technique (EMIT), and the gas chromatography/mass spectrometry test (GC/MS). Flynn-Cone Testimony, ff. Tr. 278, at 3, 8.

Mr. Acosta was involved in intensive drug testing at least from March 1986 to June 1988. Staff Exhs. 2, 3, and 4. Acosta Exhs. 1-10. During this time at least thirteen urine specimens were collected at closely spaced intervals and sent to contractor laboratories for drug analysis. Most of these analyses were found to be negative for marijuana metabolites and all were negative for any other prohibited drug. Three specimens collected from Mr. Acosta were reported to be positive for marijuana by the laboratories. The positive specimens were collected on March 6, 1986, May 12, 1986, and May 28, 1988. Staff Exhs. 2, 3, and 4, respectively. Two of the three samples taken from Mr. Acosta that showed positive results were analyzed by SmithKline Laboratories. Staff Exhs. 2 and 4. That laboratory reported that the March 6, 1986 sample was positive on the screening test (EMIT) and contained 17 micrograms per liter ( $\mu\text{g/L}$ ) by the quantitative test (GC/MS) and that the May 28, 1988 sample, consisting of three independent samples, ranged from 50 to 70  $\mu\text{g/L}$  by the screening test and 13-17  $\mu\text{g/L}$  by the GC/MS test.

The May 12, 1986 sample was sent to Central Diagnostic Laboratory (CDL) in Tarzana, California, for screening analysis. Upon finding 129 nanograms per milliliter ( $\text{ng/ml}^5$ ), a positive result on the screening analysis, the sample was subsequently sent to the Poison Laboratory in San Diego, California, which was under contract to CDL to perform GC/MS analyses. That laboratory found 45  $\text{ng/ml}$  marijuana metabolite in Mr. Acosta's urine by the GC/MS method. Staff Exh. 3.

SmithKline Bio-Science Laboratory which produced the results shown in Staff Exhibits 2 and 4 maintains strict chain of custody on samples it receives for analysis. When SmithKline receives a sample, it removes an aliquot for analysis. The vials were received in the laboratory labeled with Mr. Acosta's name, a client number, and laboratory numbers, all of which were affixed to the sample at the San Onofre site. The identifying numbers that appeared on the

<sup>5</sup>The unit of measurement, micrograms per liter, is equivalent to the unit of measurement, nanograms per milliliter, which is used elsewhere in this Decision. Staff Exh. 4.

sample vials also appear on the SmithKline reports. Tr. 115-17. Mr. Acosta's "sample" of May 28, 1988, was in reality three samples independently collected, labeled, and documented by SCE and processed by SmithKline. Staff Exh. 4. This was done because Mr. Acosta's first sample of that date showed abnormally low specific gravity which might indicate excessive dilution possibly due to the intake of fluids prior to the test. Tr. 54-55. The results from the three independent samples were consistent with one another within what appears to be normal sampling and processing error. Results for the three samples showed, in chronological order of collection, 17, 15, and 13 µg/L. Tr. 170.

The sample that was analyzed by CDL (Staff Exh. 3) was done with an additional transfer-of-custody step because, while the initial screening was performed by CDL in their laboratory, the final confirmatory analysis could not be performed by them and accordingly they transferred an aliquot of Mr. Acosta's specimen of May 12, 1986, to the San Diego Poison Laboratory for the GC/MS confirmatory analysis. Tr. 156, 161. In accordance with ordinary business procedures, a chain-of-custody form and request for analysis was created prior to transferring the sample. The form and sample were conveyed in a locked bag by courier to the Poison Laboratory where it was delivered to their entry personnel. Results of the Poison Laboratory analysis were provided to CDL by phone and hard copy. Tr. 156-57. CDL in turn produced the report to SCE as shown in Staff Exhibit 3. The result from the Poison Lab GC/MS analysis was consistent with CDL's semiquantitative analysis in that CDL and Poison Lab both found the May 12, 1986 specimen to be the highest in marijuana metabolite of any of Mr. Acosta's three positive samples.

## ***2. The Chain-of-Custody Issue***

Through cross-examination, Mr. Acosta challenged the chain of custody for his urine samples collected and tested by SCE and its contractor laboratories. The Staff objected to this line of inquiry on the grounds that Acosta had stipulated to the truth of the matters contained in Staff Exhibits 2, 3, and 4, the laboratory results showing marijuana metabolites in Mr. Acosta's urine. Mr. Acosta on the other hand asserted that he had only stipulated to the fact that the staff exhibits were in fact the reports that were submitted by the contractor laboratories. Tr. 172. The Board permitted Mr. Acosta to pursue this line of inquiry but ruled that simply questioning the chain of custody would not be sufficient to defeat the representation that the chain of custody on Mr. Acosta's urine samples was properly maintained. Tr. 176-77.

Although chain-of-custody documents specifically relating to Mr. Acosta's sample of May 12, 1986, likely exist at CDL, they were not produced at hearing nor were they later supplied to the parties as requested by the Board. Tr. 161-62. As a result of the apparent misunderstanding between the Staff and Mr. Acosta

about the stipulation, none of the witnesses were prepared on cross-examination to document specifically the chain of custody for each of Mr. Acosta's urine specimens. Each witness, however, demonstrated professional awareness of the need for chain-of-custody procedures in laboratory practice and described chain-of-custody procedures followed by his place of employment in the ordinary course of business. The Board found the witnesses knowledgeable and credible. Mr. Acosta presented no evidence to suggest that there was any defect in the chain-of-custody procedures followed in handling his samples.

The Board concludes that each of the three critical facilities that handled urine specimens taken from Mr. Acosta, SCE, SmithKline Bio-Sciences Laboratory, and CDL has chain-of-custody procedures for the handling of urine samples and that each follows its procedures in the normal course of business. However, that conclusion is not dispositive of the question raised by Mr. Acosta as to whether error specific to Mr. Acosta's samples might exist.

The Board finds no evidence that all three of Mr. Acosta's positive samples could have been mislabeled, tampered with, or wrongly attributed to him. We consider, first, that chain-of-custody procedures are in place in each of the organizations that handles specimens for drug testing. Each organization is experienced in handling large numbers of urine specimens. Second, we find that none of the drug-testing reports show discrepancies or inconsistent labeling or results that would be suggestive of error or tampering. Third, there is considerable redundancy or potential for replication built into the procedures for sample handling. For example, each finding of positive result is based on at least four analyses, one for screening at SCE and three for screening or confirmation at contractor laboratories. Each is performed on an aliquot of the original sample by independent methods. Each aliquot requires independent transfer of sample numbers and name. Thus, there is an opportunity for discrepancy or error in transcribing descriptive sample information on any one aliquot, but there is no evidence of any such error.

For example, the sample collected on May 28, 1988, was in reality three independent samples. Each was handled with independent labeling and processing. The analytical results were consistent with one another. In fact they show a systematic decline in concentration with the passage of time which is consistent with the fact that marijuana metabolites have about a 24-hour biological half-life in the body. Tr. 228. Those results further support the conclusion that all three samples were taken from the same person and were handled in the analytical process without error in labeling or tampering.

Similarly, the sample of May 12, 1986, was analyzed by two different laboratories, CDL and Poison Lab. The results they produced were consistent with one another since both laboratories found very high levels of marijuana metabolites by their respective independent methods. These consistent results support the conclusion that there was no mislabeling of aliquot at the respective

laboratories for this sample. We note further that Mr. Acosta has been tested numerous times, mostly with negative results. This is supportive of a conclusion that no systematic or malicious tampering with Mr. Acosta's samples occurred over the testing period. Finally, we note that there is no evidence of any instances of deliberate falsification of data at San Onofre.

The foregoing analysis does not rule out absolutely the possibility of isolated error in the handling of Mr. Acosta's urine samples. Nevertheless, the procedures followed by SCE and its contractor laboratories contain replication and opportunity to check for discrepancies in data recording, and for internal consistency within data sets. In this case there is not a scintilla of evidence of recording discrepancies. The data sets are internally consistent for the data shown on Staff Exhibits 3 and 4. While there was no opportunity to subject the first positive test (Staff Exh. 2) to such independent scrutiny, the fact remains that that sample also was subject to at least three (and likely four) independent analyses. Tr. 71-72.

Consequently, the suggestion that chain-of-custody errors might have occurred with respect to urine samples collected from Mr. Acosta stands as a bare hypothesis unsupported by any factual data in this record. We find that the likelihood of chain-of-custody error in the handling of Mr. Acosta's samples is *de minimis* and that the preponderance of evidence supports the opposite conclusion. Based on the foregoing, the Board concludes that the data attributed to Mr. Acosta as presented in Staff Exhibits 2, 3, and 4 were accurately attributed to him and that they were obtained from urine specimens collected from Mr. Acosta on the dates specified.

### *3. Accuracy of Test Results*

In cross-examination Mr. Acosta questioned the accuracy of the test results that are given in Staff Exhibits 2, 3, and 4. His principal concern appears to be whether the chemical methods used by SCE and its contractor laboratories could be in error by falsely reporting the presence of marijuana metabolites in Mr. Acosta's urine (a "false positive" error).

Dr. William E. Flynn, M.D., and Dr. Edward J. Cone testified for the Staff on the matter of reliability of chemical testing for marijuana metabolites in urine. Dr. Flynn is a medical doctor and practicing psychiatrist on the faculty of the Department of Psychiatry, Georgetown University Hospital, where he is Director, Alcohol and Drug Abuse Clinic. Dr. Cone holds a Ph.D in chemistry and is employed as Chief, Laboratory of Chemistry and Drug Metabolism of the Addiction Research Center at the National Institute on Drug Abuse. Flynn-Cone Testimony, ff. Tr. 278, at 1-2; Exhs. 1 and 2. Mr. Talley of SCE and Dr. Jambor of SmithKline Laboratories also provided relevant testimony on the reliability

of the testing procedures. The Board found the witnesses knowledgeable and credible on the reliability of drug-testing techniques.

The NRC Staff objected to inquiries into the accuracy of test results reported in Staff Exhibits 2, 3, and 4 because it believed that Mr. Acosta had stipulated to the accuracy of the results prior to trial. Mr. Acosta claimed, however, that he had only stipulated that Staff Exhibits 2, 3, and 4 were business records produced in the ordinary course of business. The Board ruled that Mr. Acosta could inquire into the accuracy of test results. Tr. 171-75.

When marijuana is smoked it is distributed to various parts of the body and breaks down into metabolites that are excreted in the urine. The EMIT test is performed by adding a reagent to urine that contains antibodies that bind specifically with marijuana metabolites. A second reagent that also binds with antibodies and is labeled with an enzyme is added. This reacts with the unfilled antibody sites and results in reduction in the enzyme activity of the introduced reagent. The remaining (unbound) enzyme activity is measured spectrophotometrically. That measurement identifies the amount of marijuana metabolite in urine and makes possible a measurement of marijuana in the original sample. The EMIT test is accurate for the detection of marijuana metabolites in urine. Flynn-Cone Testimony, ff. Tr. 278, at 3-4. EMIT was used as a screening test for Mr. Acosta's samples. *Id.* at 8; Tr. 39-40.

The GC/MS test is specific for one marijuana metabolite, 11-nor-delta-9-tetra-hydrocannabinol-9-carboxylic acid (THC acid). In this test the urine sample is first subject to a number of chemical treatments which separate THC acid from urine, partially separates the THC acid from other compounds, and converts it to a derivatized chemical form which is amenable to detection. The detection step is accomplished with a GC/MS instrument. The partly purified sample is first passed through a chromatographic column which separates the altered THC acid from other compounds by virtue of differential migration rates through the column. The time (retention time, Rt) required to pass through the column is specific to each compound present in the sample. As THC molecules emerge from the column at a characteristic Rt they are ionized into molecular fragments in a reproducible way by the mass spectrometer. The fragments yield a pattern or fingerprint which is measured by the mass spectrometer every few milliseconds. The integrated response is drawn as a tracing or chromatogram. Proper performance of the test requires measurements against standards that are used to characterize retention times on the column (Rt), ion patterns, the abundance of THC acid present, and responses of standards and control samples used in instrument calibration. If the unknown sample matches the known standards in these respects, the unknown can be identified as THC acid and the amount present can be determined. The specificity and accuracy of the GC/MS method is such that it is the accepted standard for confirmation of drug tests in forensic cases. Flynn-Cone Testimony, ff. Tr. 278, at 4-7.

Mr. Acosta questioned the witnesses as to whether false positive results could be obtained by the foregoing procedures. However, he presented no evidence and the witnesses knew of no mechanism that might result in false-positive determinations on Mr. Acosta's urine samples. Tr. 87, 114, 189-90.

While no evidence of any false-positive occurrence was presented, the Board infers that false-positive results could appear if urine innocently contains some compound that reacts similarly to marijuana metabolites in the tests or if a urine specimen is either accidentally or deliberately contaminated with marijuana metabolites. When questioned about the EMIT test, Dr. Cone could think of no compound that would mimic marijuana metabolites in that test. Tr. 190.

There is no testimony in the record concerning either accidental or malicious contamination of urine samples with an extraneous source of marijuana metabolites. However, the Board notes that Mr. Acosta was tested for drug use at least thirteen times during the period from March 1986 to June 1988. Staff Exhs. 2, 3, and 4; Acosta Exhs. 1 through 10. Ten of these samples were negative and three were positive for marijuana metabolites. Ten out of thirteen negative results further supports our conclusion that there are no systematic errors of contamination in the routine laboratory procedures at issue here.

As previously noted, each urine specimen is tested four times on separate aliquots drawn from the original sample. An EMIT test is performed at SCE laboratories for screening purposes, two EMIT tests are then performed at the contractor laboratory, and finally a GC/MS test is performed by the contractor for confirmation. Tr. 109-10. When all tests are completed, they are reviewed by an SCE medical doctor for consistency and specifically for the possibility that the person tested might be taking some legal substance that might account for a positive result. Only after this review and with all four tests positive does SCE find that the drug test is positive. Tr. 38-45.

A positive analysis on an individual specimen is found if the specimen contains marijuana metabolites in sufficient quantity to exceed predetermined cutoff levels. The cutoff levels are different for the EMIT test and the GC/MS test. It is currently SCE policy to use a cutoff level of 50 ng/ml of marijuana metabolite as determined in the EMIT test although in the past it has used 100 ng/ml. Tr. 75-76, 97-99. Laboratories use 50 ng/ml in EMIT tests and 10 ng/ml as cutoff for the GC/MS test. Tr. 110-13. The two tests differ because EMIT measures an array of several metabolites in urine while the GC/MS test measures a single metabolite. EMIT results are therefore always higher than GC/MS results for the same positive sample although there is no constant ratio of the two. Tr. 117-18. The cutoff levels are selected in consideration of the accuracy and precision of the test. Tr. 118-19. The GC/MS test has a 99% level of confidence of detection at the 10-ng/ml level; the EMIT test has approximately 95% probability of detection at 50 ng/ml. The probability of correct detection improves as the concentration of metabolites increases above the cutoff level.

Both tests have a coefficient of variation of approximately 10%. Tr. 118-19, 124, 225-27.

The Board is persuaded from its review of methodology that the chemical analyses of Mr. Acosta's urine specimens were performed using reliable procedures that are highly unlikely to produce false-positive errors. The possibility of false-positive error in the analyses is low because a finding of positive result by SCE is based on four independent analyses, after review of the case by an expert to rule out the possibility that legal substances could have produced a positive result. Further, the EMIT test and the GC/MS test are both highly specific for detection and measurement of marijuana metabolites, and the tests have independent chemical and physical bases for the measurements. The EMIT test depends on a specific chemical reaction between antibodies and several metabolites followed by spectrophotometric measurement, while the GC/MS test depends on separation of a single metabolite by gas chromatography and detection by the physical method of mass spectrometry. The independence and specificity of the respective methods gives strong corroboration to the expert's opinion that there are no extraneous chemical molecules that might be present in urine that could positively interfere with the test results. We find it particularly unlikely that an extraneous molecule could produce false-positive results in two tests that differ in their physical and chemical bases for detection and measurement.

Finally, we find that no discrepancies in data recording or internal inconsistencies in data sets have been reported for Mr. Acosta's results. The margins for error in the tests of about 10% and the confidence levels of detection at the respective cutoff levels for the two tests further support the conclusion that the tests are reliable for detection of marijuana metabolites in urine. While the EMIT test that is used for screening has lower levels of confidence of detection than GC/MS, none of the quantitative results reported for Mr. Acosta are marginally close to the cutoff levels.<sup>6</sup> The results from both EMIT and GC/MS are sufficiently high that they can be distinguished from the respective cutoff levels with high confidence.

In view of the foregoing, the Board finds that the marijuana test results reported in Staff Exhibits 2, 3, and 4 are accurate and reliable and that there is no evidence that any of the results can be attributed to false-positive errors arising from the analytical processes.

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<sup>6</sup>The third urine sample collected on May 28, 1988, showed 50 ng/ml by the EMIT test which is at the cutoff level. However, the other two samples collected earlier that day were unambiguously higher than the cutoff level. All three of these samples exceeded the cutoff level of the GC/MS test by a significant margin.

#### **4. The Passive Inhalation Claim**

Mr. Acosta argued that the first and third of the urinalysis/drug screening examinations that he took were positive, because he was exposed, immediately before those tests, to an environment containing smoke from what he believed at the time to be marijuana cigarettes. Tr. 6; *see also* Prehearing Tr. 15. Mr. Acosta presented no evidence to support his passive inhalation claim. The Staff presented extensive testimony through Dr. Cone (ff. Tr. 278, at 9-11) to show that Mr. Acosta's passive inhalation claim was without merit.

Dr. Cone described a series of studies he conducted regarding the extent to which passive inhalation of marijuana smoke could result in positive drug tests (*id.* at 8; Tr. 190-91). The studies demonstrated that very extreme conditions must be endured for a person to reach the marijuana levels found in Mr. Acosta's test results. Tr. 194-95. In one such study wherein subjects were exposed to the smoke of sixteen marijuana cigarettes with a marijuana potency of commonly used cigarettes, the urine levels were equal to or higher than those found for Mr. Acosta. The study showed that absorption of amounts of marijuana sufficient to test positive for up to 24 hours required substantial exposure to large amounts of smoke for an extended period of time in a small, unventilated room. Subjects in that study had to wear goggles to remain in the room because of the smoke irritation. Passive exposure resulting in marijuana metabolite levels found in Mr. Acosta's urine was hardly likely to be found in a social situation. Tr. 195, 202.

In other studies in which five male subjects were exposed to the smoke from four marijuana cigarettes for a period of 1 hour in a small unventilated room, the highest THC acid concentration in the urine of one person was 12 ng/ml immediately after the exposure. One other subject had 8 ng/ml THC acid in his urine and the other three had none. Flynn-Cone Testimony, ff. Tr. 278, at 9-10. Peak levels in urine occur immediately after exposure, and they decline with the passage of time. It would be extremely unlikely for levels found in Mr. Acosta's urine to occur several hours after a passive exposure. Tr. 203-04. When Dr. Cone's experiments were altered to emulate a social situation by simply improving the room ventilation by leaving a door open, none of the subjects being tested for passive inhalation had marijuana metabolites in the urine. Tr. 205.

Mr. Acosta had 17 ng/ml and from 17 to 13 ng/ml (in three tests) in urine on the occasions for which he asserts passive inhalation. Staff Exhs. 2, 4. These are all higher than any experimental result found by Dr. Cone except under the most extreme conditions which are unlikely to occur in a social situation. Mr. Acosta's test results are reliably distinguishable from Dr. Cone's test results within the error margins of the test. Tr. 227. Further, Mr. Acosta presented no evidence concerning the circumstances surrounding the

alleged passive inhalation, much less any evidence suggesting that the extreme conditions described by Dr. Cone actually prevailed. Accordingly, the Board finds that Mr. Acosta's claim that his urine tested positively for marijuana because he was passively exposed to marijuana smoke is without merit.

## B. Impact of Marijuana Use

### 1. *Complexity of Reactor Operator Duties and Responses*

N.K. Hunemuller, Reactor Engineer in the Operator Licensing Branch of the Division of Licensee Performance in the Office of Nuclear Reactor Regulation (NRR), and J.A. Zwolinski, Deputy Director, Division of Licensee Performance and Quality Evaluation in NRR, testified on the scope of duties, responsibilities, and responses of a reactor operator such as those at the San Onofre facility. Tr. 278 at 3-30. They stated that the reactor operator's primary responsibility is for the safe and efficient operation of his assigned equipment. *Id.* at 15, 24. He is responsible for operation within the requirements of the operating license, technical specifications, NRC orders, approved station procedures, and operating instructions. The unit reactor operator is authorized to shut down the reactor if he determines the safety of the unit is in jeopardy or if operating parameters exceed the reactor protection setpoints and an automatic shutdown has not occurred. *Id.* The station operating procedures also set out additional reactor operator responsibilities, most notably, taking timely and appropriate action during abnormal or emergency situations. *Id.* at 16-17.

The reactor operator is also often responsible for directing others in the performance of plant functions. *Id.* at 22-23. The reactor operator must be familiar with a large number of station procedures including: individual systems normal operating procedures, integrated plant normal operating procedures; annunciator or alarm response procedures, selected equipment or test surveillance procedures; abnormal conditions operating procedures, and emergency operating procedures. *Id.* at 23.

The witnesses testified further that it is not enough for a reactor operator to learn his job and perform it by rote. There are far too many procedures. In addition, it is the reactor operator's obligation to determine from the purpose of a particular procedure whether it is applicable to a given situation. The reactor operator must constantly exercise judgment based on his knowledge of plant procedures, technical specifications, equipment, and his continuing assessment of the condition of the plant. *Id.*

The Board concludes that the duties of a reactor operator are complex and require the continuous exercise of clear judgment. It further concludes that impairment of that judgment constitutes a threat to public health and safety.

## *2. Effect of Marijuana on Performance*

Against this background, Dr. William E. Flynn testified to the effects of marijuana usage.<sup>7</sup> Dr. Flynn emphasized that the most significant effects of marijuana in the case of a reactor operator were those relating to the mental function, particularly impairment of cognitive and psychomotor activities. Flynn Testimony, ff. Tr. 278, at 12-16. He testified that

In the area of learning, the detrimental effect of marijuana appears to operate primarily through its influence on short term memory. Marijuana affects a central area of the brain, interrupting normal nerve conduction pathways and making recent bits of information unavailable for comparison. The learning process requires such comparisons as well as evaluation of information for meaningful retention to take place. Laboratory and classroom experience show that a person using marijuana does not retain information and, consequently, has difficulty maintaining a reasonable attention span.

The other prime area of research has been on those psychomotor activities involved in operating complex machinery such as driving automobiles, flying airplanes, etc. The demands of an operator in a reactor control room are at least equal to the demands on an individual driving an automobile or flying an airplane. A variety of defects produced by the use of marijuana have been demonstrated.

1. Difficulties in tracking, i.e. following a stimulus such as a light or verbal or written directions over a period of time. A consistent finding is that an individual under the influence of marijuana cannot maintain tracking. In driving this shows up as an inability to maintain consistent distances between automobiles.
2. Difficulties in responding to peripheral stimuli. The individual has less success responding to lights, directions, etc. that are off to the side of his attention. In driving situations, this may involve missing turn-off signals, etc.
3. Rote responses in simple situations are unimpaired but responses in complex situations are dramatically impaired. For example, in a driving simulation where the individual must respond to an accident or directions for avoidance behavior by using his memory and judgement and making comparisons his performance is impaired. The greater the complexity of the required response, the more the impairment is apparent.
4. Inability to perceive impairment in functioning. It is regularly observed that the marijuana user does not see his own mistakes and has a false high opinion of his own performance. This misjudgement of performance is not restricted to creative activity as in the case of the individual who thinks he has written a masterpiece that is seen as worthless on sober reflection. It also applies to individuals who

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<sup>7</sup>Dr. Flynn received his M.D. degree from Georgetown University School of Medicine in 1957. He is certified in psychiatry by the American Board of Psychiatry and Neurology. He has practiced psychiatry for some 30 years, specializing in the area of drug abuse since 1972. In this role he directed the Alcohol and Drug Abuse Clinic at Georgetown University for the past 15 years. In addition to clinical practice wherein he has treated hundreds of drug users and addicts, he has taught at his own and other institutions and has served as a consultant to many agencies, including the Psychiatric Advisory Board-Virginia State Board of Medical Examiners, the CIA, and the Washington Redskins. He writes and lectures extensively on drug abuse and addiction. Flynn Testimony, ff. Tr. 278, Curriculum Experience/Vitae.

think they are doing extremely well in an obstacle course only to learn that they have knocked over all the barriers.

It is important to note that these impairments can persist for some hours after the individuals were aware that he/she was high. In experimental situations, although the subjective experience of being high had passed, the cognitive and psychomotor impairment persisted. . . . most of these effects are seen after smoking small amounts. The concentration of marijuana in an individual after smoking 1-2 cigarettes can vary tremendously dependent upon the individual's size, weight, manner of smoking, etc.

These effects have been estimated to last anywhere from 4-10 hours following the time the individual is high.

Flynn Testimony, ff. Tr. 278, at 12-15.

Dr. Flynn, based on the testimony of Messrs. Hunemuller and Zwolinski, pointed out that the functions and responsibilities of reactor operators (the complex responses necessary in the operation of reactors, and, in particular, emergency situations) require a considerable amount of careful sequencing of steps, repeated judgments about the necessity of further safety measures, and a critical ability to use extremely accurate judgment. The routine duties of a reactor operator might not be affected at all by some levels of marijuana, but, in a complex situation, the operator's performance would be unpredictable. The reactor operator has to be able to react in a flexible manner to unpredictable events. Hunemuller, Zwolinski Testimony, ff. Tr. 278, at 27-29. The person impaired by marijuana cannot do that. The reactor operator needs to be acutely aware of his own level of functioning: a person impaired by marijuana lacks that awareness. In other words, the reactor operator's performance and judgment must be completely and consistently predictable, and that is impossible for someone in a stage of marijuana impairment.

Dr. Flynn concurred with Dr. Cone's opinion that the results of Mr. Acosta's test are conclusive that he was a marijuana user at the time of the tests. Flynn-Cone Testimony, ff. Tr. 278, at 9, 11-12. Dr. Flynn concluded that

three positive urine tests for marijuana strongly indicate an inability to refrain from drug use and the presence of a chronic problem. Any person in a sensitive responsible position, who tests positive repeatedly, when there is a clear knowledge of the likelihood of further testing, demonstrates a definite inability to refrain from drug using behavior. These positive test results could indicate a lack of awareness by this individual that he has a problem with marijuana use. I believe there would be a very strong likelihood of relapse to a use of a small amount of marijuana or to a very large amount. The individual without a perception of his problem would be constantly risking the possibility that one day he would report for work accidentally under the influence of marijuana. The repeated incidence of testing positive

would suggest that the individual had poor impulse control and very little perception of the danger he was causing to himself and to those around him.

Flynn Testimony, ff. Tr. 278, at 11-12.

In a letter to the Director of the NRC Office of Enforcement, dated July 1, 1988, and presented to the Board at the Prehearing Conference on October 18, 1988, Mr. Acosta points out:

In the meetings I've had with Southern California Edison (SCE) representatives I've been told neither my knowledge level to perform my job, nor my abilities to perform my job, nor my fitness for duty has ever been questioned due to the failures of the drug screen tests. These statements were made with a union representative present at the meetings.

I have enclosed copies of my two most recent Appraisal of Work Performance; the first dated April 15, 1985, the second dated March 11, 1987. As you can see, the appraisal improved even though I had failed two tests during the time frame from April 15, 1985 to March 11, 1987, and as stated on the appraisal, my reliability and professionalism exceeds the requirements as set forth by SCE. I have worked hard to achieve this status, and the appraisals are a true reflection of my dedication to the safe and efficient operations of SONGS units 2 and 3.

Mr. Acosta submitted exhibits in his defense showing numerous negative drug test results during the period from March 1986 through March 1988 (Acosta Exhs. 1-10) and favorable work performance appraisals prepared by his supervisors at SCE. Acosta Exhs. 11-12.

Mr. Acosta's defense apparently contemplates that the Board should apply a balancing test in deciding whether to sustain the Staff's order in this case. On that theory, the balancing of a predominantly good work record and frequent negative test results against three incidents of drug use could result in a decision in his favor. We must reject such a balancing test, however, because even the infrequent use of marijuana by a reactor operator poses too serious a danger to public health and safety.

Mr. Acosta had been afforded the opportunity to cease drug use and retain his position as a licensed operator after each of his first two positive tests. Tr. 36-37. In these circumstances, the Board finds that the repeated use of drugs by Mr. Acosta is sufficient to cause his operator's license to be revoked, and that his prior work record, however favorable, is not a factor that can alter that judgment.

The Board is persuaded that Mr. Acosta's three positive urine tests for marijuana establish his use of marijuana. The Board is further persuaded that Mr. Acosta knew the risk he ran by continuing usage. Consequently, the Board cannot find that level of trustworthiness and reliability required of one in the sensitive position of reactor operator. The Board must be concerned, first and foremost, about the risk to the health and safety of the public.

### III. CONCLUSION

Accordingly, we find that Mr. Acosta has used marijuana on three separate occasions as evidenced by the confirmed marijuana screening tests of March 6, 1986, May 12, 1986, and May 28, 1988, and, concomitantly, that Mr. Acosta's claim of passive inhalation is not sustained by the record. We find that the Southern California Edison testing program was accurate, complete, and fully reliable as the basis for the foregoing conclusions. We find further that the duties of a reactor operator are such that Mr. Acosta's confirmed usage of marijuana presents an unacceptable risk of danger to the public health and safety in the operation of a nuclear reactor by him.

We find that it is clear as a matter of law under the Atomic Energy Act that a license can be suspended for any reason for which it would not have been issued initially and that Mr. Acosta's record of marijuana consumption from 1986 through 1988 would have barred the issuance of a license to him. Similarly, we find that the Commission may decline to renew a license on the same grounds because Mr. Acosta's conduct prevents the Commission from having reasonable assurance that Mr. Acosta could continue to operate the reactors at Units 2 and 3 competently and safely. Accordingly, we conclude that the risk presented by Mr. Acosta's conduct is, pursuant to the Atomic Energy Act, of such magnitude as to warrant the Nuclear Regulatory Commission to suspend immediately Mr. Acosta's license pursuant to 10 C.F.R. § 55.61 (1988) and to refuse to renew his license pursuant to 10 C.F.R. § 55.57 (1988).<sup>8</sup>

\* \* \*

Pursuant to 10 C.F.R. § 2.760 of the Commission's Rules of Practice, this Initial Decision will constitute the final decision of the Commission thirty (30) days from the date of its issuance, unless an appeal is taken in accordance with 10 C.F.R. § 2.762 or the Commission directs otherwise.

This Decision may be appealed by filing a Notice of Appeal within ten (10) days after service of this Initial Decision pursuant to 10 C.F.R. §§ 2.762, 2.785 (1988).<sup>9</sup> Anything in the record not expressly addressed in this Decision is rejected as unsupported by the record as a whole or as unnecessary to reaching our Decision.

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<sup>8</sup> We make no finding as to what course of action or conduct on Mr. Acosta's part would be sufficient to reestablish a level of reliability and trustworthiness of judgment that would warrant the Nuclear Regulatory Commission's issuance of a new reactor operator license to Mr. Acosta in the future. *But see* 10 C.F.R. §§ 26.25, 26.26 (1989), 54 Fed. Reg. 24,497-98 (1989).

<sup>9</sup> Each appellant must file a brief supporting its position on appeal within thirty (30) days after filing its Notice of Appeal (forty (40) days if the Staff is the appellant). Within thirty (30) days after the period has expired for the filing and service of the briefs of all appellants (forty (40) days in the case of the Staff), a party who is not an appellant may file a brief in support of, or in opposition to, the appeal of any other party. A responding party shall file a single, responsive brief *only*, regardless of the number of appellants' briefs filed. *See* 10 C.F.R. § 2.762.

## **Order**

For all the foregoing reasons and upon consideration of the entire record in this matter, it is, this 28th day of September 1989, ORDERED:

That the June 15, 1988 Executive Director for Operations' Order Suspending License (Effective Immediately) and Notice of Denial of Application for Renewal of License is sustained and that Mr. Acosta's application to renew his reactor operator's license is denied.

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

**Dr. Harry Foreman  
ADMINISTRATIVE JUDGE**

**Dr. Jerry Kline  
ADMINISTRATIVE JUDGE**

**B. Paul Cotter, Jr., Chairman  
ADMINISTRATIVE JUDGE**

Bethesda, Maryland  
September 28, 1989



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

**Robert M. Bernero, Director**

**In the Matter of**

**U.S. DEPARTMENT OF ENERGY and  
NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION  
(*Galileo* Mission)**

**September 25, 1989**

The Director denies the request of the Nuclear Energy Accountability Project that the Nuclear Regulatory Commission (NRC) intervene and stop the launch of the *Galileo* spacecraft scheduled for October 12, 1989. The *Galileo* spacecraft will carry substantial quantities of plutonium-238. The request relied upon Public Law 94-79 as authority for the NRC to stop the launch. The Director concluded that Public Law 94-79 did not apply and denied the request on this basis.

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

**INTRODUCTION**

By a petition dated September 3, 1989 (Petition), Thomas J. Saporito, Jr., on behalf of the Nuclear Energy Accountability Project, of Jupiter, Florida, filed a request pursuant to 10 C.F.R. § 2.206 that the Nuclear Regulatory Commission (the NRC or the Commission) intervene and stop the scheduled October 12, 1989, launch of the *Galileo* spacecraft. The Petition alleges that the launch of the *Galileo* spacecraft, which contains considerable quantities of plutonium-238, would be in violation of 42 U.S.C. § 5841, which the Petition states prohibits the NRC from licensing any shipments by air transport of plutonium in any form, whether exports, imports, or domestic shipments, with the exception of

certain medical devices, until the NRC certifies that a safe container has been developed and tested and shown to survive certain tests. The Petition alleges a number of health and safety concerns should the launch fail and should the plutonium be dispersed in the atmosphere.

By letter to Mr. Saporito, dated September 15, 1989, I acknowledged receipt of the Petition of September 3, 1989, and informed Mr. Saporito that a formal decision with respect to this matter would be issued within a reasonable time. My Decision in this matter follows.

## BACKGROUND

The *Galileo* mission has the scientific objective of conducting comprehensive investigations of the Jupiter planetary system by making *in situ* and remote measurements of the planet, its environment, and its satellites. The *Galileo* spacecraft is scheduled to be launched October 12, 1989, or shortly thereafter, aboard a space shuttle to attain a temporary orbit around Earth. After deployment from the space shuttle, *Galileo*'s upper-stage rocket will be used to propel the spacecraft from the Earth orbit into the escape trajectory toward Jupiter. The spacecraft will arrive in the vicinity of Jupiter after an interplanetary transit of 6 years and 4 months. Part of this period will be occupied with a maneuver involving a Venus and two Earth flybys to attain the energy required for the trajectory to Jupiter.

The *Galileo* spacecraft will employ two radioisotope thermoelectric generators (RTGs) to provide its electrical power. Each RTG produces approximately 285 watts of electrical power from approximately 4400 watts of heat provided by the radioactive decay of approximately 132,500 curies of plutonium-238. The spacecraft also employs about 129 lightweight radioisotope heater units (LWRHUs), each containing about 2.7 grams of plutonium oxide, or about 33.6 curies, and producing about 1 watt of heat. Altogether, the plutonium-238 on the *Galileo* spacecraft will total about 49 pounds of plutonium oxide.

The RTGs and LWRHUs which provide electricity and heat to the *Galileo* spacecraft are devices produced in research and development efforts of the U.S. Department of Energy (DOE). They are tailored to the energy needs of space missions like the *Galileo* mission, and are designed to be resistant to the hazards of such missions. From time to time NRC observes the safety review of these devices.

## DISCUSSION

Pursuant to section 2.206, any person may file a request to institute a proceeding pursuant to 10 C.F.R. § 2.202 to modify, suspend, or revoke a license, or for such other action as may be proper. Mr. Saporito's Petition is, in the context of section 2.206, a request that the NRC intervene in the planned launch of the *Galileo* spacecraft.

Mr. Saporito's Petition presents two principal arguments in support of the request. One is that the launch of the *Galileo* spacecraft carrying plutonium would be in violation of 42 U.S.C. § 5841, more correctly Public Law 94-79, to the effect that the Commission shall not license any shipment by air transport of plutonium in any form with the exception of certain medical devices. The other is that if the launch of the *Galileo* spacecraft carrying plutonium is allowed to proceed, the launch would cause undue risk, placing the public health and safety in grave danger.

The Petition relies upon Public Law 94-79 as authority for the NRC to stop the launch. That law provides, in part: "The Nuclear Regulatory Commission shall not license any shipments by air transport of plutonium in any form, whether exports, imports, or domestic shipments . . . ." Certain medical devices are excluded, and the restriction is to apply until the NRC certifies that a safe container has been developed and tested "which will not rupture under crash and blast-testing equivalent to the crash of a high-flying aircraft."

As can be determined from the plain meaning of the statute, it is to apply only to air transport, i.e., transport from one point on the earth's surface to another such point by a vehicle that moves through, and is supported by the lift provided by, air. Indeed, the statute itself makes reference to the term "aircraft." The vehicle that is to launch the *Galileo* spacecraft is a rocket, not an aircraft. Nor does the *Galileo* mission involve an export, import, or domestic shipment of plutonium. Consequently, the provisions of Public Law 94-79 are not applicable to the *Galileo* launch and do not provide authority to stop the launch as alleged by the Petitioner.

A review of the legislative history associated with this statutory provision supports this conclusion. There is nothing in the legislative history to suggest that the provision was to apply to a rocket-powered launch such as the National Aeronautics and Space Administration's (NASA's) planned launch of the *Galileo* spacecraft. Consequently, Public Law 94-79 does not provide any basis for the action requested by Petitioner.\*

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\*As noted above, the RTGs and LWRHUs are produced by DOE. The DOE retains ownership of these devices, which are used by NASA as a DOE contractor in this regard. Consequently, these devices would not be subject to NRC authority under Public Law 94-79.

Mr. Saporito's other argument is that the launch of the *Galileo* spacecraft carrying plutonium will cause undue risk, placing the public health and safety in grave danger. His Petition cites twenty items ("a" through "t") as grounds for his position.

Plutonium-238 is a hazardous radionuclide and the use of it as plutonium oxide in the power supplies for the *Galileo* mission entails some risk. It is because of the risk involved that a considerable investment in science and engineering has been made to bring the plutonium-heated devices to the stage of development in which they will be flown aboard the *Galileo* spacecraft. The ceramic form of the plutonium dioxide, its iridium encapsulation, and the form of graphite in the surrounding package were all selected to make the RTGs resistant to the potential hazards of missions like the *Galileo* mission. Sample RTGs and LWRHUs (with dummy fuel) have been subjected to an array of tests to demonstrate their resistance to fire, explosion, and impacts.

Furthermore, the RTGs and LWRHUs, separately and in the normal *Galileo* spacecraft configuration, and in many configurations associated with accidental disassembly of the spacecraft, have been subject to analysis to evaluate their response. Potential accidents in the near-earth phases of the *Galileo* mission have been analyzed to determine the range of threats to the integrity of the plutonium-loaded devices. These threats include reentry ablation, heat, explosion-generated shock and pressure, and impact with air, water, soil, rock, and explosion-driven fragments of the space shuttle and its external rockets.

A comprehensive federal safety evaluation process has been carried out with regard to the *Galileo* mission and the employment of the plutonium-loaded devices for energy on the *Galileo* spacecraft. In addition to the sponsoring agencies, DOE and NASA, an Interagency Nuclear Safety Review Panel (INSRP) was formed to provide an independent evaluation of all safety aspects involving the RTGs and LWRHUs. The federal safety evaluation process contained three principal segments, which produced a Preliminary Safety Analysis Report (PSAR), an Updated Safety Analysis Report, and a Final Safety Analysis Report; each SAR was reviewed by the INSRP, and the safety evaluation was subsequently strengthened by further analysis and tests. This process culminated in a Safety Evaluation Report (SER) produced by the INSRP. This SER and its supporting material formed the basis for the recommendation for launch approval; launch approval has been obtained from the Office of the President.

## CONCLUSION

The Petition provides no basis for the NRC to intervene in NASA's planned launch of the *Galileo* spacecraft. The cited statute does not apply to the

planned launch and provides no basis for the requested action. Furthermore, a comprehensive federal safety evaluation process has been carried out with regard to the employment of plutonium-loaded devices for energy on the *Galileo* mission. There has been appropriate and due consideration of the risks involved. I find no basis in the Petition for the extraordinary relief requested of intervention in the *Galileo* launch. Accordingly, the Petition of Mr. Saporito is denied in its entirety.

FOR THE NUCLEAR  
REGULATORY COMMISSION

Robert M. Bernero, Director  
Office of Nuclear Material Safety  
and Safeguards

Dated at Rockville, Maryland,  
this 25th day of September 1989.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Thomas E. Murley, Director

In the Matter of

Docket Nos. 50-250  
50-251

FLORIDA POWER & LIGHT  
COMPANY  
(Turkey Point Nuclear Generating  
Plant, Units 3 and 4)

September 25, 1989

The Director of Nuclear Regulation denies a Petition filed by Thomas J. Saporito requesting immediate action with regard to Turkey Point Nuclear Generating Plant, Units 3 and 4. Specifically, the Petitioner requested that the NRC cause the cold shutdown of the facility and the suspension of its operating licenses, investigate the extent of an alleged drug usage problem and review the Licensee's corrective measures; take actions concerning the Licensee's program for reactor vessel materials surveillance and analysis, because the Petitioner asserts that the reactor vessels at Units 3 and 4 are experiencing vessel embrittlement; and modify the licenses to require that the Turkey Point Operations Superintendent hold a senior reactor operator's license, because, according to the Petitioner, operation of the facility by an Operations Superintendent who is not the holder of such a license would involve a significant increase in the probability and consequences of a nuclear accident.

**RULES OF PRACTICE: SHOW-CAUSE PROCEEDING**

The principle is firmly established that parties must be prevented from using 10 C.F.R. § 2.206 procedures as a vehicle for reconsideration of issues previously decided, or for avoiding an existing forum in which they more logically should be presented.

## **RULES OF PRACTICE: SHOW-CAUSE PROCEEDING**

The institution of proceedings pursuant to 10 C.F.R. § 2.202 is appropriate only when substantial health and safety issues have been raised.

## **TECHNICAL ISSUES DISCUSSED**

Reactor Vessel Embrittlement;

Reactor Vessel Material Surveillance Program, Appendix H of 10 C.F.R. Part 50;

Pressurized Thermal Shock Screening Criteria, 10 C.F.R. § 50.61;

Fracture Toughness Requirements, Appendix G of 10 C.F.R. Part 50.

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

### **INTRODUCTION**

On June 20, 1989, Thomas J. Saporito, Jr., filed a request with the Executive Director for Operations pursuant to 10 C.F.R. § 2.206 that the NRC take certain actions with regard to the Turkey Point Nuclear Generating Plant, Units 3 and 4. The request of June 20, 1989, was supplemented by later submittals, dated June 22 — as amended by a submittal dated August 12 — and July 3, 1989. These documents were referred to the Office of Nuclear Reactor Regulation for consideration pursuant to section 2.206. The documents will be jointly referred to herein as "the Petition."

Specifically, the June 20 submittal requests that the NRC take immediate action to cause the cold shutdown of Units 3 and 4, cause the suspension of Operating Licenses DPR-31 and DPR-41, cause an investigation by the NRC to ascertain the extent of the drug usage problem at Turkey Point and review the Licensee's corrective measures, and order remedial action in accordance with the new Fitness for Duty rule. As a basis for these requests, the submittal alleges that the Federal Bureau of Investigation (FBI) arrested an operator at the neighboring Turkey Point fossil plant who stated that Turkey Point "ran on cocaine" and, as the FBI's investigation is not yet concluded, that the NRC cannot be fully aware of the extent of the drug problem at the facility.

The June 22 submittal requests, in addition, that the NRC take immediate action to (1) test archive weld metal test samples germane to Unit 4 in accordance with Charpy test parameters; (2) evaluate Charpy test data obtained to ascertain the degree of embrittlement of the Unit 4 reactor vessel; (3) evaluate the embrittlement and determine whether continued operation of the reactor can be safely achieved within the criterion of 10 C.F.R. Part 50, Appendix G; (4)

ensure that the Licensee will test archive weld metal samples at regular intervals in the future to ensure a close monitoring of the degree of embrittlement; (5) cause the termination of the integrated surveillance testing program currently being utilized by the Licensee, whereby Unit 3 archive weld metal test samples are evaluated and determined to be representative of embrittlement conditions germane to Unit 4; and (6) cause an NRC evaluation of the reference temperature criterion of 300 degrees established for the safe operation of a pressurized water reactor to consider whether the criterion should be lowered to offset the effects of pressurized thermal shock. As a basis for these requests, the submittal alleges that Units 3 and 4 are experiencing reactor pressure vessel embrittlement. In support of this, various documentation is relied upon.

The July 3 submittal requests that the NRC take immediate action to modify Operating Licenses DPR-31 and DPR-41 to require that the Turkey Point Operations Superintendent be required to hold a senior reactor operator's license on the pressurized water reactors germane to the facility. As a basis for this request, the submittal alleges that operation of the facility by an Operations Superintendent who is not the holder of such a license would involve a significant increase in the probability and consequences of a nuclear accident, and involve a significant reduction in the margin of safety.

## DISCUSSION

### A. Substance Abuse

The June 20 submittal requests immediate action to cause the cold shutdown of Turkey Point Nuclear Generating Plant, Units 3 and 4, and the suspension of the associated Operating Licenses DPR-31 and DPR-41. In addition, the submittal requests that the Commission cause an immediate investigation to ascertain the extent of the drug usage problem and to review the corrective measures taken at Turkey Point and order remedial action in accordance with the new Fitness for Duty rule, which authorizes such action where safety is potentially affected because an individual is unfit for duty.

On June 14, 1989, a Turkey Point plant employee was one of three people arrested in connection with a widespread, ongoing FBI narcotics investigation in South Florida. The arrested employee was a fossil plant operator. As the protected area for the Turkey Point nuclear plant also encompasses the fossil plants, the arrested employee had access to the protected area. This access authority was subsequently suspended. However, this employee did not have access to vital areas of the nuclear plants which contain equipment required for safety. The other two people arrested by the FBI were not employed at the Turkey Point plant and did not have authorized access. In addition to the three

people arrested, a number of people in the geographical area were interviewed by the FBI.

The NRC Staff is closely monitoring the Licensee's actions in response to the FBI arrest and the ongoing FBI investigation. The actions taken by the Licensee in response to the FBI investigation appear to be prompt and appropriate. These actions include immediate testing of all managers, supervisors, and personnel in positions significant to safety; testing of all other bargaining unit personnel who volunteered; and subjecting all personnel authorized unescorted access to the Turkey Point Nuclear Generating Plant to mandatory random testing for substance abuse, effective June 28, 1989.

Since the arrest of the fossil plant employee on June 14, 1989, and as of August 7, 1989, approximately 1950 persons with authorized access to Turkey Point have been tested for substance abuse. This represents approximately 60% of the persons with authorized access to Turkey Point as of that date. Of the approximately 1950 persons tested, six were reported as having confirmed positive test results. Authorized access for three of the six persons who tested positive was suspended for 45 days. During the 45-day suspension, these three people can be retested for substance abuse and, if they pass, access will be restored and they will enter into a frequent followup testing program for 1 year. If they fail to be reinstated during the 45-day suspension, they will not be allowed access to Turkey Point and further disciplinary action will be taken by the Licensee. Employment for the remaining three people who tested positive was terminated.

On the basis of the data received to date, there is no indication of a widespread problem of substance abuse at the Turkey Point Nuclear Generating Plant. The NRC Staff will continue to monitor the Licensee's actions concerning this matter to ensure that public health and safety are not endangered. No further actions beyond what is currently being done are deemed warranted by the NRC at this time.<sup>1</sup> Therefore, the request in the June 20 submittal related to substance abuse is denied.

## B. Reactor Vessel Materials Surveillance

The June 22 submittal requests immediate action to cause the suspension of Operating Licenses DPR-31 and DPR-41 and to take immediate actions concerning the Licensee's program for reactor vessel materials surveillance and analysis. The Petitioner asserts, as a basis for the request, that the reactor vessels

<sup>1</sup> On May 24, 1989, the Commission issued the final rule, "Fitness for Duty Programs" (54 Fed. Reg. 24,468). This rule mandates the establishment of a program to deter and detect instances of substance abuse on the part of persons authorized unescorted access to nuclear power plants. The effective date for implementation of the new rule by licensees is January 3, 1990. Thus, the Petitioner's reliance on the rule as a basis for immediate action is misplaced.

at Turkey Point Units 3 and 4, are experiencing vessel embrittlement. In support of this assertion, numerous documents are cited.<sup>2</sup>

For the purposes of this discussion, the Petitioner's requests have been separated into the following categories:

- (1) Terminate the integrated surveillance program for Turkey Point Units 3 and 4 whereby Unit 3 archive weld test samples are evaluated and determined to be representative of embrittlement conditions germane to Unit 4, require the testing and evaluation of weld metal test samples germane to Unit 4 in accordance with Charpy test parameters and criteria, and analyze the test results to ascertain the degree of Unit 4 reactor vessel embrittlement. In this connection, the Petitioner asserts, among other matters, that reasonable doubt exists that the fracture toughness requirements of Appendix G to 10 C.F.R. Part 50 for upper-shelf energy have been met.
- (2) Ensure that future archive weld metal samples will be tested by the Licensee at regular intervals to ensure a close monitoring of embrittlement and safe operation pursuant to 10 C.F.R. Part 50, Appendix G.
- (3) Analyze the reference temperature criterion of 300°F established by the Commission for safe operation to consider whether it should be lowered.

With respect to Category (1), above, the Licensee requested, in letters dated February 8 and March 6, 1985, a license amendment to combine the existing reactor materials surveillance program at the Turkey Point units into a single integrated program that conforms to the requirements of 10 C.F.R. Part 50, Appendix H. Notice of the requested amendment was published in the *Federal Register* on March 12, 1985 (50 Fed. Reg. 9919). On April 22, 1985, the NRC Staff issued Amendment 112 to Operating License DPR-31 and Amendment 106 to Operating License DPR-41, which authorized, in accordance with section II.C of 10 C.F.R. Part 50, Appendix H, the use of the integrated surveillance program at Turkey Point.

The Petitioner, in raising this issue, is seeking to use section 2.206 procedures to reopen a matter that was the subject of an amendment that was noticed in the *Federal Register* and fully considered. The Petitioner had the opportunity to request a hearing and failed to do so. The principle is firmly established that

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<sup>2</sup>By letter dated August 12, 1989, the Petitioner submitted a listing of thirty-eight documents which he requested be considered as an "amendment" to his June 22 submittal, to be considered as additional evidence in support of the basis and justification for the June 22 submittal. This "amendment" consists solely of a listing of documents, without any explanation as to how these documents support the Petitioner's assertions. As the Petitioner has not provided any specific information with regard to these documents, further action with regard to his August 12 submittal is unwarranted. See, e.g., *Philadelphia Electric Co. (Limerick Generating Station, Units 1 and 2)*, DD-85-11, 22 NRC 149, 154 (1985).

parties must be prevented from using section 2.206 procedures as a vehicle for reconsideration of issues previously decided, or for avoiding an existing forum in which they more logically should be presented. *E.g., General Public Utilities Nuclear Corp.* (Three Mile Island Nuclear Station, Units 1 and 2; Oyster Creek Nuclear Generating Station), CLI-85-4, 21 NRC 561, 563 (1985).

The Petitioner has not provided new evidence that would cause the NRC Staff to reconsider its approval of the subject program. Surveillance samples will be removed from the reactor vessels in Units 3 and 4 and tested in accordance with the approved integrated surveillance program and the results will be evaluated by the Licensee and separately by the NRC Staff. No immediate action is required to test samples germane to Unit 4.

The subject of reactor vessel embrittlement in Unit 4 was recently reviewed by the NRC Staff in conjunction with the issuance of Amendment 134 to Operating License DPR-31 and Amendment 128 to Operating License DPR-41. In a letter dated September 21, 1988, the Licensee requested that the subject amendments incorporate revised heatup and cooldown pressure-temperature limit curves that would be applicable up to 20 effective full-power years (EFPYs) of service life. The curves in the Technical Specifications at the time of the request were applicable up to 10 EFPYs. Notice of the requested amendments was published in the *Federal Register* on October 19, 1988 (53 Fed. Reg. 40,988). The subject amendments were issued by the NRC Staff on January 10, 1989. As discussed in the Safety Evaluation issued for the amendments, the NRC Staff found that (1) the revised pressure-temperature limits were in compliance with the fracture toughness requirements of Appendix G to 10 C.F.R. Part 50; (2) the integrated surveillance program complies with Appendix H to 10 C.F.R. Part 50; and (3) the reactor vessel critical materials at Units 3 and 4 will remain below the pressurized thermal shock (PTS) screening criteria for their licensed life in compliance with the requirements of 10 C.F.R. § 50.61.

In response to the *Federal Register* notice dated October 19, 1988, concerning the issuance of Amendment 134 to Operating License DPR-31 and Amendment 128 to Operating License DPR-41, a Petition for Leave to Intervene, dated November 17, 1988, was filed by the Center for Nuclear Responsibility, Inc., and Joette Lorion, which raised contentions relating to the Petitioner's June 22 submittal. In a Memorandum and Order (Ruling upon Contentions), LBP-89-15, 29 NRC 493, dated June 8, 1989, two contentions were admitted by the Atomic Safety and Licensing Board, as follows:

- a. Contention 2 asserted that capsule material in Unit 3 has been irradiated for a significantly shorter time than capsule material in Unit 4. This contention was admitted, limited to the relevance of the difference in operating time between Units 3 and 4.

- b. Contention 3 was admitted, limited to whether the correct copper percentage was used in predicting the reference temperature ( $RT_{NDT}$ ) of the critical beltline materials for setting pressure-temperature limits.

As stated in the Atomic Safety and Licensing Board order, hearings on the admitted contentions are scheduled to commence on December 12, 1989. All documentation associated with the hearings will be placed in the Local Public Document Room and will be available for the Petitioner's review.<sup>3</sup>

As described above, the NRC Staff evaluated reactor vessel embrittlement in Unit 4 in conjunction with Amendments 134 and 128 to Operating Licenses DPR-31 and DPR-41, respectively, and determined that there are no public health or safety concerns associated with the continued operation of Unit 4. If any concerns raised in the hearing are determined to be valid, the Staff will take the appropriate action at that time. Moreover, all of the documentation relied on by the Petitioner was considered when the amendments were issued. Therefore, further action on this concern is not warranted. *Three Mile Island*, CLI-85-4, *supra*, 21 NRC at 563.

The submittal also asserts that reasonable doubt exists that the fracture toughness requirements of Appendix G to 10 C.F.R. Part 50 for the Charpy upper-shelf energy have been met. The basis for this statement is a letter from the Staff to the Licensee, dated May 31, 1988, which indicates that additional data and analysis are necessary for the Staff to complete its review of the fracture toughness analysis of the beltline welds for the Turkey Point reactor vessels. The Licensee's fracture toughness analysis was submitted in letters dated May 3, 1984, and March 25, 1986, to comply with the requirements in section V.C of Appendix G to 10 C.F.R. Part 50. The requirements of this section apply to reactor vessels that have had their Charpy upper-shelf energy reduced below 50 foot-pounds by neutron irradiation. This section requires that the Licensee (1) perform a volumetric examination of 100% of the beltline materials that do not satisfy the requirements of section V.B; (2) provide an analysis to demonstrate equivalent margins of safety for continued operation; and (3) provide test data from supplementary fracture toughness tests.

The Licensee has satisfied these requirements by (1) performing ultrasonic examinations of beltline welds in Unit 3 and Unit 4 during July 1981 and November 1982, respectively; (2) submitting fracture mechanics analyses in letters dated May 3, 1984, and March 25, 1986; and (3) providing supplementary fracture toughness data from the Heavy-Sectional Steel Technology program in its letter of March 25, 1986.

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<sup>3</sup>The Petitioner has filed a petition before the Atomic Safety and Licensing Board to make a limited appearance during the hearing. In a document entitled "Amended Petition for a Limited Appearance Statement" filed August 30, 1989, the Nuclear Energy Accountability Project has indicated that it will represent the Petitioner's interests in the proceeding.

The information requested in NRC's letter of May 31, 1988, was needed to evaluate the Licensee's conservative analysis (contained in its letters of March 3, 1984, and March 25, 1986) which was submitted to justify continued operation up to 40 EFPYs. Currently, the Turkey Point units have operated for approximately 10 EFPYs. Amendments 134 and 128 to Operating Licenses DPR-31 and DPR-41, respectively, authorized operation only up to 20 EFPYs. Operation beyond 20 EFPYs will require the submittal of another amendment and further evaluation by the NRC Staff. As discussed previously, there are no public health or safety concerns associated with operation up to 20 EFPYs. Therefore, the information requested in the May 31, 1988 letter to justify 40 EFPYs of operation is not required immediately and no action by the NRC is necessary at this time.

With respect to Category (2), above, the requirements for future testing of archive weld metal samples are specified in the integrated surveillance program that is contained in the Turkey Point Technical Specifications, § 4.20. Compliance with the Technical Specifications is required as a condition of Operating Licenses DPR-31 and DPR-41 for Turkey Point Units 3 and 4, respectively. As such, compliance with the Technical Specifications is subject to verification by the NRC through periodic audits and review. Therefore, no further action is warranted regarding this concern.

With respect to Category (3), above, the reference temperature value of 300°F (for circumferential weld materials) which is used in PTS screening is specified in section 50.61. The Petitioner's request is, in effect, a request to change the requirements of section 50.61, and, as such, is not appropriate for consideration under section 2.206. Rather, it may constitute a petition for rulemaking that should be submitted in accordance with 10 C.F.R. § 2.802. Under section 2.802, any interested person may petition the Commission to issue, amend, or rescind any regulation. The Petitioner may wish to review the requirements for a petition for rulemaking contained in section 2.802 and consider submittal of the request to revise the reference temperature criterion of 300°F under section 2.802.

### C. Operations Superintendent Qualification

The July 3 submittal requests immediate action to modify the Licensee's Operating Licenses DPR-31 and DPR-41 to require that the Turkey Point Operations Superintendent hold a senior reactor operator's (SROs) license on the pressurized water reactors germane to the facility.

In a letter dated September 12, 1988, the Licensee requested that the Technical Specifications be changed to permit the holding of an SRO license from a similar plant (i.e., another pressurized water reactor) to serve as an acceptable qualification for the Operations Superintendent at Turkey Point. Notice of consideration of issuance of the requested amendments was published in the

*Federal Register* on November 2, 1988 (53 Fed. Reg. 44,250). No requests for hearing or petitions for leave to intervene were filed. On March 27, 1989, the Commission issued Amendment 135 to Operating License DPR-31 and Amendment 129 to Operating License DPR-41, approving the requested change in qualification requirements for the Operations Superintendent.

On May 16, 1989, the Petitioner submitted a Request for Hearing and Petition for Leave to Intervene (amended May 18) with respect to these amendments. In the Commission's Order Denying Request for Hearing, dated May 30, 1989, the Petitioner's request was denied as untimely, indicating that no good cause was shown for such untimeliness.

The July 3 submittal appears to be an attempt to circumvent the rules for timeliness. The submittal raises the same issues raised in the Request for Hearing and Petition for Leave to Intervene, dated May 16, 1989, which was denied by the Commission on May 30, 1989. Furthermore, the submittal does not raise any new issues not previously considered by the Commission in the issuance of the amendments. Therefore, further action regarding this concern is not warranted.

## CONCLUSION

The institution of proceedings pursuant to section 2.202 is appropriate only when substantial health and safety issues have been raised. *See Consolidated Edison Co. of New York* (Indian Point, Units 1, 2, and 3), CLI-75-8, 2 NRC 173, 176 (1975), and *Washington Public Power Supply System* (WPPSS Nuclear Project No. 2), DD-84-7, 19 NRC 899, 923 (1984). This is the standard that has been applied to determine whether the actions requested in the Petition are warranted. For the reasons discussed above, no basis exists for taking the actions requested in the Petition, since no substantial health and safety issues have been raised by the Petition. Accordingly, the Petitioner's request for action pursuant to section 2.206 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).

FOR THE NUCLEAR  
REGULATORY COMMISSION

Thomas E. Murley, Director  
Office of Nuclear Reactor  
Regulation

Dated at Rockville, Maryland,  
this 25th day of September 1989.



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Kenneth M. Carr, Chairman**  
**Thomas M. Roberts**  
**Kenneth C. Rogers**  
**James R. Curtiss**

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)**

October 19, 1989

The Commission denies a second request for a waiver of its financial qualification rules. The Commission holds that the assurance of availability from governmental ratesetters of a source of funds adequate for safe operation pursuant to a full-power license is not overcome by the probability of some delay in receiving such funds, nor has any significant link between Applicants' financial situation and a safety problem been shown.

**FINANCIAL QUALIFICATIONS: APPLICABLE STANDARD**

**FINANCIAL ISSUE: FUNDING FUTURE COSTS**

The anti-CWIP law, in the no-full-power-license circumstance that the Commission hypothesized in CLI-88-10, 28 NRC 573 (1988), would operate so that recovery of construction costs and costs of low-power operation could *never* be allowed. Nothing in the anti-CWIP law *prohibits* including operating costs in the rate base when the plant is operating to serve the public, as it will be fully authorized to do if it receives its full-power license.

**FINANCIAL QUALIFICATIONS: APPLICABLE STANDARD****FINANCIAL ISSUE: FUNDING FUTURE COSTS**

While a delay in rate relief is possible, and some minimal delay is probably likely, such a delay is of the kind that the Commission recognized in its rulemaking and accepted as a circumstance that would not undercut the rule. No party has shown that the potential delay for a rate relief to cover operating expenses is exceptional and outside the range of regulatory delay acknowledged by the Commission.

**FINANCIAL QUALIFICATIONS: APPLICABLE STANDARD****FINANCIAL ISSUE: FUNDING FUTURE COSTS**

The Commission has not been shown any other factor that would make it unreasonable for it to continue to rely on the presumption of reasonable assurance of adequate funding for public utilities. Commercial operations that would trigger rate relief are reasonably to be expected within a few months from the grant of a full-power license. Materials provided by MassAG appear to indicate that PSNH has access to adequate revenues and cash on hand to cover its share of Seabrook's operating costs during the period in which it has not yet reached commercial production.

**FINANCIAL QUALIFICATIONS: APPLICABLE STANDARD****FINANCIAL ISSUE: FUNDING FUTURE COSTS**

The grant of a full-power license, without more, by reducing the possibility of cancellation and making eventual recovery of prudently incurred costs likely, may be expected to significantly enhance the ability of the company to raise cash in the credit markets.

**FINANCIAL QUALIFICATIONS: APPLICABLE STANDARD;  
PUBLIC HEALTH AND SAFETY CONCERNs****RULES OF PRACTICE: CONTENTIONS (SPECIFICITY AND  
BASIS); STANDARD OF PROOF**

CLI-88-10 cannot fairly be read that the Commission found that where exceptional circumstances at full power undercut the rationale of the exception for public utilities, there is necessarily a significant safety problem. In it, the Commission contrasted the circumstances of full power with low-power testing operations where it said there was no conceivable incentive for cost-cutting.

What was inconceivable at low power was merely stated to be *conceivable* at full power. But the standard for showing a significant safety problem has never been "what is conceivable."

**FINANCIAL QUALIFICATIONS: APPLICABLE STANDARD; PUBLIC HEALTH AND SAFETY CONCERNS**

**RULES OF PRACTICE: CONTENTIONS (SPECIFICITY AND BASIS); STANDARD OF PROOF**

The indication of a significant safety problem must be something more than simply showing that exceptional circumstances undercut a rule with some basis in safety. The vast majority of Commission rules have some basis in safety. It used the terminology "significant safety problem" to note that it intended to require something more than a theoretical — or conceivable — issue, but insisted on there being a real matter that required resolution.

**FINANCIAL QUALIFICATIONS: PUBLIC HEALTH AND SAFETY CONCERNS**

**OPERATING LICENSE(S): HEALTH AND SAFETY REGULATIONS**

The Commission sees no indication that PSNH's financial uncertainty will overcome the substantial protections that the Commission has in place by all its requirements to prevent the occurrence of a significant nuclear safety problem. Any scrimping on compliance with safety requirements will be dealt with promptly and aggressively.

**REGULATIONS: INTERPRETATION (10 C.F.R. § 2.758)**

**RULES OF PRACTICE: PETITION FOR WAIVER; WAIVER OF RULES OR REGULATIONS**

Under section 2.758, boards are not permitted to make a rule waiver decision, but a board *must* simply certify a rule waiver petition after finding that the petitioner has met extremely high standards. What the Commission has protected by this process is the ability of the Commission itself to decide, as a matter of policy, when and to what extent its codified regulations are to be waived.

**RULES OF PRACTICE: WAIVER OF RULES OR REGULATIONS**

Only the Commission has the necessary authority and perspective to respond to whatever exigent circumstances it finds upon review of a waiver request.

There is precedent for the Commission to take special steps, short of rule waiver, to deal with potentially significant safety issues. Parties should expect that, where appropriate, the Commission will attempt to find practical solutions to alleged safety issues associated with petitions to waive its rules.

## **FINANCIAL QUALIFICATIONS: PUBLIC HEALTH AND SAFETY CONCERN**

### **OPERATING LICENSE(S): HEALTH AND SAFETY REGULATIONS**

The Commission expects here that the Staff shall be particularly sensitive to any signs that cost-cutting is impinging on safety. The Commission has consistently preferred to place its reliance on the ability of its inspectors to discern the indicia of corner-cutting that could lead to a lack of safety rather than on its ability to make financial predictions.

## **MEMORANDUM AND ORDER**

For a second time in this operating license proceeding,<sup>1</sup> we are called upon to decide with respect to financial qualification whether there are special circumstances that warrant the exceptional action of a waiver of the Commission's rules.<sup>2</sup> On both occasions, we were asked to waive those rules which, in sum, effectively find that public utilities are financially qualified because they are assured a source of funds for safe operation. The first waiver was sought in order to embark on a financial qualification review with respect to the Applicants' financial ability to operate their Seabrook nuclear facility at low power. We found that there were special circumstances which undercut the rationale supporting an assumption of financial qualification for public utilities, but once we had established certain decommissioning requirements for low-power operation, no significant safety problem remained that would justify such an undertaking. CLI-88-10, 28 NRC 573 (1988). Today, we find, as we will amplify below, that the circumstances do not undercut the assurance of the availability from governmental ratesetters of a source of funds adequate for safe operation pursuant to a full-power license.<sup>3</sup> Nor have we been shown any other significant

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<sup>1</sup> A group of New England owners, led by Public Service Company of New Hampshire (jointly "Applicants"), seeks a license to operate Seabrook Station, a nuclear power facility located in New Hampshire.

<sup>2</sup> Two requests for waiver or exception from the rules were presented by Applicants in this proceeding. The first, to reduce the size of the EPZ was rejected by the Licensing Board, LBP-87-12, 25 NRC 324 (1987); the second, to seek an exemption from the requirement for an onsite emergency exercise within 1 year of the issuance of a full-power license, was decided by us and similarly rejected. CLI-89-19, 30 NRC 171 (1989).

<sup>3</sup> See CLI-88-10, *supra*, 28 NRC at 597.

link between Applicants' financial situation and a safety problem. Accordingly, we do not grant the waiver sought.

## I. BACKGROUND

### A. The Framework Established by CLI-88-10

Less than a year ago in this docket, we construed and applied the Commission's waiver rule, 10 C.F.R. § 2.758.<sup>4</sup> We applied a three-part test for certification of a waiver petition to the Commission. Two parts followed from the explicit terms of the rule:

- (1) The waiver petitioner must have presented "special circumstances" in the sense that the petitioner has properly pleaded one or more facts, not common to a large class of applicants or facilities, that were not considered either explicitly or by necessary implication in the rulemaking proceeding leading to the rule sought to be waived;
- (2) those special circumstances must be such as to undercut the rationale for the rule sought to be waived.

28 NRC at 597.

The third prong of the test was implicit in longstanding Commission law, that a rule waiver would be granted only in unusual and *compelling* circumstances, *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-89-3, 29 NRC 234, 239 (1989), and explicitly served notice that the Commission would not exercise its discretion to waive a rule for less than significant safety reasons:

- (3) from the petition and other allowed papers it should be evident that a waiver is necessary to address, on the merits, a significant safety problem related to the rule sought to be waived.

CLI-88-10, *supra*, 28 NRC at 597.

Applying that test, the Commission found that the bankruptcy of Public Service Company of New Hampshire (PSNH) and the applicability of New Hampshire anti-CWIP statutes<sup>5</sup> were "special circumstances." In addition, the Commission assumed without deciding that delay and cessation of project

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<sup>4</sup> See *id.* at 596.

<sup>5</sup> Anti-CWIP statutes prohibit the rate authority from authorizing increased rates based on the costs of construction work in progress. Only when the plant begins commercial operation or delivering power to the public, may any of those costs be passed on to the public in the form of increased rates. We need not determine whether New Hampshire's anti-CWIP prohibition will terminate when the Seabrook facility furnishes net generation to the grid or at some later point. In the normal course of events it would come relatively soon after commencing operations under a full-power license. For the most recent ten facilities to be granted a full-power operating license the average time to achieve full commercial operation was 4 months from the date of license issuance. See NUREG-0020, "Licensed Operating Reactors, Status Summary Report Data as of 6-30-89," Vol. 13, No. 7, *passim* (1989). In some cases a low-power license had not been granted in advance, and thus the time was lengthened by inclusion of the duration of low-power testing and time that was necessary to accomplish any remedial work.

payments by some of the minority owners qualified under the first part of the test as a "special circumstance."

The Commission next found that bankruptcy and anti-CWIP in combination<sup>6</sup> undercut the rationale of the rule. This was so because under anti-CWIP "the utility cannot, strictly speaking, recover *any* portion of the costs of low-power testing" so long as it was not licensed to and did not produce commercial power. The Commission, on the strength of its recognition in its rulemaking that regulatory delays and phase-ins by the ratemaking did not undercut the rationale of the rule,<sup>7</sup> said that the anti-CWIP provisions, standing alone, might not be critical for most utilities, but that those provisions in combination with PSNH's bankruptcy did undercut the rationale of the rule because the bankruptcy signalled that the anti-CWIP provisions' bar of a source of funding had been critical to PSNH.

The Commission then looked to the underlying safety purpose of the requirement to conduct a financial qualifications review from which the rule sought to be waived provided an exception for public utilities. The Commission concluded that the sole reason was to "provide some added assurance that a licensee would not, because of financial difficulties, be under pressure to take some safety shortcuts." CLI-88-10, *supra*, 28 NRC at 600.<sup>8</sup>

With this framework, we briefly set forth the administrative history of the petition for waiver certified to us by the Atomic Safety and Licensing Appeal Board ("Appeal Board"). ALAB-920, 30 NRC 121 (1989).<sup>9</sup>

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<sup>6</sup>Because it was not pivotal to the decision, the Commission assumed without deciding that the minority owners' delay or cessation of project payments also undercut the purpose of the rule for low power when in combination with bankruptcy and anti-CWIP. CLI-88-10, *supra*, 28 NRC at 599.

<sup>7</sup>*Id.* at 598 n.25, citing 49 Fed. Reg. 35,747, 35,749 (1984).

<sup>8</sup>The Commission quoted its 1984 rulemaking:

A financial disability is not a safety hazard per se because the licensee can and under the Commission's regulations would be obliged to simply cease operations if necessary funds to operate safely were not available. At most, the Atomic Energy Commission, in drafting the rule, must have intuitively concluded that a licensee in financially straitened circumstances would be under more pressure to commit safety violations or take safety "shortcuts" than one in good financial shape. Accordingly, the drafters of the rule sought to achieve some level of assurance, prior to licensing, that licensees would not be forced by financial circumstances to choose between shutting down or taking shortcuts while the license was in effect.

*Id.* at 600, citing 49 Fed. Reg. at 35,749. The Commission then commented that:

"[w]hatever may be the legitimacy of this safety purpose for full-power operation, it stretches reason to suppose that the safety rationale would have any bearing on a limited license for low-power testing. Shortcuts in safety at full power conceivably could avoid shutdowns or derating and thereby contribute to greater plant availability and revenue from power sales. But shortcuts in low-power testing safety will not lead to generation of more revenue that would benefit the plant owners."

*Id.* (emphasis added).

<sup>9</sup>Less than a week before MassAG filed the petition certified to us, Seacoast Anti-Pollution League (SAPL) moved for admission of a financial qualification contention assertedly based on its assumption that the Commission had effectively waived the financial qualification exception by recognizing that its rule was undercut by full power. The motion was denied by the Licensing Board. SAPL did not take a separate appeal; however, SAPL submitted a brief in support of MassAG's appeal of the Licensing Board's rejection of his petition. It was SAPL's brief that carried the day for the MassAG before the Appeal Board.

## B. The Massachusetts Attorney General's Petition for a Waiver

On February 1, 1989, the Massachusetts Attorney General (MassAG), filed a petition under 10 C.F.R. § 2.758 (the petition) that the rule exempting utilities from a financial qualification review be waived so that Applicants would be required to "establish prior to full power operation, financial qualifications sufficient to cover the cost of Seabrook Unit 1's operation for the period of the license." Petition at 2. The petition argued that the continued existence of two of the "special circumstances" found to exist in CLI-88-10 — (1) the bankruptcy, and (2) delay and cessation in project payments — was sufficient to undercut the rationale for the rule. Massachusetts also asserted that the Commission's reasons in support of its conclusion that there would be no significant safety problem at low power would not hold at full power. To the contrary, asserted Massachusetts, there are incentives to take shortcuts in safety at full power, the amount of money to operate the plant at full power is significant, and the safety risks at full power are substantial.

Staff joined Applicants in opposing the petition, and on March 8, 1989, the Licensing Board denied it. LBP-89-10, 29 NRC 297 (1989). The Licensing Board found that the MassAG had failed to rebut the presumption that the ratesetter would allow Seabrook's rate base to include the costs of safe operation that were prudently incurred. *Id.* at 303. In addition, the Licensing Board found the Affidavit of E.A. Brown, President and Executive Officer, New Hampshire Yankee Division of PSNH, to be of particular importance. *Id.* at 304. The Massachusetts Attorney General appealed and was supported in that appeal by SAPL.

## C. ALAB-920

After receiving briefs, hearing oral argument, and receiving response to a request for supplemental briefing, the Appeal Board decided the matter before it on August 21, 1989. The decision concluded that a *prima facie* case for waiver had been made.

En route to its ultimate conclusion the Appeal Board had rejected the original position of the MassAG set forth in his petition and brief. The rejection specifically included any argument that bankruptcy standing alone sufficed as a basis for waiver. See ALAB-920, 30 NRC at 131. The Appeal Board also found no warrant for speculation respecting ultimate ownership of Public Service Company of New Hampshire's share and other uncertainties respecting what

regulatory ratesetting authority will govern Seabrook.<sup>10</sup> Nonetheless, addressing itself to MassAG's "secondary argument," incorporated from SAPL's brief, the Appeal Board found that the effect of anti-CWIP could be felt for as long as 18 months into operations at full power and thus that the same combination that the Commission found to have undercut the rule at low power also would be present at full power. The Appeal Board then considered whether there was a significant safety question and decided that "under the Commission's analysis [in CLI-88-10], operation above five percent, unlike low-power testing, potentially gives rise to a 'significant safety problem' warranting waiver of the 1984 rule."<sup>11</sup> ALAB-920, 30 NRC at 134.

The Appeal Board provided an additional reason for referring this matter to the Commission. That reason springs from the Appcal Board's concern that under the *UCS* case<sup>12</sup> any review by the Staff of financial qualification requires a rule waiver, and from the Commission's conclusion, shared by the Appeal Board, that the utility's bankruptcy "clearly signals that something very unusual and serious has occurred." ALAB-920, 30 NRC at 136. In these circumstances the Appeal Board believed the matter should be referred to the Commission for decision.

#### D. Positions of the Parties

On receipt of the Appeal Board's certification of the petition, the Commission promptly established an opportunity for the parties who opposed the waiver to address the Appeal Board's finding and for a response to those papers by the MassAG and any other party wishing to respond. "Applicants' Response to the Commission's Order of August 22, 1989" (Applicants' Response) was filed on Sept. 7, 1989, as was the "NRC Staff's Opposition to Waiver of Financial Qualifications Regulations Applicable to Full Power Operation of Seabrook" (Staff Response). Responses were filed by the MassAG (MassAG's Response) and by SAPL (SAPL Response) on Scpt. 26, 1989. SAPL also provided supplemental information in a cover letter which the Commission has considered.

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<sup>10</sup> The Appeal Board noted that the license recites "that Public Service 'has exclusive responsibility and control over the physical construction, operation and maintenance of the [Seabrook] facility'" and thus, under our regulations, that a transfer could not be effected without Commission approval. ALAB-920, 30 NRC at 131 n.30.

<sup>11</sup> The Appeal Board claimed additional support from the Commission's failure to exempt public utilities from its 1987 rule requiring all licensees to notify the agency upon the filing of bankruptcy petitions.

<sup>12</sup> *Union of Concerned Scientists v. NRC*, 735 F.2d 1437 (D.C. Cir. 1984), cert. denied sub nom. *Arkansas Power & Light Co. v. UCS*, 469 U.S. 1132 (1985).

### ***1. Position of the Applicants***

Applicants argue that the Commission's holding in CLI-88-10 is not transferable, as the Appeal Board would have it, to the circumstances surrounding full-power licensing because in CLI-88-10 the Commission was presented with the possibility that after low-power operations there would not be the grant of a full-power license. In addition, they argue that the Appeal Board erred in considering regulatory delay following anti-CWIP as significantly different from the regulatory delays found by the Commission not to affect recovery of operating expenses.

In addition, Applicants criticize the Appeal Board for speculation that the regulatory delay will be sufficient to cause a problem and for not addressing, in its consideration of safety significance, the Licensing Board's reliance on the affidavit of the President of New Hampshire Yankee.

### ***2. Position of the NRC Staff***

Staff asserts that the Appeal Board improperly overreached to determine that a *prima facie* case for waiver had been made. Staff's next major point is that the Appeal Board wrongly concluded that the CLI-88-10 tests for waiver had been met for the relevant period of the full-power license. Staff understands the relevant time to be that period *before* a power level is reached that would justify inclusion of costs in the rate base regardless of when higher rates are in fact permitted.

Finally, the Staff maintains that the Appeal Board erred in finding Staff's actions improper under the UCS case. In Staff's view, it may gather information on financial qualification in order to advise the Commission on whether a waiver is necessary.

### ***3. Position of the MassAG and SAPL<sup>13</sup>***

MassAG argues first that PSNH's bankruptcy meets the Commission's three-part test: (1) Bankruptcy is a special circumstance; (2) the operation of the anti-CWIP law<sup>14</sup> and the effect of the bankruptcy on the extent and timing of any rate recovery of the construction and operation costs undercut the assumption on which the rule is based; and (3) safety significance is present because "[n]o more powerful example [than bankruptcy] of a company encountering severe

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<sup>13</sup> We treat the positions of MassAG and SAPL under one heading since each has specifically adopted the arguments of the other.

<sup>14</sup> MassAG also argues as a separate point that the Appeal Board was correct in finding that the delay in cost recovery due to anti-CWIP does not disappear on the grant of a full-power license, and notes that the Appeal Board found that some delay was a virtual certainty.

pressures to cut corners can be imagined." Response of MassAG at 3. *See also* SAPL Response at 2-5.

MassAG next argues that recovery of the construction and operating costs of Seabrook will occur outside of the normal ratemaking process and will be significantly and materially delayed. He asserts that the "bankruptcy has triggered an entirely different rate setting process" from that contemplated by the Commission. MassAG Response at 7. *See also* SAPL Response at 5-12, arguing that anti-CWIP will remain in force until the plant is "used and useful," not merely providing net power to the grid. SAPL's response additionally emphasizes that financial qualification review is needed in light of the defaults of certain other Seabrook owners. *See* SAPL Response at 12-14.

## II. DECISION

The Commission has reviewed the record on the waiver petition before the Licensing Board and the Appeal Board and has particularly considered the Appeal Board's certification (ALAB-920) and the papers of the parties. One fundamental issue — the effect of the delay in a rate increase beyond full-power licensure — governs our result, and thus we turn to it directly. Thereafter, we address the remaining matters requiring our attention.

### A. Whether Delay of a Rate Increase Undercuts the Rule

The Appeal Board correctly recognized that bankruptcy, not alone<sup>15</sup> but in combination with the anti-CWIP law, was the basis for our holding at low power that special circumstances had been shown which undercut the basis of our regulation exempting public utilities from any requirement to demonstrate financial qualification. Bankruptcy remains a factor in full-power licensing,<sup>16</sup> but the critical dispute centers on whether the potential for delay in receiving the increase to cover the costs of safe operation is a special circumstance that undercuts the basis of the Commission's exemption for public utilities.

One side would have it that the following circumstances obtain: (1) the Commission had not considered anti-CWIP in its rulemaking; (2) the delay in

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<sup>15</sup>This is not to say that bankruptcy standing alone could never undercut the purpose of the rule. We do not here speculate on what circumstances could elicit such a finding, but simply note that the circumstances of this Chapter 11 reorganization do not, insofar as we are aware, undercut either the presumption that an adequate source of funds for safe operation will be allowed by the ratesetter or that the Applicants will be able to use those funds for operations.

<sup>16</sup>It is less clear that defaults will remain after the grant of a full-power license in that full-power operations can be expected to provide a source of revenue. Moreover, the sums defaulted by defaulting owners do not appear significant and appear to have been made up by other coowners as needed. In any event, our analysis does not depend on this factor.

receiving the costs of construction was due to anti-CWIP; (3) the anti-CWIP-caused delay in receiving a rate increase on construction costs makes critical an immediate rate increase to cover operation costs; and (4) such a raise is prohibited by anti-CWIP until the plant is “used and useful.” Therefore, the argument concludes, anti-CWIP remains a special circumstance relevant to full power which, together with bankruptcy, continues to undercut the assumption of the rule that a source of funds for safe operation will be available.

Applicants argue the other side<sup>17</sup> that anti-CWIP by its terms is not a factor that diminishes the assurance that ratemakers will allow sufficient rates to produce adequate funds for safe operation at full power, on which the Commission relied when it promulgated the rule excepting public utility operating license applicants from financial qualification requirements.

We believe that the Applicants’ argument better reflects our intent. It was not simply a *delay* in recovering costs from low power until full power that dictated our result in CLI-88-10. Rather, because significant hurdles lay between the Applicants and a full-power license, the possibility that such a license would not issue following low power was at the heart of the matter. The anti-CWIP law, in the no-full-power-license circumstance that the Commission hypothesized in CLI-88-10, would operate so that recovery of construction costs and costs of low-power operation could *never* be allowed. Indeed, this conclusion infused the Commission’s entire consideration of the issues presented in CLI-88-10 and led to a requirement for assurance in the sum of \$72.1 million for decommissioning after low power if that became necessary. We are satisfied that had Applicants then held a full-power license, the anti-CWIP law would not have been a factor, much less have played such a critical role, as is argued by Petitioners here, when Applicants undertook low-power testing. Nothing in the anti-CWIP law, as we understand it, *prohibits* including Seabrook’s operating costs in the rate base when the plant is operating to serve the public, as it will be fully authorized to do if it receives its full-power license.<sup>18</sup>

While a delay is possible, and some minimal delay is probably likely, such a delay is of the kind that the Commission recognized in its rulemaking and accepted as a circumstance that would not undercut the rule. No party has shown that the potential delay in New Hampshire for a rate relief to cover operating expenses is exceptional and outside the range of regulatory delay acknowledged by the Commission.

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<sup>17</sup> The Staff asserts that anti-CWIP has force only until a power level is reached that satisfies the requirement that power is being supplied to the public. For that interim term, Staff argues that power levels would be so low that the same holdings that applied at low power would be applicable for the same reasons. Beyond that point, the Staff says that any delay is too speculative to warrant consideration. We agree that delays are speculative but, as discussed in the following text, our decision here is based on the ground that the Commission considered such delays in its rulemaking.

<sup>18</sup> Although we place no reliance on it, we find that MassAG’s failure originally to make the anti-CWIP argument at full power and reluctance to espouse it when suggested, is at least an indication that he too found it a bad fit.

Further, the Commission has not been shown any other factor that would make it unreasonable for us to continue to rely on the presumption of reasonable assurance of adequate funding for public utilities. As noted above, commercial operations that would trigger rate relief are reasonably to be expected within a few months from the grant of a full-power license. In addition, materials provided by MassAG appear to indicate that PSNH has access to adequate revenues and cash on hand to cover its share of Seabrook's operating costs during the period in which it has not yet reached commercial production.<sup>19</sup> Moreover, the grant of a full-power license, without more, by reducing the possibility of cancellation and making eventual recovery of prudently incurred costs likely may be expected to significantly enhance the ability of the company to raise cash in the credit markets. *Cf. Coalition for the Environment v. NRC*, 795 F.2d 168, 175 (D.C. Cir. 1986). Thus the Commission finds that the grant of a full-power license can, as presumed in the generic exemption for public utilities, reasonably ensure that Applicants will be able to bridge the gap of any reasonably expectable regulatory delay and will be assured recovery of the costs of safe operation.<sup>20</sup> Because the rule serves its purpose under these circumstances, no waiver is warranted, and none will be granted.

## B. Indication of a Significant Safety Problem

Given our determination above, we need not reach a discussion of whether a safety-significant problem would be shown were the rationale of the rule

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<sup>19</sup> PSNH's 10-Q filing with the SEC indicates that PSNH likely does have adequate revenues to cover its 36% share of Seabrook operations, particularly in the few months between issuance of the full-power operating license and rate recovery allowed by the New Hampshire PUC. In any event, the filing does not support Intervenors' position that there is clearly such a lack of funds as to raise a significant safety problem. The filing shows that PSNH generated operating income (i.e., operating revenues after expenses other than interest and taxes) of \$17.8 million for the 3-month period ending June 30, 1989 (compared with \$21.9 million for 1988). For the 6-month periods ending on June 30, 1989 and 1988, the respective amounts are \$46.2 million and \$58.4 million. Additionally, cash flow for the 6 months ending on June 30, 1989 and 1988 was \$60.3 million and \$122.4 million, respectively. "Cash and cash equivalents on hand," which are good indicators of the degree of short-term or medium-term solvency, was \$91.7 million as of June 30, 1989. See PSNH's filing of SEC Form 10-Q for Quarterly Period Ended June 30, 1989, provided as Exhibit B to Response of MassAG.

<sup>20</sup> MassAG tells us that reorganization plans are under consideration in bankruptcy court and are all expressly contingent on the consummation of rate agreements. The agreements provide for temporary increases that do not provide revenues to the utility until after final court approval of the reorganization plan and necessary acquisitions are complete. MassAG Response at 7. MassAG thus concludes that if "licensure were to occur prior to the completion of the bankruptcy a potentially very lengthy time period would exist in which a bankrupt utility would have a full-power operating license with no or virtually no rate recovery of the costs of construction and operation of Seabrook." *Id.* at 8. We think that MassAG's premise does not necessarily support such a conclusion. It appears to us that there are other more obvious explanations for an agreement not to permit revenues to an acquiring utility that has not received *all* necessary approvals to its acquisition than to exhibit an intent not to grant legally required rate increases to the current utility licensees.

In this regard, it is also far from obvious to us that an injunction against a rate commission from a proceeding *against* a utility need also be read, as SAPL reads it, to bar a successful application for a rate increase needed for safe operation of a nuclear facility. And, were it to be so read, it would, in appropriate circumstances, be subject to alteration by the court that issued it.

undercut. However, we believe it is useful to address the issue in light of the misunderstanding by the Appeal Board, MassAG, and SAPL, of the Commission's discussion of its finding that there was no significant safety problem at low power. Even were the Commission to agree with the Appeal Board, and we do not, that MassAG had made his case that special circumstances were present that undercut the rationale of the rule, we disagree that the pleadings of these parties indicate in terms of CLI-88-10 that a waiver is "necessary to address . . . a significant safety problem related to the rule sought to be waived."

28 NRC at 597. In CLI-88-10, the Commission said:

Whatever may be the legitimacy of this safety purpose [<sup>21</sup>] for full-power operation, it stretches reason to suppose that the safety rationale would have *any* bearing on limited license for low-power testing. Shortcuts in safety at full power *conceivably* could avoid shutdowns or derating and thereby contribute to greater plant availability and revenue from power sales. But shortcuts in low-power testing safety will not lead to generation of more revenue that would benefit the plant owners. Low-power testing does not generate revenue from power sales. The *only* purpose of low-power testing is to further ensure plant safety . . . There is every incentive to do the job well and *no rational incentive* to cut corners.

28 NRC at 600 (emphasis of "only" in original; other emphases are added).

Contrary to the apparent or professed understanding of the Intervenors,<sup>22</sup> and the apparent reading that led to the constraint felt by the Appeal Board to certify the instant petition to us, CLI-88-10 cannot fairly be read that the Commission found that where exceptional circumstances at full power undercut the rationale of the exception for public utilities, there is necessarily a significant safety problem. In the quoted material and following text, the Commission contrasted the circumstances of full power with low-power testing operations where it said there was no conceivable incentive for cost-cutting. And, in many other ways, the Commission made clear that in its view there could be no significant safety problem at low power that required attention in the circumstances that prevailed. What was inconceivable at low power was merely stated to be *conceivable* at full power. But the standard for showing a significant safety problem has never been "what is conceivable." Thus the Commission did not intend to and did not resolve the question for full power. The Commission made no determination on a matter not before it and left for a later day, if necessary, to decide in the circumstances then before it whether a significant safety problem was presented by any certified petition for waiver on which it was ruling.

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<sup>21</sup> The only safety purpose of the rule discerned by the Commission was the intuitive judgment that some *additional* assurance could result from avoiding a situation where a lack of funds could cause pressure to cut corners. CLI-88-10, *supra*, 28 NRC at 600. Nonetheless, the Commission retained its principal reliance on other regulatory means to ensure the public health and safety.

<sup>22</sup> SAPL would have us believe that it read our language in comparing low power with full power as so strong as to have constituted a waiver of the rule at full power. We reject that reading.

Also, there can be no doubt that the Commission intended that the indication of a significant safety problem be something more than simply showing that exceptional circumstances undercut a rule with some basis in safety. Since the vast majority of Commission rules have some basis in safety, if that was all the Commission meant it would have been superfluous for the Commission to announce to its Boards that it did not want a rule waiver certified absent the indication of a significant safety problem. The Commission used the terminology "significant safety problem" to note that it intended to require something more than a theoretical — or conceivable — issue, but insisted on there being a real matter that required resolution.<sup>23</sup>

As we stated earlier, even were there to have been a showing in the matter before us that the rationale of the rule was undercut, the Commission sees no indication that PSNH's financial uncertainty will overcome the substantial protections that the Commission has in place by means of all its requirements to prevent the occurrence of a significant nuclear safety problem.<sup>24</sup> In the event any full-power license is granted, the Commission requires a greater-than-usual presence by the Staff throughout power ascension. This will be the case at Seabrook as well. After normal full-power operation is under way the Commission can direct greater-than-usual surveillance, if there is any indication that it would be advisable to do so. Any scrimping on compliance with safety requirements will be dealt with promptly and aggressively.

### C. The Commission's Role in Section 2.758 Rule Waivers

We have concluded, in the part of the process that is tantamount to a review of the certification of the petition, that the petition failed to make a *prima facie* case and to indicate a significant safety problem. Because the arguments of the parties suggest that the Commission's role in a 10 C.F.R. § 2.758 proceeding is simply to affirm or overrule the certification of the referring board, we think it is important also to discuss briefly the Commission's role, even though the Commission does not here reach the policy decision that is contemplated under its regulation in section 2.758 in that it has found that Intervenors did not make a *prima facie* case.

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<sup>23</sup> Under Commission precedent and the Commission's rulemaking pronouncement, predictions that PSNH will not properly use its source of funds may not be addressed in financial qualification hearings were they initiated. Financial qualification review is satisfied if there is an adequate source of funding. 49 Fed. Reg. at 35,749. How funds are spent is a management integrity issue.

<sup>24</sup> We cannot now know whether a case could realistically be hypothesized where we would disturb the financial qualification rule exception for public utilities. Perhaps public utilities' status makes them less likely to succumb to a temptation to cut corners to save money because the prospect of savings is not a realistic one. When funds expended for safe operation are recoverable and when a rate of profit is allowable on the investment portion, any incentive to cut corners could be highly speculative. In any event, we need not decide this generic matter at this time.

Under section 2.758 the boards are not permitted to make a rule waiver decision, but a board *must* simply certify a rule waiver petition to the Commission after finding that the petitioner has met extremely high standards — compelling circumstances in which the rationale of a rule is undercut. What the Commission has protected by this process is the ability of the Commission itself to decide as a matter of policy, once a *prima facie* case has been made, when, and if so, to what extent its codified regulations are to be waived. This is done only after an informed judgment in the totality of the circumstances, recognizing and evaluating any relevant circumstance that in the judgment of a majority of the Commissioners should be taken into account.<sup>25</sup> Only the Commission has the necessary authority and perspective to respond to whatever exigent circumstances it finds upon review of a waiver request.<sup>26</sup> Indeed there is precedent in this proceeding for the Commission to take special steps, short of rule waiver, to deal with potentially significant safety issues. Specifically, we refer to the decommissioning requirement imposed at low power. Typically, parties should expect that where appropriate the Commission will attempt to find practical solutions to alleged safety issues associated with petitions to waive its rules.

The Commission expects here that the Staff shall apply the necessary resources to monitor Seabrook's compliance with safety regulations. The Staff shall be particularly sensitive to any signs that cost-cutting is impinging on safety. The Commission has consistently preferred to place its reliance on the ability of its inspectors to discern the indicia of corner-cutting that could lead to a lack of safety rather than on its ability to make financial predictions. *See, e.g.*, 49 Fed. Reg. 13,044, 13,046 (1984). In addition, other financial protections will be in place before a full-power license is granted as a result of our requirement that Applicants be in compliance with property insurance and decommissioning plan requirements relevant to full power before such a license is issued.

In consideration of the foregoing, we find that no financial matter need be expected to disturb a finding of reasonable assurance that Seabrook's operations will be consistent with public health and safety if it is allowed to operate at full power.

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<sup>25</sup> It is significant that under 10 C.F.R. § 50.12(a)(2)(vi) the regulations permit the grant of a rule exemption where "there is present *any* other material circumstance not considered when the regulation was adopted for which it would be in the public interest to grant an exemption." No less latitude would be available to the Commission under section 2.758 when deciding to let an exemption stand, i.e., in this case NOT to waive a rule.

<sup>26</sup> On a related point, we agree with the Appeal Board that the Staff may not make financial qualification determinations relative to licensing without a rule waiver. On the other hand the Staff is surely correct that it may make threshold inquiry sufficient to decide whether to seek a rule waiver. Any such threshold inquiry will be conducted outside the adjudicatory portion of an ongoing operating license proceeding. Staff inquiries without more cannot be sufficient to waive the rule contrary to the Commission's carefully constructed section 2.758 regulation.

**It is so ORDERED.**

**For the Commission<sup>27</sup>**

**SAMUEL J. CHILK**  
**Secretary of the Commission**

Dated at Rockville, Maryland,  
this 19th day of October 1989.

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<sup>27</sup> Commissioner Rogers was unavailable to participate in the formal vote on this Order; if he had been present he would have approved it.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

**Administrative Judges:**

**G. Paul Bollwerk, III, Chairman**  
**Alan S. Rosenthal**  
**Howard A. Wilber**

In the Matter of

Docket Nos. 50-443-OL  
50-444-OL  
(Offsite Emergency  
Planning Issues)

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

October 11, 1989

On appeals from LBP-88-32, 28 NRC 667 (1988), the Appeal Board (1) holds that risk-based dose reduction/consequence testimony proffered by intervenors as relevant to whether the emergency plan for the New Hampshire portion of the Seabrook EPZ provides "adequate protection" is not admissible because the emergency planning requirements of 10 C.F.R. § 50.47 are not intended to implement the "adequate protection" standard of section 182(a) of the Atomic Energy Act; and (2) certifies to the Commission the question whether that testimony nonetheless is admissible as relevant to a determination (in accordance with the Commission's guidance in *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-86-13, 24 NRC 22, 30 (1986)) that an emergency plan is to achieve "reasonable and feasible dose reduction under the circumstances."

## **EMERGENCY PLANNING: FINDINGS (NRC)**

## **RULES OF PRACTICE: CONSIDERATION OF ISSUES**

An operating license proceeding (in contrast to a construction permit proceeding) generally is intended to be a forum for resolving only those issues contested by the parties; therefore, any finding by the Licensing Board of "reasonable assurance" under 10 C.F.R. § 50.47 regarding emergency planning matters must be in the context of the contentions presented by the parties for litigation. 10 C.F.R. Part 2, App. A, § VIII(b).

## **ATOMIC ENERGY ACT: INTERPRETATION**

### **EMERGENCY PLANNING: BASIS FOR REQUIREMENT**

Emergency planning requirements are intended to be second-tier, "extra-adequate protection" requirements under section 161 of the Atomic Energy Act, 42 U.S.C. § 2201, rather than first-tier "adequate protection" requirements under Atomic Energy Act § 182, 42 U.S.C. § 2232.

## **APPEARANCES**

**John Traficonte**, Boston, Massachusetts (with whom **Alan Fierce**, Boston, Massachusetts, was on the brief), for the intervenor James M. Shannon, Attorney General of Massachusetts.

**Diane Curran**, 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.

**Paul McEachern**, Portsmouth, New Hampshire (with whom **Matthew T. Brock**, Portsmouth, New Hampshire, was on the brief), for the intervenor Town of Hampton.

**Thomas G. Dignan, Jr.**, Boston, Massachusetts (with whom **George H. Lewald**, **Kathryn A. Selleck**, **Jeffrey P. Trout**, **Jay Bradford Smith**, and **Geoffrey C. Cook**, Boston, Massachusetts, were on the brief), for the applicants Public Service Company of New Hampshire, *et al.*

**Sherwin E. Turk** for the Nuclear Regulatory Commission staff.

## MEMORANDUM AND ORDER

Before this Board are the appeals of the intervenors Attorney General of Massachusetts (MassAG), the New England Coalition on Nuclear Pollution (NECNP), the Seacoast Anti-Pollution League (SAPL), and the Town of Hampton (TOH) from the Licensing Board's December 30, 1988 partial initial decision on emergency planning for the New Hampshire portion of the Emergency Planning Zone (EPZ) for the Seabrook Station.<sup>1</sup> In that decision, the Licensing Board found that the New Hampshire Radiological Emergency Response Plan (NHRERP) met the Commission's emergency planning standards.

Intervenors have raised a variety of challenges to the numerous legal and factual findings made by the Licensing Board in support of its determination. Recognizing the substantial task intervenors have placed before us, at oral argument intervenor SAPL suggested that we render a partial determination on an issue that seemingly is at the vortex of the various appeals and assertedly is relevant to the ongoing Licensing Board proceeding relating to the Massachusetts portion of the Seabrook EPZ.<sup>2</sup> Specifically, SAPL asked us to address whether the Licensing Board correctly interpreted and applied the "reasonable assurance" standard of 10 C.F.R. § 50.47(a) in making a number of decisions regarding Seabrook emergency planning.

Because we agree with intervenors that this issue is cardinal to the resolution of a number of matters in this proceeding, we have decided at the beginning of our review to set forth our views on the interpretation and application of the "reasonable assurance" standard. We find that, contrary to intervenors' position, because the regulation was not intended to implement the Atomic Energy Act's "adequate protection" standard it does not, on that basis, require the type of risk-based, dose reduction/consequence analysis in which they asked the Licensing Board to engage. Much less apparent is the answer to their alternative assertion that this analysis is required under the terms of the "reasonable and feasible dose reduction" guidance set forth in the Commission's 1986 *Shoreham* emergency planning decision, CLI-86-13.<sup>3</sup> Because of our uncertainty over the resolution of this issue, which occupies a central role in this case and, we believe, in emergency planning generally, we have decided to seek additional Commission guidance, by way of certification, prior to rendering an ultimate determination on the matter.

Under 10 C.F.R. § 50.47(a)(1), an operating license for the Seabrook Station cannot be issued "unless a finding is made by NRC that there is reasonable

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<sup>1</sup> LBP-88-32, 28 NRC 667 (1988).

<sup>2</sup> App. Tr. 41-43.

<sup>3</sup> Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), CLI-86-13, 24 NRC 22 (1986).

assurance that adequate protective measures can and will be taken in the event of a radiological emergency." Intervenors, principally the MassAG and TOH, challenge the Licensing Board's application of this regulatory standard in a number of different contexts, including its rulings on admission of a MassAG contention, the admissibility of evidence proposed by the MassAG, and the Licensing Board's general approach to the issues of evacuation and sheltering for the summertime population that uses the Atlantic Ocean beaches within a few miles of the Seabrook Station.<sup>4</sup> Because the issues raised by intervenors concerning the proper interpretation of section 50.47 appear to have been explicated most fully during the Licensing Board's consideration of the admissibility of certain testimony proposed by the MassAG, we frame our review of intervenors' general concerns in the context of that particular matter.

## I. BACKGROUND

Emergency planning for the summertime population using the New Hampshire seacoast beaches near the Seabrook Station is a longstanding issue. During the construction permit proceeding for the facility, and by petitions filed pursuant to 10 C.F.R. § 2.206, various of the intervenors now before us tried unsuccessfully to bring before the agency the question of the viability of emergency planning for the New Hampshire seacoast beaches.<sup>5</sup> Thereafter, as participants in the operating license proceeding, intervenors proposed a number of different

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<sup>4</sup> Massachusetts Attorney General's Brief on Appeal (Mar. 24, 1989) at 32-88 [hereinafter MassAG Brief]; Town of Hampton's Brief in Support of Appeal (Feb. 10, 1989) at 9-42 [hereinafter TOH Brief].

<sup>5</sup> More than a decade ago, various of the intervenors as well as the NRC staff argued before us that, in addition to the emergency planning efforts required under 10 C.F.R. Part 100 for the low population zone (LPZ) within a 1.5 mile radius of the facility, consideration should be given to emergency planning outside the LPZ, particularly for the summertime beach population. We found the lack of any extra-LPZ emergency planning requirement under then-existing regulations precluded us from granting this request, but suggested that these emergency planning concerns should be addressed by way of a rulemaking proceeding. ALAB-390, 5 NRC 733, 747 (1977). In declining review of our decision, the Commission endorsed the notion that rulemaking was appropriate and that it be given priority. *New England Power Co.* (NEP Units 1 and 2), CLI-77-14, 5 NRC 1323 (1977).

In May 1979 and again in June 1980, several intervenors to this proceeding filed or supported petitions requesting that pursuant to 10 C.F.R. § 2.206 the Director of Nuclear Reactor Regulation (NRR) halt ongoing Seabrook facility construction until adequate emergency planning measures beyond the LPZ were developed and evaluated by the Commission. The NRR Director denied these requests on two grounds. Initially, the Director cited the fact that a Seabrook extra-LPZ population evacuation study was under way. DD-80-6, 11 NRC 371 (1980). Thereafter, the Director found that continued facility construction was not a safety hazard and that emergency planning adequacy would be assessed during the then ongoing facility operating license proceeding. DD-81-14, 14 NRC 279 (1981). When intervenor SAPL sought judicial review, the United States Court of Appeals for the District of Columbia Circuit upheld the Director's determinations as consonant with the discretion afforded him under section 2.206. *Seacoast Anti-Pollution League v. NRC*, 690 F.2d 1025, 1030-33 (D.C. Cir. 1982). In doing so, however, the Court noted the Commission's representation that "if it appears at the operating license review that the infeasibility of EPZ evacuation renders it impossible for [applicants] to provide the requisite 'reasonable assurance,' the operating license will not be granted," *id.* at 1030, as well as the Commission's assurances that its ultimate judgment about the adequacy of emergency planning would not be affected by the considerable costs applicants would incur in facility construction, *id.* at 1033. These are statements, intervenors now assert, that support their position about the proper interpretation of the "reasonable assurance" standard. See *infra* note 42.

contentions relating to the NHRERP ultimately proposed for Seabrook. This included one filed by the MassAG in February 1986 that questioned whether the emergency response plans for the New Hampshire seacoast communities within the Seabrook EPZ "provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at the Seabrook Station."<sup>6</sup>

Applicants opposed the admission of this contention,<sup>7</sup> as did the NRC staff.<sup>8</sup> Thereafter, despite the MassAG's strenuous assertion that there clearly was a regulatory basis for the contention,<sup>9</sup> the Licensing Board found it lacking in this regard. The Licensing Board rejected the MassAG's interpretation of emergency planning as not in accord with the Commission's explication of its emergency

<sup>6</sup>The MassAG's contention declared:

The draft radiological emergency response plans for the [New Hampshire seacoast communities within the Seabrook EPZ] do not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at the Seabrook Station, as required by 10 C.F.R. § 50.47(a)(1), because in the event of a severe accident on a summer weekend some or all of the beach area transient populations within those communities cannot under many plausible meteorological conditions be protected by means of evacuation even from early death and because there are not adequate plans or provisions for sheltering the beach area transients within those communities.

Contention of Attorney General Francis X. Bellotti Relative to Emergency Planning for the New Hampshire Beach Communities (Sept. 9, 1983) at 2 [hereinafter MassAG Emergency Planning Contention]. This contention, originally filed in 1983, was resubmitted in February 1986 pursuant to a Licensing Board order affording intervenors an opportunity to file new contentions on the most recent redraft of the NHRERP. See Contention of Attorney General Francis X. Bellotti Relative to Emergency Planning for the New Hampshire Beach Communities (Feb. 21, 1986) at 1.

<sup>7</sup> Applicants asked the Licensing Board to dismiss the MassAG contention as totally at odds with the principles that emergency planning is not intended to guarantee absolute protection to the public for all accident scenarios or to mandate a particular level of protection. Applicants' Response to Off-Site EP Contentions Submitted by Massachusetts Attorney General (Mar. 5, 1986) at 15 [hereinafter Applicants' Response to Off-Site EP Contentions]. See also the supplemental Applicants' Brief with Respect to (1) the MASS AG Contention and (2) the So-Called "Multiple ETEs" Issue (Apr. 11, 1986) at 3. Also, applicants asserted that emergency planning requirements are not intended to impose new performance or siting criteria for nuclear plants; accordingly, the MassAG could not use this contention to litigate the ultimate issue of facility siting already resolved by the Seabrook construction permit proceeding determination that the plant met the siting criteria in 10 C.F.R. Part 100. Applicants' Response to Off-Site EP Contentions at 15-17.

<sup>8</sup> The staff opposed admission of the contention to the degree it could be interpreted as seeking to litigate the dose consequences of any specific radiological accident or accident sequence or as asserting that emergency planning must ensure a particular level of dose protection to the general public. NRC Staff's Response to Contentions Filed by Towns of Hampton, Hampton Falls, Kensington, Rye and South Hampton, and by the Massachusetts Attorney General, NECNP and SAPL, Attach. on MassAG Contention (Mar. 14, 1986) at 2 [hereinafter NRC Staff's Response to Contentions, Attach. on MassAG Contention]. The staff stated, however, that the contention could be admitted if recast as a challenge limited to whether adequate sheltering was being provided to the beach population. *Id.* at 1.

<sup>9</sup> The MassAG declared that the regulatory basis for his contention was the "reasonable assurance" standard of section 50.47(a)(1), as well as the requirement in section 50.47(b)(10) that an emergency plan provide a "range of protective actions." See Answer of Attorney General Francis X. Bellotti to the Staff's [sic], Applicants', and State of New Hampshire's Responses to His Contention Relative to Emergency Planning for the New Hampshire Beach Communities (Mar. 24, 1986) at 6 [hereinafter MassAG Answer on Emergency Planning Contention]. See also the supplemental Brief of Attorney General Francis X. Bellotti In Support of Admitting His Contention Relative to Emergency Planning for the New Hampshire Beach Communities (Apr. 16, 1986) at 2-3. The MassAG thus refused to accept the NRC staff's suggested redraft of his contention, asserting it required an analysis of the adequacy of both sheltering and evacuation, including consideration of the need for other measures such as traffic control management or evacuation network improvements, alternative protective options such as evacuation on foot, and prohibitions on summer facility operation. MassAG Answer on Emergency Planning Contention at 6-7.

planning requirements. Declaring that the Commission had not required "a zero risk standard" for emergency planning, the Board described NRC regulatory requirements as designed to promote flexible emergency plans that will provide dose savings for a spectrum of accidents.<sup>10</sup> This is to be done, however, without isolated consideration of a particular accident sequence or a particular level of dose savings.<sup>11</sup> Agreeing with the staff's characterization that the MassAG's contention was based on the "apparent belief that protective actions must be developed which assure that any particular level of radiological dose consequences do not occur in the event of an accident,"<sup>12</sup> the Licensing Board dismissed the MassAG contention as failing to state a violation of a regulatory basis.<sup>13</sup>

Foiled in this quest to gain Licensing Board consideration of his assertion that the NHRERP failed to provide "reasonable assurance that adequate protective measures can and will be taken," in his role as the representative of an interested state the MassAG in September 1987 proffered direct testimony he asserted was relevant.<sup>14</sup> The four parts of this testimony, each presented by a different witness, consisted of the following:

- (1) a description of "the technical basis for the current NRC emergency planning rules," presented by Steven C. Sholly;<sup>15</sup>
- (2) an attempt to model "the radiation doses to the population that would follow releases of radioactivity" from the plant, based upon "accident sequences that are similar to the NRC's generic versions, but which take into account reactor specific differences at Seabrook," presented by Dr. Jan Beyea;<sup>16</sup>
- (3) an analysis of "the potential for an atmospheric release, similar to that designated as PWR1 . . . to occur from a steam explosion or high pressure melt ejection event," coupled with an analysis of certain variables believed to have the potential to affect plume rise, and potential variations in the source code, presented by Dr. Gordon Thompson;<sup>17</sup> and

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<sup>10</sup> Memorandum and Order of Apr. 29, 1986, at 44 (unpublished).

<sup>11</sup> *Id.* at 44-45.

<sup>12</sup> NRC Staff's Response to Contentions, Attach. on MassAG Contention at 4.

<sup>13</sup> Memorandum and Order of Apr. 29, 1986, at 45. Thereafter, we denied the MassAG's request for review, finding that his continued right to participate in the proceeding as the representative of an interested state rendered his appeal interlocutory and that he had failed to meet the strict standards for interlocutory discretionary review. ALAB-838, 23 NRC 585, 589-93 (1986). In that opinion, we also suggested the MassAG's ability to participate regarding other admitted contentions, including those relating to evacuation and sheltering, might afford him the opportunity to raise his concerns without litigating the particular contention at issue. *Id.* at 593. Although it is apparent his attention is now centered upon other matters, see *infra* pp. 255-58, the MassAG nonetheless continues to maintain that he was prejudiced by the rejection of his contention, see MassAG Brief at 35, 50 n.39.

<sup>14</sup> Commonwealth of Massachusetts Testimony (Sept. 14, 1987, as corrected Nov. 17, 1987).

<sup>15</sup> *Id.* at 12.

<sup>16</sup> *Id.* at 13-14.

<sup>17</sup> *Id.* at 15.

- (4) a discussion of the health consequences that might result from radiation doses associated with the foregoing events and conditions postulated in the testimony, presented by Dr. Jennifer Leaning.<sup>18</sup>

In a motion *in limine*, applicants demanded exclusion of this testimony, denouncing it as an improper attempt to reintroduce the MassAG contention struck by the Licensing Board in its previous ruling.<sup>19</sup> Applicants also declared that, because they need show only that the emergency plan "is designed to achieve reasonable and feasible dose savings given the circumstances of the site in question," the MassAG's evidence, which intended to show dose savings and dose consequences in absolute terms, was irrelevant.<sup>20</sup>

The MassAG defended the testimony, first on the ground that it was probative of the actual level of protection afforded the population at risk, a necessary component in any "reasonable assurance" finding because of emergency planning's status as a primary safety standard.<sup>21</sup> Although conceding that it may not be necessary for the applicant to make an affirmative showing of the actual level of protection in the absence of a site specific challenge, the MassAG asserted that, once the issue was raised, the testimony he was proffering was an appropriate vehicle for assessing emergency planning adequacy.<sup>22</sup>

In addition, the MassAG stated that even under applicants' proposed standard, dose savings cannot be considered "reasonable" if, despite emergency planning measures, the doses received are still so high that the "savings" achieved do little or nothing to mitigate the received doses' adverse health effects. The MassAG maintained that the evidence he proposed would address directly this issue of actual dosage received and, therefore, was relevant to any determination of whether the dose savings afforded by the plan are "reasonable."<sup>23</sup>

After entertaining oral argument on applicants' motion,<sup>24</sup> the Licensing Board made a bench ruling that it described as "extremely important to the case."<sup>25</sup> The Board found that, in seeking the testimony's admission, the MassAG apparently was not attempting to argue that specific dose saving findings are necessary, or to litigate a "worst case" scenario, or to assert that emergency planning must provide zero risk — any of which would be improper under the Commission's emergency planning requirements.<sup>26</sup> Instead, the Board declared,

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<sup>18</sup> *Id.*

<sup>19</sup> Applicants' Objection in the Nature of a Motion *In Limine* to the Admission into Evidence of Commonwealth of Massachusetts Testimony (Oct. 1, 1987) at 4 [hereinafter Applicants' Motion *In Limine*].

<sup>20</sup> *Id.* at 6-8.

<sup>21</sup> Attorney General James M. Shannon's Response to the Applicants' Objection in the Nature of a Motion *In Limine* (Oct. 15, 1987) at 3-4 [hereinafter MassAG Response to Motion *In Limine*].

<sup>22</sup> *Id.*

<sup>23</sup> *Id.* at 4-5.

<sup>24</sup> Tr. 5531-82. In its oral remarks, the staff declared that it concurred in the applicants' motion. Tr. 5533.

<sup>25</sup> Tr. 5594.

<sup>26</sup> Tr. 5599-600.

what the MassAG ultimately wished to have considered was the issue of whether, under the NHRERP, "there are too many people at too great a risk" so that the plan lacks the requisite "reasonable assurance that adequate protective measures can and will be taken" under section 50.47(a)(1).<sup>27</sup>

The Licensing Board, however, declined to accept the MassAG's proposed testimony, holding it inadmissible as outside the boundaries set by existing Commission policy guidance on emergency planning standards.<sup>28</sup> The Board found this guidance in three sources: the Commission's *San Onofre* emergency planning decision,<sup>29</sup> one of its *Shoreham* emergency planning decisions, CLI-86-13,<sup>30</sup> and the Statement of Considerations supporting the rule on emergency planning in the absence of state and/or local government cooperation.<sup>31</sup>

According to the Licensing Board, the Commission emphasized in *San Onofre* that the focus of emergency planning efforts should be upon "prudent risk reduction measures" without dedicating resources to "extraordinary measures."<sup>32</sup> Even more to the point, the Board stated, was the *Shoreham* decision in which, defining for the first time the pivotal phrase "reasonable assurance that adequate protective measures can and will be taken," the Commission declared that an adequate plan did not have to attain a preset minimum radiation dose saving or a minimum EPZ evacuation time, but only achieve reasonable and feasible dose reductions in the circumstances at that facility.<sup>33</sup> The Board found further emphasis on this latter point in the 1987 rule change in which the Commission stated that an emergency plan is to be evaluated for adequacy without reference to numerical dose reductions and without comparing it to other real or hypothetical plans.<sup>34</sup> Because the MassAG testimony did propose consideration of specific broad dose assumptions, dose consequences, and related health effects, the Board concluded the testimony was outside the Commission's established boundaries for proper evaluation of emergency plans and should not be admitted into the proceeding.<sup>35</sup>

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<sup>27</sup> Tr. 5601.

<sup>28</sup> Tr. 5606-09.

<sup>29</sup> *Southern California Edison Co. (San Onofre Nuclear Generating Station, Units 2 and 3)*, CLI-83-10, 17 NRC 528 (1983), *rev'd in part*, *GUARD v. NRC*, 753 F.2d 1144 (D.C. Cir. 1985).

<sup>30</sup> CLI-86-13, 24 NRC 22 (1986).

<sup>31</sup> 52 Fed. Reg. 42,078 (1987). This Commission rule was upheld upon judicial review in *Massachusetts v. United States*, 856 F.2d 378 (1st Cir. 1988).

<sup>32</sup> Tr. 5606.

<sup>33</sup> Tr. 5606-08.

<sup>34</sup> Tr. 5608.

<sup>35</sup> Tr. 5608, 5959-61. In January 1988 the MassAG sought interlocutory review of the Licensing Board's November bench ruling by way of directed certification, a request we denied as "manifestly" too late. ALAB-884, 27 NRC 56, 57-58 (1988).

## II. ANALYSIS

As the foregoing description of the controversy over the MassAG's proposed testimony illustrates,<sup>36</sup> the parties have espoused substantially different views of what the "reasonable assurance" standard of section 50.47 means in the context of this proceeding.<sup>37</sup> Before us, intervenors MassAG and TOH assert that the focal point of this dispute is precisely where the "reasonable assurance" standard of section 50.47 falls within the two-tiered regulatory scheme established by the Atomic Energy Act of 1954 (AEA), as amended.<sup>38</sup> Under this two-tiered system, which was recognized by the United States Court of Appeals for the District of

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<sup>36</sup>In this proceeding, the parties have expended considerable effort discussing the "relevance" of the MassAG's testimony; however, this discussion seemingly is deficient in identifying exactly what the testimony is, or is not, relevant to. The MassAG apparently believes it is relevant to an overall Licensing Board finding that there is "reasonable assurance that adequate protective measures can and will be taken" under section 50.47. *See* MassAG Brief at 76-85. It is established, however, that an operating license proceeding (in contrast to a construction permit proceeding) generally is intended to be a forum for resolving those issues contested by the parties. 10 C.F.R. Part 2, App. A, § VIII(b). Thus, any Board finding concerning "reasonable assurance" must be in the context of the disputed matters presented by the parties for litigation. *See* 10 C.F.R. § 2.760a. In order to be relevant, therefore, the MassAG's testimony must relate to some intervenor contention properly before the Licensing Board.

Intervenors have not established that the testimony is relevant to any admitted contention. This ordinarily would end our consideration of the matter. Nonetheless, in this instance, the issue of admissibility is properly before us because, as a practical matter, that issue is inextricably intertwined with the question whether, as the MassAG asserts, *see supra* note 13, the Licensing Board erred in dismissing his contention. Indeed, as both the applicants and the staff recognized before the Licensing Board, the testimony and that contention go hand-in-hand. *See* Applicants' Motion *In Limine* at 4 (MassAG testimony is effort to reintroduce dismissed contention); Tr. 5533-34 (staff's perception of proffered testimony is what MassAG "had in mind" to support dismissed contention). *See also* MassAG Emergency Planning Contention at 3-4, 6-9, 11 (basis for contention is Seabrook-specific accident consequence analysis being prepared by Dr. Beyea).

<sup>37</sup>In addition to complaints about the rejection of his proffered testimony and his February 1986 contention, the MassAG devotes considerable effort before us to "deconstructing" the Licensing Board's December 30 initial decision to show that the Licensing Board has utilized what he characterizes as an improper "best efforts under the circumstances" standard proposed by applicants. *See* MassAG Brief at 52 n.40. According to the MassAG, under this standard emergency planning requirements are not "site-excluding" or "license-blocking" regulations, but rather require only that planning "reflect the planners' best efforts in light of the circumstances." *Id.* at 33-34.

The MassAG finds evidence of the "best efforts" approach in the Licensing Board's conclusion that the central issue in the evacuation area is not whether the evacuation time estimates (ETEs) under the NIRERP are too long to provide reasonable assurance that evacuation is an adequate protective measure, as the MassAG contended, but rather whether the ETEs were accurate. *Id.* at 46-48. In the case of sheltering, rather than exploring whether sheltering is mandated as an "adequate protective measure," the MassAG complains that the Licensing Board merely looked into what shelter is available and how it will be utilized for the beachgoing population in the circumstances. *Id.* at 48-72. Further, the MassAG asserts, the Licensing Board applied a "best efforts" standard when, after finding that evacuation was essentially the only viable protective measure, it rejected intervenors' repeated assertions that the requirement in section 50.47(b)(10) for a "range of protective measures" mandates planning for both evacuation and sheltering, in favor of an interpretation that a range of protective measures need be considered only when a range is available. *Id.* at 72-75.

We do not address here the specifics of each of these assertions as they challenge the various Licensing Board determinations about whether the choice of planning measures or the details of their implementation fulfilled the "reasonable assurance" standard, except to note that the ultimate determination regarding the MassAG's testimony will control intervenors' assertion that a risk/dose consequence analysis was pertinent to making these determinations.

<sup>38</sup>42 U.S.C. § 2011, *et seq.*

Columbia Circuit in *Union of Concerned Scientists v. NRC (UCS I)*,<sup>39</sup> section 182(a) of the AEA authorizes the Commission to establish those minimum standards necessary to provide "adequate protection for the public health and safety."<sup>40</sup> This is in contrast to the "extra-adequate protection" provisions of section 161(b), (i) of the AEA,<sup>41</sup> which empower the Commission to impose additional safety requirements.

Intervenors declare that, like the Commission's siting and engineering design requirements, section 50.47 of the regulations clearly is an "adequate protection" standard intended to implement section 182 of the AEA.<sup>42</sup> And, following on this hypothesis, intervenors assert that to determine whether emergency planning for a particular facility affords the minimum, baseline level of safety required by the Commission's own construction of the "adequate protection" standard as recognized by the court in *UCS I*, the central concern is the nature and extent of the risk that exists in light of the emergency plan.<sup>43</sup> As a consequence, the intervenors claim it would have been entirely appropriate for the Licensing Board to consider, by way of the MassAG's proposed testimony (and other issues presented by intervenors), whether, even with the NHRERP in place, plant operation still imposes too great a risk upon too many people, thereby establishing that Seabrook emergency planning is insufficient to provide the requisite "adequate protection."<sup>44</sup>

Whatever facial appeal intervenors' arguments that section 50.47 is an "adequate protection" requirement may have, they are promptly dispelled by a review of the regulatory history of that provision. When it initially promulgated section 50.47 in 1980, as authority for the regulation's creation the Commission cited "Sec. 161b., i., o. . . . (42 U.S.C. 2201)."<sup>45</sup> It is hard to imagine a more compelling indication that, contrary to intervenors' central premise, emergency

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<sup>39</sup> 824 F.2d 108, 114-18 (D.C. Cir. 1987). See also *Union of Concerned Scientists v. NRC*, 880 F.2d 552, 556-57 (D.C. Cir. 1989) (*UCS II*). Although the central issue in both *UCS I* and *UCS II* was the propriety of the Commission's "backfit" rule governing the imposition of new or modified safety requirements on previously licensed reactors, the description of the AEA regulatory scheme set forth in those cases is applicable in the context of emergency planning.

<sup>40</sup> 42 U.S.C. § 2232(a).

<sup>41</sup> *Id.* § 2201(b), (i).

<sup>42</sup> As proof of emergency planning's first-tier status, intervenors point to (1) the Commission's use of the term "reasonable assurance" in the regulation, which they contend has been used previously as the regulatory equivalent of "adequate protection." MassAG Brief at 37 n.27 (citing *Maine Yankee Atomic Power Co.* (Maine Yankee Atomic Power Station), ALAB-161, 6 AEC 1003, 1009 (1973)); (2) statements in Commission rulemakings on emergency planning describing, among other things, the "essential" nature of emergency planning and its importance in comparison to other engineering design and siting requirements, *id.* at 39-43; and (3) statements by the courts, a former Commission Chairman, and agency litigation counsel describing the nature of the Commission's emergency planning responsibilities, *id.* at 44; TOH Brief at 23-24; App. Tr. 39 (quoting Brief for Nuclear Regulatory Commission at 19, *Massachusetts v. United States*, 856 F.2d 378 (1st Cir. 1988) (Nos. 87-2032, 87-2033, 88-1121)).

<sup>43</sup> MassAG Brief at 37-38; TOH Brief at 13-14.

<sup>44</sup> MassAG Brief at 83.

<sup>45</sup> 45 Fed. Reg. 55,402, 55,413 (1980).

planning requirements are intended to be second-tier, AEA section 161 safety provisions rather than first-tier, "adequate protection" requirements under AEA section 182.<sup>46</sup> We thus have no difficulty concluding that intervenors' argument that the MassAG's testimony was admissible to show that the risk imposed by facility operation with the NHRERP would exceed the AEA section 182 "adequate protection" standard is without basis.<sup>47</sup>

A more compelling case is presented by the MassAG's additional argument in support of admission of his testimony. He contends, in line with the Commission's guidance in *Shoreham* that an adequate emergency plan "attempts to achieve reasonable and feasible dose reductions under the circumstances,"<sup>48</sup> that evidence intended to show the actual level of dose savings and dose consequences resulting from a plan, such as he proffered, is admissible as relevant to a determination of whether the plan's dose reductions are, in fact, "reasonable."<sup>49</sup>

Because it has been prepared by appropriate state emergency planning officials, it is reasonable to assume that the NHRERP is a "feasible" plan and, in line with the Commission's *Shoreham* guidance, dose reductions resulting from its implementation clearly would be "feasible" as well. As the MassAG

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<sup>46</sup> More recently, the second-tier status of emergency planning was indicated in the Commission's *Shoreham* emergency planning decision relied upon by the Licensing Board. There the Commission declared that "[o]ur emergency planning regulations are an important part of the regulatory framework for protecting the public health and safety. But they differ in character from most of our siting and engineering design requirements which are directed at achieving or maintaining a minimum level of public safety protection." 24 NRC at 30.

The difference between emergency planning requirements and the agency's siting and engineering design requirements in terms of the latter's role in establishing minimum safety standards was further highlighted by the Commission in the Statement of Considerations supporting the 1987 amendments to section 50.47, regarding review criteria for utility emergency offsite plans designed to fill the gaps created by state and/or local government nonparticipation. In responding to comments questioning whether emergency planning is as important to plant safety as proper facility operation and design, the Commission acknowledged language in the Statement of Considerations supporting the 1980 emergency planning rule that characterized emergency planning as "'an essential aspect in the protection of the public health and safety'" and that "'emergency preparedness as well as proper siting and engineering design features are needed to protect the health and safety of the public.'" 52 Fed. Reg. at 42,081 (quoting 45 Fed. Reg. at 55,403, 55,404 (emphasis added to original)). The Commission found, however, that these statements were not controlling for two reasons: (1) its declaration in that same document that emergency planning "bolstered" engineering design and siting features, and (2) the adoption in that rulemaking of a 120-day remedial clock for correction of major emergency preparedness deficiencies — a feature it noted was in sharp contrast to the immediate shutdown that would be warranted for the correction of major engineering deficiencies. *Id.* at 42,081-82. The Commission's conclusion, consistent with its earlier *Shoreham* decision, was that these factors established that emergency planning was treated "somewhat differently" from engineering safety features under the emergency planning regulatory structure it created in 1980. *Id.*

<sup>47</sup> Intervenors also have argued that refusal to consider the MassAG's risk/dose reduction testimony based upon the Commission's "no specific dose reduction" guidelines established in the *Shoreham* case (or upon the applicants' "best efforts under the circumstances" standard) would be improper because these approaches are not "objective" enough to implement an "adequate protection" standard. See MassAG Response to Motion *In Limine* at 5-9; TOII Brief at 23-24. Even assuming the "reasonable assurance" requirement arises from the AEA section 182 "adequate protection" standard, this proposition is questionable in light of the District of Columbia Circuit's recent observation that "the 'adequate protection' standard may be given content through case-by-case applications of [the Commission's] technical judgment rather than by a mechanical verbal formula or set of objective standards." *UCS II*, 880 F.2d at 558.

<sup>48</sup> 24 NRC at 30.

<sup>49</sup> MassAG Brief at 81.

presents the matter, however, the question still remains whether the NHRERP will meet the *Shoreham* decision's conjunctive requirement that the plan achieve "reasonable" dose reductions, thereby providing "reasonable assurance" under section 50.47. The MassAG asserts that any dose reductions that do result from Seabrook emergency planning may, in fact, provide little realistic dose reduction to the affected population, ultimately failing to provide protection from doses that have serious health consequences. In such instances, the MassAG contends, the plan's dose reductions cannot be considered "reasonable" under any appropriate definition of that term. Further, because his testimony was intended to show the potential dose reductions and dose consequences that would arise under the NHRERP in certain emergency scenarios used as part of the NHRERP planning basis, the MassAG concludes that it was relevant to the material issue of whether the plan's dose reductions would be "reasonable" and thus should have been admitted.<sup>50</sup>

Applicants and the staff argue that the Commission's guidance on emergency planning establishes that the MassAG's evidence was inadmissible as not relevant to any issue properly before the Licensing Board.<sup>51</sup> As support for this conclusion, they rely upon the Commission's guidance in its *Shoreham* decision that emergency planning requirements do not mandate that an adequate plan "achieve a preset minimum radiation dose saving or a minimum evacuation time."<sup>52</sup> In addition, they cite the Statement of Considerations for the 1987 rule amendments incorporating standards by which to evaluate emergency planning when state and/or local government cooperation is lacking. There, the Commission declared that under NRC practice

emergency plans are evaluated for adequacy without reference to numerical dose reductions which might be accomplished, and without comparing them to other emergency plans, real or hypothetical. . . . [E]very emergency plan is to be evaluated for adequacy on its own merits, without reference to the specific dose reductions which might be accomplished under the plan or to the capabilities of any other plan.<sup>53</sup>

On the basis of this guidance, applicants and the staff state, any information relating to dose consequences or dose reductions is extraneous to the Commis-

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<sup>50</sup> Under the MassAG's interpretation of the *Shoreham* standard, even though an emergency plan might be found to meet the specific requirements of section 50.47(b) and comply with the applicable guidance 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," thereby providing what undoubtedly are "feasible" dose reductions, the plan nonetheless could be found inadequate to support licensing if it also failed to provide the "reasonable" dose reductions necessary for an overall finding of "reasonable assurance that adequate protective measures can and will be taken" in accordance with section 50.47(a).

<sup>51</sup> Brief of Applicants-Appellees (Apr. 24, 1989) at 6-11, 15-17; NRC Staff's Brief in Response to Intervenors' Appeals (June 5, 1989) at 45-48.

<sup>52</sup> 24 NRC at 30.

<sup>53</sup> 52 Fed. Reg. at 42,084.

sion's determination of "reasonable assurance," without regard to the purpose for which it is introduced. As a consequence, they conclude that the MassAG's testimony properly was excluded as irrelevant.

One can reasonably take the view that the Commission's *Shoreham* declaration of the purpose of emergency planning (achieving "reasonable and feasible" dose reductions) permits at least *consideration* of the overarching issue whether, despite the "feasible" dose reductions, the remaining dose consequences are sufficiently severe to preclude finding those reductions "reasonable."<sup>54</sup> On the other hand, the Commission's (perhaps superseding) guidance eschewing reference to "preset minimum dose savings" or "numerical dose reductions which might be accomplished" seemingly demonstrates a different concern: i.e., given the "extra-adequate protection" status of emergency planning requirements, the focus of any "reasonable assurance" finding should be on the objective review of planning efforts and plan implementation for conformance with the requirements of section 50.47(b) and the guidance 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," rather than on more subjective judgments about whether a particular plan affords an "adequate" level of protection or entails too great a degree of risk. Because existing Commission statements do not provide a clear response to this issue, and because this question is of pivotal importance to the emergency planning matters before us (and possibly before the Licensing Board as well) and has important policy implications for emergency planning in general, this is one of those limited instances in which it is appropriate to solicit further guidance prior to deciding the matters before us. Accordingly, pursuant to 10 C.F.R. § 2.785(d), we certify this issue to the Commission.

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For the foregoing reasons, we *certify* to the Commission the issue whether the MassAG's testimony, which seeks to address the dose reductions/dose consequences that will arise under the NHRERP in the event of certain planning basis accidents, is admissible as relevant to a determination of whether, in accordance with the Commission's *Shoreham* guidance, the NHRERP will achieve "reasonable and feasible dose reduction under the circumstances" so as to provide "reasonable assurance that adequate protective measures can and will be taken" in accordance with 10 C.F.R. § 50.47(a).

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<sup>54</sup> See also *Cincinnati Gas & Electric Co.* (Wm. H. Zimmer Nuclear Power Station, Unit No. 1), ALAB-727, 17 NRC 760, 765 (1983) (emergency planning's "overall objective [is] the avoidance of as much radiation exposure as possible"). Of course, quite apart from the issue of the admission of evidence such as that proffered by the MassAG is the question of what weight, if any, it should be given.

**It is so ORDERED.**

**FOR THE APPEAL BOARD**

**Eleanor E. Hagins  
Secretary to the  
Appeal Board**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL PANEL

Christine N. Kohl, Chairman

In the Matter of

Docket No. 55-08347  
(Operator License No. 6010-2)  
(EA 88-164)

MAURICE P. ACOSTA, JR.  
(Reactor Operator License for San  
Onofre Nuclear Generating Station,  
Units 2 and 3)

October 25, 1989

The Appeal Panel Chairman issues a memorandum announcing that no Appeal Board will be established to conduct *sua sponte* review of the Licensing Board's initial decision upholding the NRC staff's suspension and determination not to renew a reactor operator's license.

**APPEAL BOARD: SCOPE OF REVIEW (SUA SPONTE)**

**RULES OF PRACTICE: SUA SPONTE REVIEW**

In the absence of an appeal, it has long been customary appeal board practice in cases involving the licensing of nuclear facilities to review on its own "any final disposition . . . that either was or had to be founded upon substantive determinations of significant safety or environmental issues." *Washington Public Power Supply System* (WPPSS Nuclear Project No. 2), ALAB-571, 10 NRC 687, 692 (1979) (emphasis in original).

**APPEAL BOARD: SCOPE OF REVIEW (*SUA SPONTE*)**

**RULES OF PRACTICE: *SUA SPONTE* REVIEW**

Economic issues, intervention requests, and procedural matters are ordinarily excluded from appeal board *sua sponte* review. *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-691, 16 NRC 897, 908 (1982), *review declined*, CLI-83-2, 17 NRC 69 (1983).

**APPEAL BOARD: SCOPE OF REVIEW (*SUA SPONTE*)**

**RULES OF PRACTICE: *SUA SPONTE* REVIEW**

**REACTOR OPERATOR'S LICENSE: SCOPE OF REVIEW (*SUA SPONTE*)**

An appeal board will not be established to conduct *sua sponte* review in any case where a licensing board decision upholds the NRC staff's suspension, revocation, failure to renew, or other termination of a reactor operator's license under 10 C.F.R. Part 55. Where a licensing board decision reinstates or grants an individual operator's license and there are no appeals from such decision, however, an appeal board will be designated to conduct *sua sponte* review of any significant public health and safety or environmental issues. See generally *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-911, 29 NRC 247, 250 (1989) (the purpose of *sua sponte* review is "protection of the public interest in general (as opposed to a particular litigant's interest) by providing another independent level of review of significant health, safety, and environmental issues on which a substantial evidentiary record already exists").

**MEMORANDUM**

On September 28, 1989, the Licensing Board issued its initial decision in this proceeding involving the NRC staff's suspension of and refusal to renew the reactor operator's license held by Maurice P. Acosta, Jr., an employee of Southern California Edison Company (SCE) who was authorized to operate the controls of the reactors at the San Onofre Nuclear Generating Station (SONGS), Units 2 and 3. See LBP-89-26, 30 NRC 195. The basis for the staff's order was that Mr. Acosta's documented history of using illegal drugs "suggests a pattern of behavior and lack of sound judgment that may be inimical to the public health and safety." 53 Fed. Reg. 24,383, 24,384 (1988). Consequently, the staff stated that it

does not have the necessary reasonable assurance that [Mr. Acosta] will carry out his duties in the future with sufficient alertness and ability to safely operate SONGS and observe all applicable requirements including obligations imposed by SCE's policies and procedures, as well as the NRC's requirements.

*Ibid.* After a formal hearing, the Licensing Board upheld the staff's action.

No one has appealed the Licensing Board's decision.<sup>1</sup> In the absence of an appeal, it has long been our customary practice in cases involving the licensing of nuclear facilities to review on our own "any final disposition . . . that either was or had to be founded upon substantive determinations of significant safety or environmental issues." *Washington Public Power Supply System* (WPPSS Nuclear Project No. 2), ALAB-571, 10 NRC 687, 692 (1979) (emphasis in original). Economic issues, intervention requests, and procedural matters, however, ordinarily are excluded from such *sua sponte* review. *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-691, 16 NRC 897, 908 (1982), *review declined*, CLI-83-2, 17 NRC 69 (1983). The instant case, in which the Licensing Board sustains a staff decision to suspend and not to renew a reactor operator's license, falls more properly into the latter category of cases.<sup>2</sup> That is, where an operator's license has effectively been terminated, the issues generally involve that *individual operator's* rights alone and are essentially economic and procedural in nature, rather than raising questions that implicate the public health and safety or environment.

Accordingly, an appeal board will not be established to conduct any *sua sponte* review in this case or others where a licensing board decision upholds the staff's suspension, revocation, failure to renew, or other termination of a reactor operator's license under 10 C.F.R. Part 55. Where a licensing board decision reinstates or grants an individual operator's license and there are no appeals from such decision, however, an appeal board will be designated to conduct *sua sponte* review of any significant public health and safety or environmental issues.<sup>3</sup> See generally *Long Island Lighting Co.* (Shoreham Nuclear Power

<sup>1</sup> Under the Commission's Rules of Practice, any notice of appeal from LBP-89-26 should have been filed (i.e., mailed) no later than October 17, 1989. See 10 C.F.R. §§ 2.762(a), 2.710.

<sup>2</sup> *Midland* itself did not readily fit into either the "review" or "no review" category. Nonetheless, an appeal board conducted *sua sponte* review because the case raised serious questions about the integrity of the NRC's hearing process. 16 NRC at 908.

<sup>3</sup> Two relatively recent cases involved decisions by a single administrative judge (rather than a licensing board) that granted reactor operators' licenses. See *David W. Held* (Senior Reactor Operator License for Beaver Valley Power Station, Unit 1), LBP-88-22, 28 NRC 176 (1988); *Alfred J. Morabito* (Senior Operator License for Beaver Valley Power Station, Unit 1), LBP-88-10, 27 NRC 417, as modified, LBP-88-16, 27 NRC 583, vacated as moot, CLI-88-4, 28 NRC 5 (1988), reconsideration denied, CLI-89-16, 30 NRC 103 (1989). No appeal board was established to conduct *sua sponte* review in those cases because the Commission initiated them by individual orders as informal proceedings, over which appeal boards had no jurisdiction. This differs from the formal "show cause" adjudication before a three-member licensing board that Mr. Acosta received and in which there is appeal board jurisdiction. See 10 C.F.R. § 2.700 *et seq.*

(Continued)

Station, Unit 1), ALAB-911, 29 NRC 247, 250 (1989) (the purpose of *sua sponte* review is "protection of the public interest in general (as opposed to a particular litigant's interest) by providing another independent level of review of significant health, safety, and environmental issues on which a substantial evidentiary record already exists").

Under 10 C.F.R. § 2.760(a), the Licensing Board's decision in LBP-89-26 will become the Commission's final decision in this matter on October 30, 1989, unless the Commission itself directs otherwise.

FOR THE APPEAL PANEL  
CHAIRMAN\*

Barbara A. Tompkins  
Secretary to the  
Appeal Panel

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The Commission now has pending a proposed rulemaking that would make all proceedings for the grant, renewal, or licensee-initiated amendment of an operator's license subject to the newly promulgated informal hearing procedures in 10 C.F.R. Part 2, Subpart L, 54 Fed. Reg. 8269 (1989). See 54 Fed. Reg. 17,961 (1989). Appeal boards have jurisdiction in Subpart L proceedings. 10 C.F.R. § 2.1255. Thus, if the proposed rules are enacted, future cases like *Held* and *Morabito* would be subject to appeal board review.

\*This memorandum is issued pursuant to the Appeal Panel Chairman's authority in 10 C.F.R. § 2.787(a), (b)(2).

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judge:

Peter B. Bloch

In the Matter of

Docket No. 70-25  
(ASLBP No. 89-594-01-ML)  
(Special Nuclear Material  
License No. SNM-21)  
(Request to Renew  
for 10 Years)

ROCKWELL INTERNATIONAL  
CORPORATION  
(Rocketdyne Division)

October 5, 1989<sup>1</sup>

The presiding officer issued a schedule for the initial stages of a complex Subpart L case. The time from the issuance of the hearing notice to possible determination of the case is about 10.5 months.

**RULES OF PRACTICE: SCHEDULE FOR COMPLEX CASE UNDER SUBPART L**

After the filings provided for in the schedule issued by the presiding officer are completed, the presiding officer will be in a position to decide the case or to decide whether to ask additional questions of the parties or to call witnesses to give oral testimony.

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<sup>1</sup>All filings in this case should bear the date of filing in the upper right hand corner of the first page of the filing.

## **RULES OF PRACTICE: REQUIREMENTS FOR QUALITY FILINGS UNDER SUBPART L, EXPLAINED**

The presiding officer makes a variety of substantive and format suggestions about how parties may make their filings effective.

### **MEMORANDUM AND ORDER (Scheduling)**

In the course of the September 29, 1989, prehearing conference, held in Van Nuys, California, I adopted a schedule for the filings in this case and also stated some ground rules that would apply to those filings. Tr. 238, 245-50, 252-55. The purpose of this Memorandum is to state the adopted schedule clearly in one place and to suggest a few refinements that may improve the efficiency of the proceeding. To the extent that this order may be inconsistent with the orders entered on the transcript, this written order shall control.

A few introductory words are in order. For each of the stages of the case, it is required that filings be *received* by each of the parties required to be served by the *date specified*. (Parties may choose the form of service providing that receipt is timely.)

The Chatsworth Library has been chosen for the purpose of depositing the case file for the convenience of Intervenors. Materials should be deposited there within the next 10 days.

The purpose of specifying each of the stages of the proceeding in this Memorandum, and of imposing conditions on the filings, is to ensure that the filings will be useful in the decisional process and will have the full impact they deserve. If it should appear to any of the parties that some of the conditions should be changed, they may file for reconsideration of this Order within 10 days of its receipt. (Motions for reconsideration in this case will be timely only within 10 days of the Order as to which reconsideration is sought. Otherwise, the Order becomes part of the law of this case.)

I reserve the right to remain flexible in the interest of justice and will entertain motions for extension of time or other specific relief *for good cause*. The cause must be stated clearly and must persuade me of its merits.

Should Rocketdyne (or *all* of the Intervenors) complete and transmit their work on any of the stages of the proceeding *before* the deadline date, then the deadlines for later stages will automatically be shifted accordingly — commencing the time allotted to that stage from the time of *receipt* of the *last* filing from the previous stage. Now, in the interest of setting a clear schedule that will bring this case to closure, I direct that the stages in filing are:

## I. INTERVENORS' DIRECT CASES — DUE JANUARY 3, 1990<sup>2</sup>

Each concern<sup>3</sup> included in the direct case must be clearly stated and accompanied by a relevant reference to a licensing standard contained in 10 C.F.R. Part 70 and applicable to a general special materials license. (See Attachment A (not published) for a copy of Part 70.) For each concern,<sup>4</sup> the filing should specify the relief that is sought should the concern be demonstrated to be true (e.g., denial of license or specification of a condition of licensing). Failure to comply with this paragraph of my Order will invalidate the entire discussion of the concern, which may be treated as if it had not even been filed — subject only to a discretionary ruling on my part that the matter is too important (to safety or the environment) for me to disregard it.

The direct case shall be well organized and clearly presented. Pages shall be numbered sequentially throughout, except for attachments, which either shall have their own clear numbering system or shall have numbers written in clearly by the person filing the attachment. Lengthy documents should include a table of contents; for very lengthy documents, page tabs are encouraged to make it easier to refer back and forth to different portions of the report. The method of binding should be secure. Clearly labelled graphs and charts are encouraged to help to make it easier to understand the material or to show the comparisons to which you wish to draw attention.

Intervenors should be familiar with the record and should address each relevant portion of the application. Failure to address relevant portions of the application may result in the Intervenor being unable to address those arguments at a later stage of the proceeding — when only rebuttal of new material will be permitted.

Arguments should be fully presented so that they can be understood, if I so choose, without having to check cited sources. Arguments also shall be clearly documented. They should comply with 10 C.F.R. § 2.1233, which requires that the filing be under oath or affirmation. They may also clearly cite documents already in the record, such as the Application or answers to my questions.

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<sup>2</sup>If any of the deadlines (either as stated in the Order or recalculated because *all* of the parties whose filings were due completed their filings before the deadline) should fall on a day that is not a business day for the federal government, the due date shall automatically be understood to be the next business day for the federal government.

<sup>3</sup>Intervenors may substantiate only those concerns raised by them in their request/petition, in a limited appearance statement that I have said is part of the request/petition, or at the preliminary hearing. Should information important to public health or safety or to the protection of the environment be developed that does not relate to a concern that has already been properly raised, then an Intervenor may move to have me consider that concern. The motion should be made promptly and should show good cause for the late filing, including why the filing is late and why it is important.

<sup>4</sup>It is my experience that the effective presentation of concerns requires careful organization, including allocation of available resources, setting of priorities, and attention to details. When an Intervenor suspects a defect in a Rocketdyne document, it may be helpful to seek a voluntary discussion with Rocketdyne that might clarify the issue. Such voluntary discussions are, of course, not mandatory for either party.

They may cite other documents providing that copies of all relevant portions are attached and that the references are clear. Lengthy documents may be cited without attachment if arrangements are made with me to have those documents added to the file for this case or to exempt the documents from being added because they are readily available.

Whenever Intervenors cite Rocketdyne materials, they should discuss them in a way that fully acknowledges the thrust of Rockwell's position as it might state it. Then, Intervenors may state why they consider that position incorrect or incomplete. It is most helpful to me that whenever any party cites an opponent's argument that it state that opposing argument as sympathetically as possible. That will help me to fulfill my responsibility to review the entire record of the case. It will also help the party in understanding the strengths or weaknesses of its own case.

In this initial filing, Intervenors should state crucial areas in which information is missing from the application and supporting materials. They may also ask relevant questions, directly related to specific concerns that have been properly raised (*see note 3, supra*), to which Rockwell is invited to supply answers. Intervenors that fail to identify areas of lack of information at this time may be barred from proposing that I ask questions about those areas at a later stage of the proceeding.

## II. ROCKETDYNE'S RESPONSE — DUE MARCH 3, 1990

Rocketdyne shall respond to each allegation in a filing that shall meet all the suggestions for organization and clarity just set forth for stage I, including the suggestion that they accurately represent the full thrust of Intervenors' allegations. Rocketdyne shall interpret allegations as well as it is able, given its experience and the need to accommodate the inexperience of certain Intervenors; if it is honestly unable to understand an allegation, it may respond by stating its inability. Rocketdyne also should specify the relief it thinks appropriate under the circumstances (e.g., no relief or the willingness to accept a certain condition on licensing).

Intervenors' questions may be answered in whole or in part. When they are not answered or are answered only in part, Rocketdyne should state its reasons for not responding. Since discovery is not authorized under this subpart, Rocketdyne may simply state that the record appears to be clear and that it therefore does not need to answer the question. It may cite the portion of the existing record that responds to the concern. Rocketdyne should include a clear enough reference to (or abstract of) that portion of the record so that, should I choose to do so, I will understand the ground for not answering without physically turning to the reference.

### **III. INTERVENORS' REBUTTALS OF NEW MATERIAL — MARCH 23, 1990**

This rebuttal testimony is permitted only with respect to new or surprise material included in Rocketdyne's response. Intervenors' documents should comply with the same presentation and content standards applicable to their stage I filing.

It is particularly important that this rebuttal filing show full understanding of the material being rebutted so that I will find it easy to compare Rocketdyne's new or surprise material to the material being set forth in rebuttal.

### **IV. ROCKETDYNE'S REBUTTAL — DUE APRIL 12, 1990**

This rebuttal is *only* for new or surprise material presented by Intervenors. It may be accompanied by a motion to strike for failure to comply with the conditions imposed on rebuttal filings.

### **V. INTERVENORS' ANALYSIS — DUE MAY 12, 1990**

Intervenors will fully analyze the record with respect to each matter of concern to them. They may cite materials filed by any of the Intervenors. They must show an understanding of Rocketdyne's arguments and face those arguments directly, showing which arguments are accepted and which are thought to be incorrect.

As in all previous filings, this one should be clear, concise, well expressed, and well documented both as to facts and law. If there are disagreements about the effect of regulations or other aspects of the law, they should be briefed as part of this document — give citations to regulations, statutes, NRC decisions, my previous rulings, court opinions, etc.

This is the time to cite areas of weakness in the record and to suggest questions that I should pose, either in writing or directly to witnesses. Discuss the need for me to ask these questions or to call witnesses.

It would be most helpful if the tone of this analysis were sufficiently objective that I could adopt some or all of the analysis as my own opinion, resolving the issues.

### **VI. ROCKETDYNE'S ANALYSIS — DUE JUNE 11, 1990**

Respond directly to the analysis of each of the Intervenors, combining Intervenor concerns only where this is consistent with clear response. Do this

in a form that lends itself to adoption by me as my opinion. Respond as well to Intervenors' legal arguments and to their requests for me to ask questions or call witnesses. If Rocketdyne chooses, it may suggest questions or that I call witnesses to address its concerns about lack of clarity in the record.

### **VII. INTERVENORS' RESPONSES TO QUESTIONS — JULY 10, 1990**

If Rocketdyne has suggested questions or the calling of witnesses, Intervenors may respond — clearly and concisely.

### **VIII. MY DECISION — AUGUST 10, 1990**

My deadline is, of course, the target date for my work. I shall endeavor to decide the case prior to this deadline, if consistent with developing a careful understanding of all the issues and arguments. If I find I must ask questions proposed by the parties or must call witnesses, then the final decision in the case may not occur for another month to 3 months, to allow time for answers or a hearing and for the filing of analyses, if required.

Respectfully ORDERED,

Peter B. Bloch  
ADMINISTRATIVE JUDGE

[Attachment A has been omitted from this publication but can be found in the NRC Public Document Room, Gelman Building, 2120 L Street, NW, Washington, DC.]

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Ivan W. Smith, Chairman

Dr. Richard F. Cole

Dr. Kenneth A. McCollom

In the Matter of

Docket Nos. 50-443-OL

50-444-OL

(ASLBP No. 82-471-02-OL)  
(Offsite Emergency Planning)

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

October 12, 1989

MEMORANDUM AND ORDER  
(Denying Intervenors' Motions to Admit  
Low-Power Testing Contentions and Bases or  
to Reopen the Record, and Requests for Hearing)

INTRODUCTION

On June 22, 1989, during low-power testing, the Seabrook reactor, operated by New Hampshire Yankee (NHY), initiated a natural circulation test which called for a manual trip of the reactor if the pressurizer water level were to fall below 17%. During the test the water level fell below 17%, but the reactor was not tripped until about 7 minutes later despite the fact that the operators were aware that the test limit was exceeded. On June 23, NRC Region I issued a Confirmatory Action Letter (CAL) confirming its understanding with

NHY that it would obtain the concurrence of the Administrator of Region I before any restart following a complete review of the event. The circumstances surrounding this event form the bases for many pleadings including two motions submitted by the Massachusetts Attorney General (for the Joint Intervenors) to admit contentions, bases, or to reopen the record for a hearing on the matter.<sup>1</sup> In short, the first motion with its single contention charges that the June 22 event demonstrates that Applicants' plant operators and management are not adequately trained or qualified, and that they lack adequate managerial and administrative controls to operate the facility at any level of power. The second motion supplements and repeats the first, and adds two more contentions. It is discussed separately below.

The Massachusetts Attorney General seeks a hearing on the matter under three theories. The first casts the Region I Confirmatory Action Letter as a new "proceeding" suspending the Seabrook low-power operating license, thus affording the Attorney General a right to a hearing pursuant to section 189(a) of the Atomic Energy Act. Under the "suspension" theory, the Massachusetts Attorney General would be entitled to a hearing as a matter of right without

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<sup>1</sup> The relevant pleadings to date are:

Intervenors' Motion to Admit Contention, or, in the Alternative, to Reopen the Record, and Request for Hearing, July 21, 1989 (Intervenors' Motion).

Applicants' Answer to [Intervenors' Motion], August 7, 1989 (Applicants' Answer).

NRC Staff Response to [Intervenors' Motion], August 18, 1989 (NRC Staff Response).

Intervenors' Motion for Leave to Add Bases to Low Power Testing Contention Filed on July 21, 1989, and to Admit Further Contentions Arising from Low Power Testing Events, or, in the Alternative, to Reopen the Record and Second Request for Hearing, August 28, 1989 (Intervenors' Second Motion).

Intervenor's Motion to Admit Reply to Applicants' and Staff's Response to [Intervenors' Motion], September 1, 1989 (Motion to Admit Reply).

Applicants' Response to [Intervenors' Second Motion], September 11, 1989 (Applicants' Response to Second Motion).

Applicants' Response to [Motion to Admit Reply], September 11, 1989 (Applicants' Response to Motion to Admit Reply).

NRC Staff Response to [Intervenors' Second Motion], September 14, 1989.

NRC Staff Response to [Motion to Admit Reply], September 14, 1989.

Intervenors' Informational Supplement to Their Low-Power Contentions Filed on July 21 and August 28, 1989, September 19, 1989.

Mass AG's Motion for Leave to File a Reply to the Applicants' and Staff's Response to Intervenors' August 28, 1989 Motion to Add Bases and Further Low-Power Testing Contentions, September 19, 1989, and Reply [to same], September 19, 1989.

Intervenors' Second Informational Supplement to Their Low-Power Contentions filed on July 21 and August 28, 1989, September 22, 1989.

On September 26, 1989, the Board issued a Memorandum and Order (unpublished) commenting on the unprecedented number of Attorney General pleadings not authorized by the NRC Rules of Practice. We excused all parties from responding to unauthorized pleadings, including replies to motions, unless the Board invites such responses. That resulted in the filing of Intervenors' Motion for Reconsideration of the Order, September 28, 1989.

NRC Staff Response to "Mass AG's Motion for Leave to File a Reply to the Applicants' and Staff's Responses to Intervenors' [Second Motion]," October 4, 1989.

Applicants' Response to Intervenors' Motion for Reconsideration, October 4, 1989.

meeting any additional procedural requirements such as moving to reopen the record. Intervenors' Motion at 4-8.

The second theory asserts that since the Commission must find that operator and management training and procedures are adequate before an operating license may be granted,<sup>2</sup> such a finding is "material" to the issuance of the license; therefore a hearing is required pursuant to the holding of *Union of Concerned Scientists v. NRC*, 735 F.2d 1437, 1443 (D.C. Cir. 1984). Intervenors' Motion at 8-9.

Intervenors' Motion alternatively seeks to reopen the evidentiary record (closed June 30, 1989) of the full-power operating license proceeding pursuant to the provisions of 10 C.F.R. § 2.734 under a third theory — i.e., the low-power events alleged in the contention are relevant to the grant of a full-power license. *Id.* at 8-10, 12-25.

Applicants contest Intervenors' Motion on all fronts. First, according to Applicants, there has been no license suspension. The CAL is not a license suspension; no hearing rights ensue from it. In any event, the Massachusetts Attorney General would have no absolute right to a hearing even if the CAL were a license suspension. Applicants' Answer at 9-16. Applicants reject the notion that UCS confers any hearing right upon Intervenors because, among other reasons, the contention is late filed. *Id.* at 14. Responding to the argument by the Massachusetts Attorney General that the evidentiary record on the full-power proceeding should be reopened, Applicants address the regulatory requirements for motions to reopen set out under 10 C.F.R. § 2.734. Applicants argue that the Intervenors' motion does not address a significant safety issue nor does it satisfy the "five factor" test for late-filed contentions as required by the rule. *Id.* at 17-25. Finally, Applicants counter the Massachusetts Attorney General's jurisdictional claims with the argument that neither this nor any other licensing board has jurisdiction over the subject matter of the motion. *Id.* at 25-28. Applicants also provided their response to the Confirmatory Action Letter and other factual information in support of their analysis of the significance of the June 22 event. Attachments to Applicants' Answer.

The NRC Staff responded with a factual and legal analysis of the Massachusetts Attorney General's "suspension proceeding" theory: The CAL is not a suspension order and, even if it were, the Massachusetts Attorney General has no right to a hearing on it. NRC Staff Response at 2-6. With respect to Intervenors' second theory of the case, the Staff urges the Board to apply a "fundamental flaw" test to the contention as in *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-86-11, 23 NRC 577, 581 (1986), and in *Shoreham*, ALAB-903, 28 NRC 499, 505 (1988). NRC Staff Response at 6-10.

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<sup>2</sup> Citing *San Luis Obispo Mothers for Peace v. NRC*, 751 F.2d 1287, 1309 (D.C. Cir. 1984).

The Staff provides a detailed legal analysis of the requirements to reopen a record under 10 C.F.R. § 2.734 supported by an extensive factual account of the June 22 events at Seabrook. NRC Staff Response at 10-21. Finally, the Staff does not concur in Applicants' jurisdictional arguments except to the extent Applicants argued that this Board has no jurisdiction in regard to a suspension of the low-power license. *Id.* at 21 n.8. We turn first to the question of jurisdiction.

## JURISDICTION

The Massachusetts Attorney General states simply that this Board has jurisdiction over all issues raised in the contention, *citing* ALAB-916, 29 NRC 434 (1989), in this proceeding.

Applicants contend, however, that all that the Appeal Board held in ALAB-916 was that, at the time a certain contention was filed concerning the onsite exercise, some licensing board must have had jurisdiction and that this licensing board stood in the shoes of the original licensing board at the time the filing was made. Thus, all that ALAB-916 can be read as holding is that this Licensing Board has jurisdiction to entertain and decide the motion. According to Applicants, ALAB-916 does not answer the question of whether any licensing board can in fact exercise jurisdiction over the proffered contention and that the contention does not relate to any emergency plan or its exercise. Rather, it is in the nature of a technical qualifications contention which should have been raised, if at all, prior to the time that the Licensing Boards concluded their efforts on the low-power license and sent that aspect of the proceeding on to the Appeal Board, the Commission, and now the U.S. Court of Appeals for the District of Columbia Circuit.

Applicants maintain, therefore, that the contention simply is no longer litigable in light of the fact that the Commission has taken final agency action with respect to the low-power license which encompasses the subject matter of this contention. *Citing* 10 C.F.R. § 2.717(a) and *Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), ALAB-381, 5 NRC 582, 590-91, 593 (1977). Applicants' Answer at 26. Thus, we understand Applicants' argument to be that, while this Board is the right forum to entertain the motion, it is the wrong forum to evaluate the merits of the contention; that once the Commission issues a low-power license, the only avenue left to the Massachusetts Attorney General is through the filing of a request under 10 C.F.R. § 2.206.

Applicants continue their jurisdictional argument by recalling to the Board's attention that, in September 1982, the Licensing Board admitted for litigation in the Seabrook operating license proceeding the following contention denominated NH-13:

The Applicant has not demonstrated that the following and all other operations personnel are qualified and properly trained in accordance with NUREG-0737, Items I.A.1.1, I.A.2.1, I.A.2.3, II.B.4, I.C.1 and Appendix C: (a) Station Manager, (b) Assistant Station Manager, (c) Senior Reactor Operators, (d) Reactor Operators, and (e) Shift Technical Advisors.

Summary Disposition was granted with respect to this contention on May 11, 1983.<sup>3</sup> At the time the contention was admitted and when it was disposed of, the Massachusetts Attorney General, SAPL, and NECNP were all parties to the proceeding against whom *res judicata* would operate.

For its part, the Staff argues that the Appeal Board in ALAB-916, *supra*, 29 NRC at 438-39, ruled that this Board has jurisdiction over all issues but those explicitly given to other licensing boards. The matters on which Intervenors seek to reopen the record in regard to the issuance of the full-power license is not before other boards and is, hence, before this Board. Further, the Staff is correct in its view that the doctrine of *res judicata*, although applicable to NRC adjudications, does not apply here. The events of June 22, 1989, giving rise to the instant contention were not and could not have been the basis for Contention NH-13 summarily dismissed by the Board in 1983. As Applicants acknowledge, at 27 n.66 of their Answer, the doctrine of *res judicata* has limited applicability in administrative proceedings where there are changed circumstances. *See Alabama Power Co.* (Joseph M. Farley Nuclear Plant, Units 1 and 2), ALAB-182, 7 AEC 210, 216 (1974).

We believe that Staff's view on the issue of jurisdiction and *res judicata* in regard to matters relevant to the issuance of a full-power license is the better one. In addition, as we find below, the Staff is correct in arguing that Intervenors' request (Motion at 3) that further low-power testing remain suspended is beyond the jurisdiction of this Board as is any facet of an enforcement action in this proceeding. We address that aspect of jurisdiction in the following section.

## SUSPENSION OR CONFIRMATORY ACTION?

Low-power testing of the Seabrook Station has been halted and the Applicants have committed to the NRC that this testing will not be resumed without the prior approval of the Region I Administrator. As we noted above, a Confirmatory Action Letter (CAL) memorializes the NRC understanding with NYH. The Attorney General argues that this action should be regarded as the equivalent of initiating a proceeding to "suspend" Applicants' low-power license. Intervenors' Motion at 4-8. According to the Attorney General, because section 189a of the Atomic Energy Act expressly lists a license suspension as one of the proceedings

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<sup>3</sup> Memorandum and Order (unpublished) (Memorializing Prehearing Conference and Ruling on Motions for Summary Disposition) at 14-18 (May 11, 1983).

giving rise to a hearing, Intervenors are entitled as a matter of law to a hearing on all issues set out in the contention without meeting any further procedural requirements such as seeking to reopen the record recently closed. *Id.* at 6-7.

The Staff asserts that, in fact, the Commission has not suspended Applicants' low-power license. Rather, Applicants voluntarily ceased operations in light of the June 22, 1989 event, and have committed not to resume low-power testing without first obtaining the approval of the Staff.<sup>4</sup> For their part, Applicants point out that the CAL had none of the legal elements of a license suspension. An NRC license may be suspended, except in an emergency or for a willful violation, only after the issuance of a notice of violation, after an opportunity for the licensee to answer the notice, then by an order to show cause followed by an opportunity for a hearing by the licensee. 10 C.F.R. §§ 2.201(a)-(b), 2.202(a) and subsections (1)-(3).

As was made clear recently in *Massachusetts v. NRC*, 878 F.2d 1516, 1521-22 (1st Cir. 1989), cited by the Massachusetts Attorney General (Intervenors' Motion at 6), labels alone will not determine whether a license has been revoked or suspended *de facto*. Even so, the court's articulation of this well-established principle in *Massachusetts v. NRC* offers little solace to the Massachusetts Attorney General here. In that case the court was not deciding whether a CAL could amount to, or under the facts of that case, had amounted to a license suspension. The issue there was whether there was a reinstatement of a license, an action that does not afford to the Commonwealth any right to a hearing in that a reinstatement is not included among those matters set out in section 189(a) of the Atomic Energy Act. *Massachusetts, supra*, at 1522.

Indeed, if any part of the Massachusetts Attorney General's "suspension" theory is correct, the hearing he seeks is not to suspend any license — he contends that it has already been suspended. In essence he seeks a hearing to oppose any lifting of any "suspension." Putting aside the fact that a "lifting" of the "suspension" has yet to be proposed, he must be aware, by citing to *Mothers for Peace, supra*, 751 F.2d at 1314, that section 189(a) of the Act does not provide for a hearing on the *lifting* of a suspension. Intervenors' Motion at 4-5 n.1.

We accept the Confirmatory Action Letter at face value; it is not a suspension within the meaning of the Act and no hearing rights ensue from it to the Intervenors.

But even if the CAL were construed as a *de facto* suspension, Intervenors would still be in the wrong forum. Enforcement proceedings, including license suspension actions, are brought under Part 2, Subpart B. Such proceedings are initiated only by order of the Commission, which in turn depends on

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<sup>4</sup> See Confirmatory Action Letter from William T. Russell, Region I Administrator, to Applicants, at 1 (attached to letter from Edwin J. Reis to Board, June 26, 1989).

a request for a hearing by the affected licensee. See 10 C.F.R. § 2.202(c). Licensing boards do not have the authority to become involved in an enforcement matter until a hearing is requested by the person charged and ordered by the Commission. *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-82-31, 16 NRC 1236, 1238 (1982) (Commission vacates board order imposing monetary penalty). Jurisdiction of a licensing board extends only to those matters encompassed in the Commission's notice of hearing, e.g., *Portland General Electric Co.* (Trojan Nuclear Plant), ALAB-534, 9 NRC 287, 289-90 n.6 (1979), or those matters raised *sua sponte* in accordance with 10 C.F.R. § 2.760a. The Intervenors do not even suggest that the Commission has especially delegated to this Board any authority in enforcement matters involving the Seabrook Station. Thus the motion poses a conundrum. If we were to accept the Massachusetts Attorney General's "suspension" theory, such acceptance would deprive this Board of the very jurisdiction the Massachusetts Attorney General seeks to invoke. Moreover, as the Attorney General should know well, only the person who will be adversely affected by the proposed action, in this case the licensee, would have the right to participate in an enforcement proceeding. *Bellotti v. NRC*, 725 F.2d 1380, 1382 (D.C. Cir. 1983).

Therefore the Intervenors do not have a right to initiate or participate in a "suspension" hearing on the events of June 22 under section 189(a) of the Atomic Energy Act.

#### **WHETHER UCS AND MOTHERS FOR PEACE CONFER HEARING RIGHTS**

In the alternative, the Massachusetts Attorney General argues that Intervenors are entitled to a hearing on the proffered contention, as of right, under doctrines announced in *San Luis Obispo Mothers for Peace, supra*, 751 F.2d at 1309, and *Union of Concerned Scientists, supra*, 735 F.2d at 1443. Intervenors' Motion at 8-10. As noted in the Introduction, *supra*, the Massachusetts Attorney General argues that, since the Commission by regulation requires adequate operator training, management, procedures, and performance before a full-power operating license can issue, there is an absolute hearing right granted to intervenors on these matters under *UCS* and *Mothers for Peace*. The argument is augmented by the claim that since the NRC has "suspended" further plant operations at *any* level until there is a full examination and corrective action" the NRC has operationally demonstrated that the issues proffered in the contention are material and relevant to the grant of a full-power license, citing *UCS, supra*, 735 F.2d at 1443.

Applicants respond that, even assuming that there is an absolute right to seek a hearing on such matters, it must be exercised at the time the original

notice for an operating license hearing issues. That time has long since passed. Now the contention is both late filed, and being filed in a proceeding where the evidentiary record is closed. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-918, 29 NRC 473, 480 (1989), *citing Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041 (1983). Therefore, according to Applicants, UCS does not relieve the Massachusetts Attorney General of his burden to satisfy the criteria of 10 C.F.R. § 2.734 for reopening an evidentiary record. For the reasons set out below, we arrive at the same conclusion.

Intervenors argue that UCS and *Mothers for Peace* should be read as overriding the 10 C.F.R. § 2.734 standards for reopening a matter that is material to licensing. Intervenors' Motion at 11-12. The Attorney General cites excerpts from these two cases for the proposition that the court was essentially declaring invalid the Commission's rule with respect to reopening closed records, at least insofar as exercise contentions were concerned. However, we agree with Applicants that the only regulation UCS addressed was 10 C.F.R. § 2.206 which the Court noted is a rule of "unfettered discretion" which is to be compared with reasonable procedural rules for accepting issues for NRC litigation such as sections 2.714 and 2.734. UCS, *supra*, 735 F.2d at 1449. *Mothers for Peace* discussed the case law establishing one of the then-extant two "decision-generated" standards for reopening — the one was one that required the movant to show that a *different result* would obtain. E.g., 751 F.2d at 1316 & n.167. In any event, whatever the holding of *Mothers for Peace*, Applicants remind us that section 2.734 was adopted *after*, and with cognizance of that case.<sup>5</sup>

Intervenors contend also that the successful completion of low-power testing is a prerequisite to the issuance of a full-power license and argue, therefore, for an absolute right to a hearing under UCS by virtue of that concept alone. Intervenors' Motion at 9. This is an argument previously made to this Board. We saw no need to address the point before because there was no contention (thus no jurisdiction) before us to consider. Now, however, it is time to put an end to the almost frivolous argument that UCS requires that low-power testing must be satisfactorily completed before full-power *licensing*. Obviously, as Applicants have argued, it is full-power *ascension* that must await satisfactory low-power testing. Whether or not a utility seeks a license to operate at low power before the grant of a full-power license is solely within the discretion of the utility. Indeed, as Applicants wishfully observe, they would have been free to "sit on the low power license and await the issuance of a full power license." Applicants' Answer at 16. Accordingly we rule that the Massachusetts Attorney

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<sup>5</sup> Applicants' Answer at 15, *citing* 10 C.F.R. § 2.734(a)(3); Statement of Consideration, 51 Fed. Reg. 19,539 (May 30, 1986).

General's argument that Applicants must demonstrate competence at low-power operation before the issuance of a full-power license is without merit.

The NRC Staff addresses Intervenors' argument that they are entitled to a hearing on matters "material" to licensing with a new, but well-reasoned twist. NRC Staff Response at 6. Assuming that Intervenors' claim to a right to a hearing is correct (a proposition the Staff believes to be dubious), their proffered contention does not pass muster.

In *UCS*, *supra*, 735 F.2d at 1447-49, the Circuit Court held that litigation of contentions that involve issues arising late in the proceeding could be limited by the Commission to those material to the decision, i.e., "fundamental flaws," in contrast to minor or *ad hoc* problems. In *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-86-11, 23 NRC 577, 581 (1986), the Commission adopted the *UCS* standard, stating: "Since only fundamental flaws are material licensing issues, the hearing may be restricted to those issues." Also in the *Shoreham* proceeding, the Appeal Board further defined a fundamental flaw as one that "reflects a failure of an essential element of the plan" which can be remedied "only through a significant revision of the plan." *id.*, ALAB-903, 28 NRC 499, 505 (1988). In the onsite phase of this proceeding, ALAB-918, 29 NRC 473, 486 (1989), the Appeal Board stated that where "problems are readily corrected by providing supplemental training to some of the applicants' personnel, . . . such training does not involve any revision, much less a significant one, of the emergency plan." Therefore such problems could not be characterized as "fundamental flaws." *Id.*

The Staff acknowledges that the *UCS* and *Shoreham* cases, and ALAB-918, cited above, all involved contentions arising out of emergency planning exercises, but argues that the rationale of those cases is equally applicable to contentions arising out of low-power or power-ascension testing. In fact in ALAB-903, 28 NRC at 507, the Appeal Board recognized that the fundamental flaw standard is akin to standards for the admission of contentions involving quality assurance in that the question is not only whether a particular event transpired, but whether the event is indicative of pervasive problems. The Staff correctly states that, as with an emergency planning exercise, low-power testing is, as a practical matter, conducted near the end of the full-power operating license proceeding. In fact, such testing frequently occurs after the proceeding has been completed and full-power license has issued.

The analogy is sound. Low-power operation is, in a manner, similar to emergency planning and exercises and should be considered testing and training. In fact, since a utility is not required to demonstrate competence at low power before the grant of a full-power license, there is all the more reason to limit low-power contentions to those alleging "fundamental flaws" in operational preparedness.

Indeed, to conclude otherwise could lead applicants for operating licenses to forgo the very substantial safety benefits from low-power testing before the issuance of a full-power license in an effort to avoid the potential delays associated with litigating easily correctable minor and *ad hoc* procedural and training problems. In our view the safety benefits to be derived from low-power testing months before the issuance of any full-power license are substantial — there are no incentives, economic or otherwise, to rush through the low-power evolutions in order to ascend to full power. Rather, under the low-power licensing scheme, the incentive is to effect deliberate, finely tuned corrections without one eye cocked to the rate base.

In support of its “fundamental flaw” approach the Staff submitted the affidavit of James G. Partlow and Victor Nerves (attached to NRC Staff Response) (Partlow and Nerves Affidavit) to explain whether the events of June 22 revealed fundamental flaws in Applicants’ management, operator training, or low-power testing programs. NRC Staff Response at 7-8. The Partlow and Nerves Affidavit tends to repeat and overlap much of the Staff’s Martin and Eselgroth Affidavit presented on the subject of the safety significance of the June 22 event, discussed below. However, it is useful for its focus on the overall purpose of low-power testing and the fact that a test is in fact a test.

Mr. Partlow is Associate Director for Projects, NRR. Mr. Nerves is the Seabrook Senior Project Manager. They are well qualified to explain the significance of the June 22 events. See Statements of Professional Qualifications, Partlow and Nerves Affidavit. In their affidavit, they explain that, in evaluating the results of low-power testing, the Commission’s concern is not with minor or *ad hoc* problems that occur during the testing, but rather with pervasive or “fundamental” deficiencies which could pose significant public health and safety problems. *Id.* at 3.

As described in Chapter 14 of the FSAR, the low-power test program is part of the Seabrook initial test program. The program is conducted to assure that the facility performs as designed and can be operated safely, that plant and emergency operating procedures are adequate, and that plant personnel are knowledgeable and prepared to operate the facility in a safe manner. As with any test program, it is expected that, in spite of adequate construction and preoperational testing and extensive training of personnel, occasional problems may be identified and personnel errors may occur. This is part of the testing process. *Id.* This seems very reasonable to the Board. Indeed any testing program that fails to reveal any problems or personnel error would be highly suspect as an undemanding test.

Applicants’ low-power test program was reviewed by the Staff and found to be consistent with regulatory requirements. The adequacy of Applicants’ preparations for low-power testing and the readiness of both the licensee

personnel and facility have been confirmed by the Staff and is documented in NRC Inspection Report No. 50-443/89-80. Partlow and Nerves Affidavit at 4.

The Staff conducted inspections of Applicants' conduct of low-power testing during the period between June 13, 1989 (initial criticality), and June 22 when the reactor was tripped during the natural circulation test. These inspections determined that, with the exception of the errors made during the June 22 event, the low-power test program was satisfactorily implemented in accordance with the license, and the plant performed as designed (Inspection Report No. 50-443/89-81). *Id.*

In addition the NRC designated an Augmented Inspection Team (AIT) to review the event. The AIT concludes that "reactor plant safety was never in question, and with the exception of the significant error of not tripping the reactor at the point first called for by the test procedure and loss of pressure control due to letdown isolation and pressurizer heater de-energization, the operating staff performed well." Inspection Report No. 50-443/89-82, at 6; Partlow and Nerves Affidavit at 4.

Although the AIT report correctly identifies the June 22 event as involving significant error, it is important to note that this event must be considered in context with all of Applicants' activities during low-power testing. So viewed, this event constitutes an exception to what otherwise has been evaluated by the Staff as fully acceptable performance during the preparations for and conduct of low-power testing. Such an exception does not constitute a failure of an essential element of the primary program or plan (for example, the operator training program), but rather, errors in not meeting one specific requirement contained within the overall program or plan. To remedy this so as to prevent recurrence of the errors does not require developing a whole new program or plan or even a significant revision to the existing program or plan. Partlow and Nerves Affidavit at 5.

Messrs. Partlow and Nerves agree with Gregory Minor and Steven Sholly, whose affidavit accompanies Intervenors' Motion, that some improvement in the training program is essential.<sup>6</sup> But they do not equate the need for "some improvements" in training with a failure in the essential elements of Applicants' plans, programs, or training program itself. Accordingly, the cognizant officials of the NRC Staff do not consider the performance of the management and operators during the June 22 events to evidence a fundamental flaw. *Id.*

The Staff acknowledges that it is not unconcerned with this matter, but that the lapse, as Messrs. Partlow and Nerves explain, "does not require developing a

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<sup>6</sup> Joint Affidavit of Gregory C. Minor and Steven C. Sholly, July 21, 1989 (Minor and Sholly Affidavit). There are two Minor and Sholly affidavits. One accompanies Intervenors' Second Motion. Neither affidavit was sworn to or affirmed before any officer authorized to administer oaths or to receive affirmations. No explanation was provided.

whole new program or plan or even a significant revision to the existing program or plan." NRC Staff Response at 9.

The Staff concludes its argument on the "fundamental flaw" facet of the contention with the observation that:

In ALAB-903, *supra*, the Appeal Board stated "[t]he test for a fundamental flaw is akin to that required for contentions alleging quality assurance (QA) deficiencies." Under that test, the salient question is not whether deficiencies occurred (it is expected that they will), but rather whether such errors are of sufficient dimension to lead one to conclude that there has been a "pervasive breakdown" in the QA program that raises legitimate doubt as to whether the plant can be operated without endangering the public health and safety. *E.g., Union Electric Co. (Callaway Plant, Unit 1)*, ALAB-740, 18 NRC 343, 346 (1983). Applying this principle, it is clear that the June 22, 1989 event reflects only an isolated instance of a failure to adhere strictly to applicable procedure but does not represent a "pervasive breakdown" in Applicants' low-power testing or operator training program.

NRC Staff Response at 9-10.

While we agree with the Staff, we cannot automatically follow it to the conclusion that the contention fails because the *evidence of the events* of June 22 do not reveal fundamental flaws in Applicants' plans and procedures. At the contention-screening stage, the context within which Staff makes its argument, a contention need only *allege* with reasonable bases and specificity a fundamental flaw. At the screening stage we are not yet concerned with what the evidence may later establish as is the case with motions to reopen the record. In this case the contention alleges, inaccurately as it turns out, serious deficiencies in essential elements of NYH's personnel training, policies, management competence and attitudes, and other operational elements which were revealed by the noncompliance of June 22. Putting aside for the moment Intervenors' training allegations, it is not obvious that the balance of the contention also alleges defects that can be remedied "only by a significant revision" of plans, procedures, or whatever. However, in a judgment call for the sake of completeness, we rule for now that the nontraining aspects of the contention meet the threshold test for alleging "fundamental flaws" as required by ALAB-903, *supra*.<sup>7</sup> This is a hollow victory for the Attorney General, however, because his contention survives only long enough to perish when we apply the standards for reopening the record, below.

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<sup>7</sup> Intervenors' proffered Reply to Applicants' and Staff's Responses to Intervenors' Motion complains that the Staff is asking the Board to "make new law" by extending the "fundamental flaw" standard to contentions relating to low-power testing. *Id.* at 3-10. We agree that, however valid the Staff's position may be, it is a new application of the "fundamental flaw" test, notwithstanding its similarity to the test for quality assurance contentions as delineated in *Callaway, supra*. Therefore we have considered that aspect of Intervenors' Reply as if it were received. However, the balance of the Reply is a mixture of arguments set out in the original motion, and in any event, is subsumed by Intervenors' Second Motion and is not received.

With respect to the training allegations, Basis B.2 alleges that training (and management) procedures for the operations shift crew are not adequate. Basis B.5 alleges that management training programs are not adequate. Basis C alleges "pervasive and fundamental defects" in Applicants' programs and procedures, including the licensed-operator training program and the training program for the technical and management staff. However, the support for these bases, including the explanation for the bases provided by the Minor and Sholly Affidavit (*e.g.*, ¶ 22 at 11), amount to no more than an allegation of the need for supplemental training. We can find no rationale, support, basis, or specificity for the suggestion that the training program is deficient, significantly or otherwise. Thus the teaching of ALAB-918, *supra*, 29 NRC at 485-86, in part, guides us to the conclusion that the training aspects of the contention do not allege a fundamental flaw in the training program and those aspects of the contention are therefore defective. *A fortiori* the training aspects will not fare well when measured against the standards for reopening a record, as we next discuss.

### INTERVENORS' MOTION TO REOPEN THE RECORD

Motions to reopen a record are governed by 10 C.F.R. § 2.734.<sup>8</sup>

In another facet of this proceeding, in ALAB-915, 29 NRC 427, 432 (1989), the Appeal Board stated:

[T]he Commission expects its adjudicatory boards to enforce the section 2.734 requirements rigorously — i.e., to reject out-of-hand reopening motions that do not meet those requirements within their four corners . . . .

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<sup>8</sup> As pertinent:

- (a) A motion to reopen a closed record to consider additional evidence will not be granted unless the following criteria are satisfied:
  - (1) The motion must be timely, except that an exceptionally grave issue may be considered in the discretion of the presiding officer even if untimely presented.
  - (2) The motion must address a significant safety or environmental issue.
  - (3) The motion must demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially.
- (b) The motion must be accompanied by one or more affidavits which set forth the factual and/or technical bases for the movant's claim that the criteria of paragraph (a) of this section have been satisfied. Affidavits must be given by competent individuals with knowledge of the facts alleged, or by experts in the disciplines appropriate to the issues raised. Evidence contained in affidavits must meet the admissibility standards set forth in § 2.743(c). Each of the criteria must be separately addressed, with a specific explanation of why it has been met. Where multiple allegations are involved, the movant must identify with particularity each issue it seeks to litigate and specify the factual and/or technical bases which it believes support the claim that this issue meets the criteria in paragraph (a) of this section.

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- (d) A motion to reopen which relates to a contention not previously in controversy among the parties must also satisfy the requirements for nontimely contentions in § 2.714(a)(1)(i) through (v).

Moreover, the accompanying affidavits and supporting material must be tantamount to evidence, and in excess of the basis and specificity requirements of 10 C.F.R. § 2.714(b). *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-89-1, 29 NRC 89, 93-94 (1989).

### Timeliness

The Intervenors' Motion was filed on July 21, 1989. Applicants provided a report of the June 22 incident to the Massachusetts Attorney General on July 14. Given the stringent requirements for supporting a motion to reopen the record, the Intervenors acted promptly if time is measured from July 14.

Applicants and Staff, however, argue that the Massachusetts Attorney General was put on notice of the events through newspaper accounts on June 24 and 25. See Applicants' Answer, Attach. F. It is true that the Massachusetts Attorney General knew of the plant shutdown early from news reports, and in fact orally warned the Board and parties of his intention to file contentions on the matter soon after the news reports were published. Almost as an intuitive reaction, the Board then would have been less than warm to any effort by Intervenors to introduce a new issue, or to reopen the record of the hearing, based upon newspaper accounts. The Board and parties then had enough work to do without entertaining speculative or unripe pleadings. Nor do Applicants and Staff explain how the Massachusetts Attorney General could have carried his heavy evidentiary burden imposed by 10 C.F.R. § 2.734(b) with nothing but newspaper accounts. The motion to reopen is timely.

### Safety Significance

Intervenors do not dispute Applicants' basic account of the June 22 event. It is conveniently set out in NHY's response to the CAL. Applicants' Answer, Attach. A. The NRC Staff has provided, as far as we can determine, all available information on the incident with its response. These include the Partlow and Nenses Affidavit discussed above, the Martin and Eselgroth Affidavit,<sup>9</sup> and the August 17 report of the Augmented Inspection Team (Inspection Report No. 50-443/89-81), noted above. The background account below is excerpted from Applicants' Answer:

On June 22, 1989, Seabrook Station, Unit 1, initiated, at approximately 12:19 p.m., a Natural Circulation Test. This test, which followed

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<sup>9</sup> Affidavit of Thomas P. Martin and Peter W. Eselgroth. Mr. Martin is Deputy Regional Administrator, Region I, and Mr. Eselgroth serves as Chief, Pressurized Water Reactor Section, Region I. Mr. Martin was present in the control room on June 22 and observed the events in question. Mr. Eselgroth was the leader of the Augmented Inspection Team designated to analyze the event. Martin and Eselgroth Affidavit, Q4-A4 and Q7-A7.

completion of the low-power testing, was governed by Test Procedure "No. 1-ST-22." That test procedure provides, in material part, as follows:

- B. Manual Trip Criteria: The test must be terminated and the reactor tripped if any of the following occur:

5. Pressurizer Water Level: < 17% or unexplained decrease of > 5%.

This criterion, by its terms, requires the manual trip of the reactor at a pressurizer level some 12 percentage points higher than would be required by license technical specifications attendant to normal operating procedures.

At 12:26:04 p.m., steam dump valve MS-PV-3011 failed open, which had the effect of causing the pressurizer pressure and level to continue to drop from then-existing levels. The pressurizer level continued to drop until 12:28:53 p.m. when it decreased below 17%. At the time this occurred, there were present in the control room three NRC Staff personnel, as well as other observers. Despite the fact that NRC personnel, on possibly three occasions, brought to the attention of NYH operating and test personnel the fact that the pressurizer level had decreased below 17%, the reactor was not shut down until 12:35:54, or some 7 minutes and 1 second after the pressurizer level had dropped below 17%.<sup>10</sup> This shutdown was preceded by a successful effort to close MS-PV-3011, a resulting turn around and rapid recovery of pressurizer level and pressure, a return of pressurizer level to above 17% and, indeed, to a level of 21%. The manual trip was actually ordered, not in response to the previous drop in pressurizer level, but rather in response to the approaching of a pressure trip criterion.

Subsequent investigation of the event revealed the following as to the safety consequences of the event:

During the transient, all systems, with the exception of the steam dump valve MS-PV-3011, functioned as designed. At no time did reactor power increase above its initial value, nor were any Technical Specification or design limits exceeded. Pressurizer level remained well above the 5% pressurizer level manual safety injection value and pressurizer pressure, although increasing, never reached the automatic trip setpoint of 2385 psig. *At no time during the transient was there any adverse impact on the health and safety of the public, nor did unreviewed safety questions exist.*

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<sup>10</sup>The Chronology of Events, Appendix A to the Report of the Augmented Inspection Team, 89-82, lists only two occasions when an NRC Inspector discussed the need for a trip with NYH personnel — once at about 12:32 with the Startup Manager, and once at about 12:34 with the Test Director. The third reported discussion of a need for a trip was among NRC personnel at about 12:33. See note 13, *infra*.

Licensee Event Report (LER) at 3.

As to the failure immediately to shut down the reactor, subsequent investigation concluded:

The Unit Shift Supervisor did not manually trip the reactor because he misinterpreted the 17% pressurizer level value to be test termination guidance, which was more conservative than the 5% pressurizer level safety injection requirement provided in Station procedures. The pre-test briefing given to the crew performing the Natural Circulation Test was not effective. The required information was presented to the crew but the requirement to perform a manual reactor trip at 17% pressurizer level was not fully understood.

LER at 4.

After the event had occurred and initial debriefing of the "players" had taken place, at 6:00 p.m., NHY personnel, headed by the Vice President-Nuclear Production, had a conference call with the onsite NRC inspectors and NRC Region I personnel to discuss the event. During that conversation the NHY personnel made statements that, in part, constituted an unwarranted defense of the operator actions taken or not taken, an assertion that the operators' actions were more conservative than strict compliance with the test procedure, and that NHY procedure compliance policy was essentially adequate as written; in addition, a proposal was made that reactor restart be allowed to occur in parallel with NHY/NRC event evaluation. The call concluded with agreement that a followup conference call with NRC Region I would be held at 7:30 a.m. on June 23, 1989, and that the reactor would not be restarted until NRC concurrence had been obtained.

The NHY CEO had still not been informed of these matters when he participated in the planned telephone call with NRC Region I at 7:30 a.m. on June 23, 1989.<sup>11</sup> NHY subsequently acknowledged that the statements made in the 6:00 p.m. (June 22) telephone call were inappropriate and not in conformance with NHY policy.

On June 23, 1989, NRC Region I issued a Confirmatory Action Letter (CAL) confirming NRC's understanding that prior to any restart of the reactor, NHY would complete review of the event, establish short-term corrective actions, determine long-term corrective actions and schedule same, review the results of each of the foregoing with NRC Staff, and obtain concurrence of the Administrator of Region I before any restart.

Applicants' Answer at 1-6.

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<sup>11</sup> We note below (p. 290) that the Augmented Inspection Team and the Martin and Eselgroth Affidavit conclude that, contrary to Applicants' own account of the communications with the NRC, NHY personnel were accurate and fully forthright in their reports.

Intervenors' Motion is supported by the Minor and Sholly Affidavit. Neither the Massachusetts Attorney General nor Messrs. Minor and Sholly contend that the June 22 event presented any direct danger to the public health and safety or that the plant was at risk. Rather the Massachusetts Attorney General contends that the events described above demonstrate that the Applicants cannot comply with 10 C.F.R. § 50.57; 10 C.F.R. Part 50, Appendix B; 10 C.F.R. § 50.34(b)(6); and 10 C.F.R. § 55.53(d). The Minor and Sholly Affidavit essentially recites the events as reported by NHY and set out above. Affidavit at 5-6. They explain their view of the applicable regulations and emphasize that *each* of the five members of the operating crew had the authority to order a reactor trip when the test limits were exceeded, but all failed to do so in a timely fashion. They state that on three separate occasions members of NHY management present in the control room were informed by NRC personnel that the manual trip criterion had been exceeded but none acted to shut the reactor down. *Id.* at 10.

Messrs. Minor and Sholly conclude that a violation of 10 C.F.R. Part 50, Appendix B, Criterion V, occurred<sup>12</sup> when the operators failed to trip the unit in accordance with the procedure. Moreover, they state, it is apparent that the training program is not effective in this instance and "some improvement" in training is essential to prevent future violations. Minor and Sholly Affidavit at 11.

The Applicants conclude that no technical specification parameters or design limits were exceeded, nor was there any danger to the public, personnel, or equipment. But Messrs. Minor and Sholly stress that actual danger is irrelevant to Appendix B; procedures must be followed; and the failure to follow them carries with it significant safety implications. *Id.* at 11-12.

They also allege other events, suggesting that the noncompliance of June 22 is not an isolated event. *Id.* at 12-13. We discuss in more detail the Minor and Sholly Affidavit in the context of the Staff's response to it below.

The Martin and Eselgroth Affidavit is very important to the resolution of the issue of safety significance. As noted, Mr. Martin was present in the control room and observed the events of June 22. Mr. Eselgroth was the leader of the Augmented Inspection Team (AIT). *Id.* at A4, A7.

The principal findings of the AIT are instructive:

The plant responded as predicted during the natural circulation testing.

But plant equipment was not ready to support the test. There was an open work order for testing the steam dump valve.

The Unit Shift Supervisor (USS), Senior Control Room Operator (SRO), and Control Room Operators (CRO) were found, upon interview, to be highly competent, and clearly aware of their assignments. The

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<sup>12</sup>These are quality assurance criteria. Criterion V requires documentation of activities affecting quality and that the activities be conducted in accordance with the documentation.

USS communicated that he had no doubts about his responsibility for the testing.

There was no evidence that training relative to natural circulation testing had been given within about a year prior to the test.

The AIT reviewed the pretest briefing conducted for the operators by the Test Director and found it to be inadequate with respect to reactor trip criteria. The operating crew conducted plant operations in a controlled, unfrenzied manner before, during, and after the trip. Applicable emergency operating measures were carried out appropriately.

NRC Staff members are aware that NHY management directed that personnel should proceed with the testing in a controlled manner and not feel rushed to complete evolutions.

The USS stated that the reason he did not trip at the 17% level was that the decreasing level was turning around.<sup>13</sup> AIT concluded that the cause of the event was a lack of importance or "sense of ownership" placed on the test procedure limitation by the USS *as compared to other limitations such as those in the Technical Specification and plant operating procedures (which were not exceeded)*. Operating personnel

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<sup>13</sup> A portion of the chronology of events as determined by the AIT, demonstrates that the corrective action had been taken, i.e., steam dump valve closed, almost a minute before the NRC inspector first discussed the need for a trip with NHY personnel:

TIME	EVENT	INSPECTOR OBSERVATION/ACTIONS
12:26:04	Steam dump valve 3011 fails open	
12:28:59	PZR level at 17% PZR heaters deenergized Letdown isolated	
12:30:55	Lowest PZR level 14.5% Lowest PZR pressure 2179.0 psig	
12:31:06	Steam dump valve 3011 closes	
12:32 (about)		NRC inspector discussed need for trip with Startup Manager
12:32:55	Avg. wide-range Tavg 539.97°F	
12:33 (about)		NRC inspector discussed need for trip with SRI and Deputy Regional Administrator
12:33:55	PZR level 17.95%	
12:34 (about)		NRC inspector discussed need for trip with Test Director

AIT Report, Appendix A.

misunderstood that the test procedure criteria were the controlling requirements under testing conditions.

The Shift Superintendent did not provide effective supervisory involvement in the conduct of the test.

Operating personnel now understand that the proper procedure was to trip before the 1-ST-22 criterion on pressurizer level was exceeded.

The startup test group failed in its responsibility to terminate or interrupt the test even though the Startup Manager was made aware of NRC's concerns. The test organization gave inadequate direction overall.

Plant management observers present and with authority to direct the termination of the test either did not know that test limits were exceeded or, if they knew, failed to act to correct the failure to trip.

The NRC Staff is unhappy that the initial NHY management approach after the trip was to resolve equipment problems rather than address the importance of violating test procedures.<sup>14</sup> A thorough review of the event did not take place until the NRC raised the issue with senior management.

The transient resulting from the steam dump valve problem and the failure to follow the test reactor trip criterion did not significantly challenge the margin of safety. But the failures recounted above, including the post-trip willingness to proceed before a thorough review are unacceptable to the NRC Staff.

Martin and Eselgroth Affidavit at A7.

The contention alleges that operators and management "deliberately disregarded test procedures" requiring a shutdown of the reactor. Intervenors' Motion, Exh. I, at 3. Messrs. Martin and Eselgroth disagree with the contention, having concluded that the operators believed the test trip criterion was *guidance* only. They point out that the operators knew what was happening with the plant, were in the final stages of recovery, and recognized that the plant was not in danger. Martin and Eselgroth Affidavit at A9. Their conclusion on this subject is definitive. They have been, during and after the events, in the best position to judge the cause of the failure to follow the test trip criterion.

Messrs. Martin and Eselgroth also dispute Intervenors' allegation that virtually all the senior management personnel present during the transient knew that continued operation violated test procedures. They state that only the Unit Shift Supervisor knew that the test trip criterion was exceeded, and as we noted above, he thought the criterion was only guidance. The Assistant Operations Manager learned that the criterion was exceeded from an NRC representative

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<sup>14</sup> The Vice President-Nuclear Production lost his job as a result of his post-trip communications and perspective. E.g., Applicants' Answer at 6.

during the event but it was shortly before the trip (for other reasons) by the time he confirmed the information and began to take action. *Id.* at A10, A11.

The Staff affiants also disagree with the allegation in the contention that senior management provided inaccurate and incomplete information to the NRC on the shutdown. Surprisingly, Messrs. Martin and Eselgroth do not even accept NYH's *mea culpa* to that effect contained in the response to the CAL. See Applicants' Answer, Attach. A, at 4. They state that as both the Licensee (NYH) and the NRC gained knowledge of the event, the NRC has learned that the quality, completeness, and perspective of the information provided to the NRC was acceptable both during and immediately following the event.

The contention alleges that senior management personnel refused to acknowledge the seriousness of the noncompliance and "even suggested restarting the reactor without resolution of the issue." Intervenors' Motion at 4. Again, Messrs. Martin and Eselgroth disagree with the contention, but they agree that the Vice President-Nuclear Production failed to recognize the seriousness of the noncompliance, and did in fact suggest a restart without prior review or resolution of the issue. The Plant Manager, who recognized the significance of the noncompliance, did not effectively communicate with the Vice President.<sup>15</sup>

Messrs. Martin and Eselgroth agree with Messrs. Minor and Sholly that "some improvements" in staff training are necessary as demonstrated by the performance of the operating, startup, and testing staff and supervision. The details of the remedial action will be developed in the normal course of the NRC's enforcement deliberations. NYH has revised procedures and is conducting training to correct the operators' misunderstanding evidenced by their hierarchical approach to procedural compliance. Overall Messrs. Martin and Eselgroth do not believe that at present the Licensee's training program inadequacies are so great as to materially change Region I's recommendation relative to the low-power license. Martin and Eselgroth Affidavit at 13, 19.

Amplifying on the Partlow and Nerves Affidavit, *supra*, Messrs. Martin and Eselgroth explain that two teams of NRC inspectors (approximately twelve inspectors) observed plant operations continuously for 24 hours a day for 13 days between May 27-June 1 and June 12-24. The conclusions reached by these inspectors are that operators and management are adequately trained, and that the operators were adequately supervised.

Messrs. Minor and Sholly allude to Inspection Report No. 89-03 covering inspections in February and April 1989 which refer to four incidents that highlight a reduction in attention<sup>16</sup> to detail in the conduct of routine plant

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<sup>15</sup> Messrs. Martin and Eselgroth note in passing that the NRC did not prompt NYH into relieving the Vice President of his responsibilities for nuclear matters. Martin and Eselgroth Affidavit at A13.

<sup>16</sup> "Attention" was misstated as "addition" in the Minor and Sholly Affidavit, and apparently in the inspection report. *Id.* at 12. It is correctly stated as "attention" in the Martin and Eselgroth Affidavit at Q16.

operations. As noted above, they suggest that the event of June 22 may not have been an isolated event. Messrs. Martin and Eselgroth counter this suggestion with a discussion of the thoroughness of the Staff's observation of the low-power startup test. They give NHY personnel high marks for professionalism and attention to detail and conclude that the procedure-adherence problems identified during the natural circulation test were the only violations observed during approximately 2 weeks of low-power testing. No repetition of the weaknesses described in Inspection Report No. 89-03 were observed — in fact there were observations that the previously reported areas of weaknesses became strengths during low-power testing. *Id.* at A18.

The Martin and Eselgroth Affidavit, as well as the Parlow and Nerves Affidavit, has provided the Board with an ample factual record to resolve the issue of whether Intervenors' Motion raises a significant safety issue. We conclude that it does not. Some of the grounds for this conclusion, discussed above, are:

1. The event of June 22 did not challenge plant safety systems or place the public, plant personnel, or plant equipment in danger.
2. The event was an aberration. Many days and hours of low-power testing were observed by qualified NRC observers. NHY personnel performed well.
3. The failure to trip resulted from a narrow omission in training and briefing by the NHY test personnel leading to a misunderstanding that the test reactor trip criterion for low pressurizer level was merely guidance, and that Technical Specification and plant operating procedures (which were not violated) controlled instead.
4. Overall training of NHY operators and management is good. Remedial steps have been taken to address any deficiencies in the training program.
5. There is no evidence of willful (i.e., with knowledge) noncompliance with NRC regulations or agreed-upon procedures.
6. There is no evidence that NHY management (with the possible exception of the Unit Shift Supervisor) present in the control room knowingly allowed test limits to be exceeded. The evidence is to the contrary.
7. There is no evidence that NHY misled the NRC in reporting the events or was not fully forthright. The Vice President-Nuclear Production lost his job for his eagerness to resume testing and for emphasizing equipment over procedures — a harsh action.
8. Contrary to early news reports and Intervenors' allegations, NHY personnel did not defy or disregard NRC advice to scram after the 17% pressurizer level limit was exceeded.

9. The June 22 noncompliance is not a part of a pattern of noncompliances in connection with the noncompliances reported in Inspection Report No. 89-03.
10. The noncompliance of June 22 does not reveal a fundamental flaw in Applicants' programs, procedures, or policies.
11. NRC Staff, particularly the NRC's Augmented Inspection Team responded responsibly and forcefully to the noncompliance. They have expressed criticism and approval of NHY personnel objectively and where appropriate. The matter is best left in their hands.
12. Intervenors' Motion does not demonstrate that a materially different result would have been likely had the contention and newly proffered evidence been considered initially. This conclusion is virtually forced by the facts leading to our conclusion that the motion does not address a significant safety issue or that the events of June 22 did not reveal a fundamental flaw in NHY's procedures, training, and policies. Under the circumstances, if the matter had been litigated before the close of the record, the most likely result would have been to see to remedial action. This has been accomplished.

## Five Factors

Since Intervenors' Motion failed to address significant safety or environmental issues or to demonstrate that a different result would have been likely had the newly proffered evidence been considered before the close of the record, there is no need to balance the five factors for late-filed contentions set out in section 2.714(a)(1)(i) through (v). See section 2.734(d). Nevertheless, for completeness, we note our agreement with the NRC Staff that the Intervenors' Motion does not demonstrate that their participation in any reopened proceeding may reasonably be expected to assist in developing a sound record. Factor (iii). While we respect the experience and technical nuclear expertise possessed by Messrs. Minor and Sholly, in this case, they have not demonstrated any particular qualifications to address the issues set out in the contention. NRC Staff Response at 19-20. The root cause of the June 22 noncompliance was a failure to understand the regulatory significance of the test procedures and a failure to prepare properly for the natural circulation test. In essence this is a human factors matter. Neither Mr. Minor nor Mr. Sholly claims any expertise in this area.<sup>17</sup> Nor have the Intervenors demonstrated throughout this long litigation any special insight into these matters.

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<sup>17</sup> See Minor and Sholly Affidavit, Attach. 1, Statement of Professional Qualifications of Gregory C. Minor, and Attach. 2, Statement of Professional Qualifications of Steven C. Sholly.

Moreover it is quite obvious that reopening the record and admitting the contention would broaden the issues and delay the completion of the proceeding.

## INTERVENORS' SECOND MOTION

Intervenors' August 28, 1989 motion to add new bases and contentions (Second Motion) is not a good pleading. Unfortunately it is a too familiar example of the Attorney General's undisciplined and disdainful approach to practice before this Board. Its tenor is petulant, complaining once again that this Board has failed to exert control over the filing of low-power contentions. Much of it, with interminable footnotes, is devoted to restating and glossing the arguments in the first motion, although the Attorney General is fully aware that the practice is not authorized by the rules. He argues again his views on Intervenors' rights to litigate; asserts again the strained proposition that the Confirmatory Action Letter is somehow an enforcement proceeding creating a cause of action for Intervenors. Again we are told about the heavy and unfair burden in meeting standards for reopening the record, and again given warning that yet more bases and contentions on low-power testing may be expected. Second Motion at 2-12.

Matters do not improve much when we finally move on to the new bases for the original contention (JI-LP-1) and the two new contentions (JI-LP-2 and 3). *Id.*, Exh. 1. The additional bases and contentions consist primarily of a 23-page restatement of the AIT Inspection Report, 89-82. The new effort does not highlight how it differs from the original motion, leaving it to the Board to examine both prolix pleadings in search of differences. This is the Intervenors' responsibility, not the Board's. Similarly, the new bases and contentions do not separate what the Intervenors learned for the first time in the AIT report as compared to the earlier Response to Confirmatory Action Letter, again leaving it to the Board to try to determine whether the new bases have been timely filed.<sup>18</sup> Most of the facts reported in the AIT Report could have been, and many were, alleged at the time of the original contention, with one notable exception, discussed below.

The second Minor and Sholly Affidavit, attached to the Second Motion, was "incorporated by reference into the body" of that motion. Second Motion at 18. The affidavit is devoted largely to restating portions of the AIT Report. Simply incorporating the affidavit into the motion is not a skilled approach to legal pleading. It apparently anticipates that this Board will carefully compare the

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<sup>18</sup> Applicants' Response to Second Motion, at 4-5, lists seven items of information pleaded in the Second Motion which Applicants' claim were available in earlier documents. It was the Attorney General's job to explain clearly why the information in the AIT Report was new. We are not inclined to reexamine the earlier documents to ferret out differences in order to aid Intervenors in their litigation.

affidavit with the motion, then with the bases, and the two new contentions, then compare that entire package with the original contention, its bases, then cull the repetitious allegations, and somehow extract from that blizzard of information the issues the Intervenors seek to litigate.

Above we have discussed at length the Martin and Eselgroth Affidavit which was based primarily on the AIT Report. Almost all of the allegations contained in the Intervenors' Second Motion (by reference to the AIT Report) were discussed by Messrs. Martin and Eselgroth. Yet the Attorney General makes no analysis of the detailed reasoning and the conclusions in that affidavit, thus again failing to isolate the issues from the mass of words submitted for our review.

The Second Motion, except as noted below, fails because it does not clearly inform the Board and the NRC Staff about the issues sought to be litigated. It does not inform the Applicants about the charges against which they must defend. In that it does not adequately separate new information from previously available information, we also conclude that the Second Motion is not timely under the standards of 10 C.F.R. § 2.734(a)(1), again, except as noted below.

Intervenors cite the AIT report (at 6.2):

Also, the apparent willingness of management to proceed with testing following the June 22 occurrence without first completing a thorough review and causal factor assessment is *safety significant*. [Emphasis supplied.]

From this statement we are urged by the Attorney General to conclude that the Staff agrees (with Intervenors) that the motion therefore addresses a "significant safety issue" within the meaning of 10 C.F.R. § 2.734(a)(2). Second Motion at 17.

Applicants respond by defining "safety significant" as a matter that simply relates to safety, regardless of importance. A "significant safety" matter, on the other hand, is one that is important to safety. Applicants' Response to Second Motion at 7. While Applicants' semantical logic seems sound, it may be a case of overanalysis of a few words. Better guidance of the Staff's intended meaning may be gleaned from the Martin and Eselgroth Affidavit. There they conclude, based on the AIT Report, that the actual transient had "limited safety significance" and that based upon the "prior good performance of the licensee's staff and management" and the isolated nature of the failure to comply, Region I concludes that its prior recommendations (to issue a low-power license) are not materially affected. Martin and Eselgroth Affidavit at Q25. We cannot conclude from the overall tenor of the AIT Report and the Martin and Eselgroth Affidavit that the NRC technical staff believes that the June 22 incident involved a significant safety issue, which if initially considered, would have produced a different result.

Applicants initially reported that there was an incomplete work request for testing on steam dump valve, MS-PV-3011. The failure of the valve was the cause of the unplanned plant cooldown. The test procedure required that the valve be available. Response to Confirmatory Action Letter at 29-30 (Attach. A to Applicants' Answer).

Intervenors' original contention contained no equipment quality control allegations. Now, however, Intervenors submit a contention alleging that:

Low-power testing has disclosed serious defects in the maintenance practices regarding valves and the quality control of such maintenance practices and the possibility of design defects in certain steam dump valves, in violation of 50 CFR Appendix B, V, XI, and XVI.

**Second Motion, Exh. 1, at 15, Contention JI-LP-2.**

The contention alleges that the information supporting the bases did not surface until the AIT Report, an apparent reference to the timeliness of the allegation. Exh. 1 at 16. The contention is a discrete, identifiable portion of Intervenors' Second Motion and can be reviewed on its merits.

Basis A of JI-LP-2 suggests that there exists a pattern of reporting incomplete work items as complete and ends with the conclusion that such actions may reflect "large maintenance backlogs and continued financial and licensing pressure." There is no foundation for this allegation. Indeed Basis A is not even understandable in part because it depends upon a reference to IR 89-07 and IR 88-11 for its context. Those reports were not provided as a part of the record and we have not tracked them down. We could infer from the references to them that the allegation lacks timeliness as readily as we could infer that a pattern exists. Basis A is lacking in founded specificity and is deficient on that account.

Basis B of JI-LP-2 comes straight from the AIT Report and is a part of a larger discussion of steam dump valves. Report at 13-15 (Attach. 5 to NRC Staff Response). The team reviewed the history of the steam dump valve MS-PV-3011 which failed during the natural circulation test. The AIT noted that the valve was not ready to support the natural circulation test because the work order to test the valve was still open, but that confirmation of the availability of the steam dump system had, nevertheless, been signed-off. Post-event testing of all the steam dump valves revealed that seven of the twelve valves showed either binding, scored stems, loose linkage, or tight linkage. The history (apparently including the post-event testing) indicated to the AIT that there is a valve maintenance or design problem. *Id.* at 14.

These findings and conclusions form the foundation for Basis B. Second Motion, Exh. 1, at 17. The AIT Report is the first time the essence of the steam dump valve failure episode, its significance, and its resolution have been reported. To the extent that Basis B and Basis C depend upon the AIT Report,

the contention is timely. We note, however, that Basis C alleges earlier valve failures as reported in IR 89-80 and IR 89-03. Again Basis C cannot be evaluated outside the context of the referenced reports which were not provided. Also, depending upon the earlier episodes alleged in the basis raises questions of timeliness. We hold that Basis B and the portion of Basis C alleging that “[t]his failure to establish and maintain operable steam dump valves may indicate a more pervasive deficiency in the testing, verification and maintenance of valves in general” is an adequately pleaded contention and, as noted, is timely. Accordingly, we evaluate the contention under the standards for reopening a record pursuant to 10 C.F.R. § 2.734 and whether the contention addresses a significant safety issue.

As we have been taught by the Appeal Board decision in *Callaway*, ALAB-740, *supra*, 18 NRC at 346, in any large and complex undertaking such as the building of a nuclear power plant there will be some construction defects tied to some quality assurances lapses. The test, however, is “whether there has been a breakdown in quality assurance procedures of sufficient dimensions to raise legitimate doubt as to overall integrity of the facility and its safety-related structures and components.” Applicants need not demonstrate error-free construction, but a demonstration of “a pervasive failure to carry out the quality assurance program, may well stand in the way” of a finding that the plant can and will be operated without endangering the public health and safety.

In the context of a motion to reopen the record, any such allegation of a pervasive breakdown in the quality assurance program must exceed the mere basis and specificity requirements of the intervention rule. Intervenors’ showing must be tantamount to evidence, as we noted above, *citing Shoreham*, CLI-89-1, *supra*, 29 NRC at 93-94.

Neither the Martin and Eselgroth Affidavit nor the Partlow and Nerves Affidavit expressly addressed the issue of the overall quality assurance program for equipment as alleged by Contention JI-LP-2. That issue was not before them in precisely that form; rather they were speaking to training and operating procedures. However the AIT Inspection Report was before the Staff’s affiants. Mr. Eselgroth led the team.

Low-power testing of course is for the purpose of testing equipment, design, and personnel performance. It is not surprising that equipment failures will be found. As noted above (p. 280), Messrs. Partlow and Nerves explained:

As described in Chapter 14 of the FSAR, the low-power test program is part of the Seabrook initial test program. The program is conducted to assure that the facility performs as designed and can be operated safely, that plant and emergency operating procedures are adequate, and that plant personnel are knowledgeable and prepared to operate the facility in a safe manner. As with any test program, it is expected that, in spite of adequate construction

and preoperational testing and extensive training of personnel, occasional problems may be identified and personnel errors may occur. This is part of the testing process.

#### Affidavit at 3.

The NRC Staff observed low-power testing 24 hours a day for about 13 days. Martin and Eselgroth Affidavit at A15. Clearly the nuclear and nonnuclear components of the plan were tested, as required by the FSAR, under close scrutiny. No other indications of design or maintenance quality assurance problems were reported. Messrs. Martin and Eselgroth, fully cognizant of the defects found in the steam dump valves, stuck by their recommendation that the plant had been ready for low-power operation, including the Staff's review of maintenance and surveillance procedures. Affidavit at A22 and A25. Moreover, the Augmented Inspection Team concluded that Applicants' short-term and long-term response to the valve failure problem was appropriate. AIT Report at 15.

Messrs. Minor and Sholly in their second affidavit, discuss the undisputed safety significance of steam dump valves (at 5) and list the Appendix B criteria which they believe were not met with respect to the valves (at 4-5). Their suggestion that the question of whether there is a valve maintenance or design problem should be resolved before operation is resumed is in accord with the Applicants' long-term plans for resolving the issue, which, as noted, has been approved by the Staff. However, Messrs. Minor and Sholly do not make a case for Intervenors' allegation that the failure to maintain the valves indicates a pervasive breakdown in Applicants' quality assurance program.

The Board concludes on the evidence before it that Contention JI-LP-2 does not present a significant safety issue within the standards of 10 C.F.R. § 2.734(a)(2) and is therefore rejected. Contention JI-LP-3 and the additional bases for Contention JI-LP-1 are also rejected for the pleading failures discussed above.

## **ORDER**

The Intervenors' motions to admit contentions and additional bases or to reopen the record and requests for a hearing are denied.

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

**Richard F. Cole  
ADMINISTRATIVE JUDGE**

**Kenneth A. McCollom  
ADMINISTRATIVE JUDGE**

**Ivan W. Smith, Chairman  
ADMINISTRATIVE LAW JUDGE**

Bethesda, Maryland  
October 12, 1989

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

**Before Administrative Judge:**

**Peter B. Bloch**

In the Matter of

Docket No. 70-25  
(ASLBP No. 89-594-01-ML)  
(Special Nuclear Material  
License No. SNM-21)  
(Request to Renew  
for 10 Years)

**ROCKWELL INTERNATIONAL  
CORPORATION  
(Rocketdyne Division)**

**October 13, 1989**

In response to a unilateral, interlocutory order of the Appeal Board, the presiding officer directed the Staff to clarify the status of the hearing file in this Subpart L (10 C.F.R. Part 2, Subpart L) proceeding.

**RULES OF PRACTICE: INTERPRETATION OF 10 C.F.R. § 1233(a)**

This section contains the technical requirement that the presiding officer may request information only after a Notice of Hearing has been published and the hearing file has been created. Staff submittals of extensive information may not be the full hearing file unless it states that the full hearing file has been submitted.

## **RULES OF PRACTICE: THRESHOLD STANDARD SUGGESTED FOR *SUA SPONTE* INTERLOCUTORY ORDER ISSUED BY THE APPEAL BOARD**

*Sua sponte* interlocutory orders of the Appeal Board in informal proceedings should be used even sparingly, requiring at a minimum that a party must face serious irreparable impact or that there is a ruling that affects the structure of the proceeding in a pervasive or unusual manner. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-271, 1 NRC 478 (1975). In addition, the Appeal Board should consider the difficulty of acting without briefs from any party and the risk that it may impose on unwilling parties the need to participate in a question not raised by them.

## **RULES OF PRACTICE: 10 C.F.R. PART 2, SUBPART L — PRESIDING OFFICER SHOULD NOT JUST MERELY CALL BALLS AND STRIKES**

The Presiding Officer has an affirmative responsibility to obtain a complete record by asking questions and requesting information. Such action by the Presiding Officer is encouraged by Subpart L, 10 C.F.R. § 2.1251(d), Statement of Considerations, 54 Fed. Reg. 8269 (Feb. 28, 1989). It also is consistent with universally applied principles of administrative law and the precedents of the Nuclear Regulatory Commission. Use of this authority is essential for a board to fulfill its responsibility to protect public health, safety, and the environment.

## **MEMORANDUM AND ORDER (Completeness of the Hearing File in Subpart L Proceedings)**

On October 5, 1989, the Atomic Safety and Licensing Appeal Board issued an Order (unpublished) in which it strongly stated its unilateral conclusion — made *sua sponte*, without any appeal by a party — that the Presiding Officer has improperly engaged “in a form of judicial activism (i.e., discovery) unprecedented in NRC licensing proceedings” and not authorized by the applicable procedural rules (10 C.F.R. Part 2, Subpart L).

The Appeal Board then directed the Presiding Officer to explain his “authority for the role he has independently assumed in this proceeding.”<sup>1</sup> The stated

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<sup>1</sup> The Appeal Board’s order is of a type that obviously should be used sparingly. It is like an interlocutory appeal, which is limited even in formal proceedings to instances where a party is faced with a serious irreparable impact or by a ruling that affects the structure of the proceeding in a pervasive or unusual manner. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-271, 1 NRC 478 (1975). *Continued*

grounds for the Appeal Board's concern were three orders in which the Presiding Officer has asked questions of Rockwell.<sup>2</sup>

This case was assigned to the Presiding Officer on August 21, 1989, and already has a substantial history, including two filings by the Staff of record material that may now constitute the "hearing file" required by the regulations. There has been a limited appearance session in California on the evening of September 28, 1989, and a preliminary hearing conference on the following day. Parties have been admitted, and a schedule for the case has been promulgated. LBP-89-27, 30 NRC 265 (1989). Three orders have been issued requesting information from Rockwell.<sup>3</sup>

The actions of the Presiding Officer have been taken in order to expedite this proceeding pursuant to Commission policy. *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452 (1981). The Commission says, at 453 of its *Statement*, that

In the final analysis, the actions, consistent with applicable rules, which may be taken to conduct an efficient hearing are limited primarily by the good sense, judgment, and managerial skills of a presiding board which is dedicated to seeing that the process moves along at an expeditious pace, consistent with the demands of fairness.

As soon as the case was assigned, the Presiding Officer determined that people who had requested to become parties (requesters) were required, to gain party status, to show that they had concerns that were germane to the Application. 10 C.F.R. § 2.1205(g). It was obvious from the filings of the requesters that they would need a copy of the rules of procedure (Subpart L) and of the Application, if they were to have a fair chance to comply with the requirements in the regulations. Hence, the Presiding Officer: (1) requested that the Staff serve the Application and related materials on the parties and on himself;<sup>4</sup> (2) had Subpart L served on the requesters; and (3) set a deadline by which the parties were expected to comply with the rules. Memorandum, August 31, 1989 (unpublished).

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<sup>2</sup> New Hampshire (Seabrook Station, Units 1 and 2), ALAB-271, 1 NRC 478 (1975). Unilateral actions, unlike interlocutory appeals, have the added problem that they are taken without benefit of briefs.

When no party has raised concerns, a court or administrative body that chooses to act is out on a limb by itself. The consequence of such appellate intervention is that the presiding officer is required to spend substantial time in response and there is a chance the parties may also have to become involved — even though they did not choose to raise the issue — thus diverting everyone's attention from the substance of the case.

<sup>3</sup> Those orders will be discussed below. The last of those orders may be found as Attachment A, below.

<sup>4</sup> September 15, 1989; September 18, 1989; and October 4, 1989.

<sup>4</sup> A Memorandum of August 31, 1989 (unpublished), announced that the Application had been sent to the requesters. Together with the Application, the Staff also filed related materials, consisting of an EPA report, "Santa Susana Field Laboratory Site Report," July 31, 1989. The attachments to the Application included annual reviews of radiological controls and annual environmental assessments of operations.

While technically the orders requesting information from Applicants may not have been authorized at the time they were issued by 10 C.F.R. § 1233(a),<sup>5</sup> the possible error appears to be largely a technical one and has not harmed any party.<sup>6</sup> The Staff had served documents that constitute the bulk of the hearing file before any questions were asked. The Staff has supplemented our record with additional documents that may well complete that file.<sup>7</sup>

It is clear that the Presiding Officer did not engage in discovery, which is a process authorized by the Federal Rules of Civil Procedure and other rules of procedure *for use by parties*.<sup>8</sup>

What has been done is to exercise authority to ask questions designed to ensure a complete record. The use of such authority is proper in proceedings of this agency and it is not unusual, as is discussed below. It also appears to be appropriate under Subpart L, which prohibits "discovery" by "a party or . . . participant" but which does not contain any prohibition of "discovery" by a presiding officer. 10 C.F.R. § 2.1231(d). Rather, Subpart L increases the burden on the presiding officer to ensure that the record is complete.

Nor has the Presiding Officer independently assumed any authority. He was duly appointed and has exercised that authority conscientiously. Even if he committed a technical error — which probably will have no effect because it relates solely to the *timing* of actions taken in the proceeding — that does not mean that he independently assumed any authority. The power to judge necessarily entails the power to err.

The Presiding Officer is obligated "not just to call balls and strikes" (a phrase whose legal background will be discussed below) but to raise questions that would help to complete the record so that a fair, informed, and efficient decision could be made.

Such questions, if needed to complete the record, clearly seem to be contemplated by section 2.1233(a), which provides:

The presiding officer also may, *on his or her initiative*,<sup>9</sup> submit written questions to the parties to be answered in writing, under oath or affirmation, and supported by appropriate documentary data, informational material, or other written evidence. [Emphasis supplied.]

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<sup>5</sup>This section requires that a notice of hearing be published and the hearing file created before questions are authorized.

<sup>6</sup>The last order, which apparently triggered this action by the Appeal Board, was issued *after* the Presiding Officer had issued a *Federal Register* Notice but before that notice was actually published in the *Federal Register*.

<sup>7</sup>See Letter from Leland C. Rouse, dated October 3, transmitting "additional background information."

<sup>8</sup>*Black's Law Dictionary* 49 (5th ed. 1979).

<sup>9</sup>The presiding officer's initiative is, of course, limited by 10 C.F.R. § 2.1251(d), which requires him to promptly advise the Commission if he is independently examining issues not put in controversy by the parties.

Of course, this authority is made contingent on questions being asked after the NRC Staff has made the hearing file available.<sup>10</sup>

At the present time, after reflecting on the nature of the requirement for a "hearing file," the Presiding Officer needs clarification from the Staff about whether the materials that have to this time been filed constitute the hearing file.<sup>11</sup> This will inform everyone about whether all available data are already in the file or whether there are other installments to come. Conceivably, this may provide the Presiding Officer with a basis for amending or withdrawing questions that have already been asked.

In asking questions, the Presiding Officer does not know whether the answers will favor Rockwell or the Intervenors. In fact, he has no concern over who may be favored. His purpose is to complete the record.<sup>12</sup>

If Rockwell feels that questions that have been asked are not required for a complete record, or if it prefers to delay responding to the questions until a later stage of the proceeding, it already has been issued a general invitation to file motions for reconsideration.<sup>13</sup>

Rockwell, which has experience in NRC litigation, appears to be well represented in this proceeding. Its principal representative is Mr. R.T. Lancet of its licensing department. Its principal spokesperson at the preliminary hearing and limited appearance session was Dr. Joseph Mills of its nuclear safeguards review panel. It also enjoys the legal advice of Mr. Richard Seamans, counsel for Rockwell, who was present at the preliminary hearing. Tr. 255.

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<sup>10</sup> The Statement of Considerations, 54 Fed. Reg. 8269 (Feb. 28, 1989) places a heavy responsibility on the presiding officer to control the exploration of issues raised by the parties. One portion of the Statement (*id.*) prohibits the hearing officer from requesting *oral* presentations before the written filings of the parties are received:

"There would be no discovery. Only if the presiding officer found that the written presentations were insufficient to create an adequate record would *oral* presentations be permitted." [Emphasis added.]

However, the Statement of Considerations goes on to state that:

"Essentially, the informal hearing is designed to elicit information and resolve issues *primarily through inquiry by the presiding officer* rather than through an adversarial confrontation between the parties. As a consequence, the presiding officer has broad discretion in controlling the manner in which the issues raised by the parties are to be explored." [Emphasis added.]

When the Statement of Considerations is viewed alongside the regulations themselves, it is clear that the presiding officer has broad authority to ask written questions. 10 C.F.R. § 2.1233(a).

<sup>11</sup> If there are any materials or studies in the possession of the Staff relating to the way in which pollution on the site was deposited there, and Rockwell's responsibility or lack of responsibility for that pollution, then the Staff should include such materials in the hearing file.

<sup>12</sup> When a hearing is accompanied by extensive publicity there is pressure on the Applicant to answer questions rather than to assert its right not to answer them. This makes the Presiding Officer's discretionary decision about whether or not to ask questions a particularly important one. Hence, the Presiding Officer has been particularly careful to reflect on questions before they are asked and to consult in advance with the technical adviser, who is an experienced physicist and a seasoned veteran of NRC proceedings.

<sup>13</sup> Such a motion may be filed within 10 days of the service on Rockwell of this Memorandum and Order.

## I. THE ROLE OF PRESIDING OFFICERS IN ASKING QUESTIONS

The purpose of this section of this memorandum is to address the Appeal Board's assertion that the Presiding Officer's "activism" is "unprecedented in NRC licensing proceedings."

### A. Court Precedent

It is a well-established principle of administrative law, with respect to the Nuclear Regulatory Commission and all other agencies, that an agency is a representative of the public interest and cannot "act as an umpire blandly calling balls and strikes for adversaries appearing before it. . . ." *Scenic Hudson Preservation Conference v. Federal Power Commission*, 354 F.2d 608, 620 (2d Cir. 1965).

The principle applies to bankruptcy proceedings, where a referee in bankruptcy is expected to apply his expertise and

is not simply an umpire calling balls and strikes. He has an affirmative responsibility for the proper handling of the estate . . . .

It, of course, applies to the Federal Power Commission. *Scenic Hudson, supra*; *Isbrandtsen Co. v. United States*, 96 F. Supp. 883, 892 (S.D.N.Y. 1951), *aff'd by equally divided court sub nom. A/S.J. Ludwig Mowinckels Rederi v. Isbrandtsen Co.*, 342 U.S. 950, 72 S. Ct. 623, 96 L. Ed. 706 (1952). It applies to the U.S. Nuclear Regulatory Commission. *Calvert Cliffs Coordinating Committee, Inc. v. AEC*, 449 F.2d 1109, 1119 n.21 (C.A.D.C. 1971).<sup>14</sup>

Before discussing the applicable NRC cases, it is appropriate to discuss some of the language in *Scenic Hudson, supra*, that explains the court's adoption of the "balls and strikes" principle:

The thread running through this case has been that the applicant is entitled to a license upon making a *prima facie* case. My own personal regulatory philosophy compels me to reject this approach. *This Commission of its own motion, should seek to insure that a full and adequate record is presented to it.* A regulatory commission can insure continuing confidence in its decisions only when it has used its staff and *its own expertise* in a manner not possible for the uninformed and poorly financed public. With our intimate knowledge of other systems and to a lesser extent of their plans, it should be possible to resolve all doubts as to alternative

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<sup>14</sup> The court appears to extend the Commission's responsibility to public safety interests as well as to NEPA. Computerized research (using Westlaw) into federal court reports indicated that the phrase "balls and strikes" occurs in 21 relevant modern cases, none of which cast any doubt on the viability of the *Scenic Hudson* principal.

sources. This may have been done but the record doesn't speak. Let it do so. [Emphasis supplied.]

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For the [administrative process] to be successful in a particular field, it is imperative that controversies be decided as 'rightly' as possible, independently of the formal record the parties themselves produce. The ultimate test of the administrative [process] is the policy that it formulates: not the fairness as between the parties of the disposition of a controversy on a record of their own making.<sup>15</sup>

The policy requiring the NRC to protect the public health and safety and the environment in its proceedings is far stronger than any of the other contexts in which that idea has been applied. All that is necessary is to be present at hearings and limited appearance statements and to observe the difficulty that the most capable, best informed of the inexperienced intervenors endure. Nuclear energy is a difficult subject. In addition, studying the regulations is also difficult, even for somewhat experienced judges; it is especially difficult for the uninitiated.

Surely all the arguments that other agencies should not merely call balls and strikes are dwarfed by the need of the NRC not to just call balls and strikes in any proceeding affecting public health, safety, and the environment. Consequently, Congress took the unique step of adding independent expertise to the Atomic Safety and Licensing Boards, thus assuring a mix of technical background from which knowledgeable questions might be asked and knowledgeable conclusions reached.

## B. NRC Precedents

NRC precedent broadly adopts the *Scenic Hudson* rule that a licensing board is not just an arbiter of balls and strikes. For example, in *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-443, 6 NRC 741, 751-52 (1977), the Appeal Board approved of the Licensing Board's discretionary decision to admit a report into evidence even though no party had made a timely request that it do so. In *Pennsylvania Power and Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-641, 13 NRC 550, 552 (1981), the Appeal Board refused to hear an interlocutory appeal<sup>16</sup> relating to Board questions and stated that it would not have heard an appeal even if the Licensing Board had "raised the . . . issue on its own motion."

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<sup>15</sup> Citing Landis, *The Administrative Process* 39 (1938), a pre-NEPA authority.

<sup>16</sup> At that time, the standard for interlocutory appeal (on motion of a party) was whether "absent immediate appellate review, [it would] threaten a party with serious irreparable harm or pervasively affect the basic structure of the proceeding" (*Susquehanna*, 13 NRC at 551) and the Appeal Board did not consider a broadening of issues in the proceeding to constitute such harm.

In *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-772, 19 NRC 1193, 1248 (1984), the Appeal Board spoke approvingly of a Licensing Board that "required licensee to produce additional evidence . . .".<sup>17</sup>

## II. RESPONSIBILITY OF THE PRESIDING OFFICER

The decision about whether or not to ask questions or to wait to see whether the parties will develop the record adequately for themselves is rarely an easy decision due to the complex nature of the extended proceedings that licensing judges preside over. To act too soon might prejudice the rights of the parties to pursue their own case. To wait too long, especially when it appears that certain gaps in the record might not be filled by the parties independently, might be to invite lengthy delay that can be avoided if the presiding officer's concerns are voiced earlier.

There have been positive results when a presiding officer injected himself into operating license and license amendment proceedings when his judgment and the judgment of other board members called for it. For example, in the course of an evidentiary hearing in the *Comanche Peak* operating license case, the Board took an extensive role in asking questions for Citizens for Sound Energy (CASE), which seemed unable to conduct efficient and effective examinations of witnesses.

Prior to the Board questioning in *Comanche Peak*, no one — not the Staff or the Applicants or the Board — understood the allegations of serious engineering defects being made by Jack Doyle, a career engineer who had once worked for Texas Utilities. As a result of the questioning, extensive safety deficiencies were identified, confirmed by the Staff and, ultimately, resolved by the Applicants. *Texas Utilities Generating Co.* (Comanche Peak Steam Electric Station, Units 1 and 2), LBP-83-81, 18 NRC 1410 (1983).

The Board asked many written questions in *Comanche Peak*, including: LBP-85-32, 22 NRC 434 (1985) (extensive questions about the proposed comprehensive review of the design and construction of the plant); LBP-84-46, 20 NRC 1403 (1984) (Board expresses concern that Applicants' answer to a previous question about welding repairs was not responsive); LBP-85-37,

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<sup>17</sup> See also *Texas Utilities Generating Co.* (Comanche Peak Steam Electric Station, Units 1 and 2), LBP-83-69, 18 NRC 1084, 1086 (1983) (granting a motion for reconsideration and stating, "[w]e 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"); *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), LBP-83-3, 17 NRC 59 (1983) (the Board independently denies a motion for summary disposition even though intervenors failed to respond); *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), LBP-75-34, 1 NRC 626, 655 (1975) ("board must, in order to carry out its public interest obligations, ensure that the parties place on the record sufficient facts on which to base a reasoned conclusion").

22 NRC 601 (1985) (paint quality); LBP-86-36A, 24 NRC 575 (1986) (quality assurance and trending); and LBP-83-43, 18 NRC 122, 150-53 (1983) (questions asked by the Board prior to the appointment of the Board chair).

It should be noted that the *Comanche Peak* case was resolved through a voluntary settlement among the parties, thus saving enormous expenditures on further litigation and possible attendant delay. It appears probable that the Board questions contributed to increased understanding among the parties which helped to establish the conditions for settlement.

In *Consumers Power Co.* (Big Rock Point Plant), LBP-82-97, 16 NRC 1439 (1984), the Licensing Board reached conclusions adverse to Consumers Power as a result of extensive questions that it asked concerning fuel pool criticality. Although the Licensing Board was correctly reversed, on legal grounds that had not been argued before it, the Appeal Board reviewed the extensive questioning conducted by the Licensing Board without a hint of disapproval that the questioning had occurred. *Id.*, ALAB-725, 17 NRC 562, 564-66 (1983).

In one aspect of the *Point Beach* tube-sleeving amendment case, an intervenor was declared in default when it refused to show up for a scheduled prehearing conference and refused to answer the Board's questions about the validity of its excuse. *Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Units 1 and 2), LBP-82-108, 16 NRC 1811 (1982). At least two sets of substantive questions also were asked: *id.*, LBP-81-39, 14 NRC 819 (1981); *id.*, LBP-81-44, 14 NRC 850 (1981).

In the *Point Beach* case, the Board appears to have effected great speed through its questioning. The *Federal Register* notice of the appointment of the Board occurred on August 25, 1981, and an authorization of a license amendment to conduct certain tube-sleeving experiments was published on November 5, 1981. *Point Beach*, LBP-81-55, 14 NRC 1017, 1019 (1981). The questions asked were very helpful in reaching a rapid and proper determination in this case.<sup>18</sup>

### III. CONCLUSION

The Staff will be asked to clarify the status of the hearing file, including whether or not it is currently complete and, if not, when it may be made complete.

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<sup>18</sup> *Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Unit 1), ALAB-696, 16 NRC 1245, 1262-64 (1982), closely reviewed Board procedures despite the fact that reversible error had not occurred. In the course of that review, the Board was never criticized for asking questions of its own. It was advised that a "show cause" procedure was not necessary and that the Board should not purposely deviate from Commission procedural rules, which contain enough flexibility in themselves to permit expedition.

#### **IV. ORDER**

For all the foregoing reasons and based on consideration of the entire record in this matter, it is, this 13th day of October 1989, ORDERED:

A. The Staff of the Nuclear Regulatory Commission shall clarify the status of the hearing file in this case within 10 days of receipt of this Order.

B. The Staff of the Nuclear Regulatory Commission shall include in the hearing file any materials or studies in its possession (that are not already in the hearing file) that relate to the way in which pollution at the Santa Susana facility was deposited there and to Rockwell's responsibility or lack of responsibility for that pollution.

Presiding Officer,

Peter B. Bloch  
ADMINISTRATIVE JUDGE

Bethesda, Maryland

## **ATTACHMENT A**

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judge:**

**Peter B. Bloch**

**In the Matter of**

**Docket No. 70-25  
(ASLBP No. 89-594-01-ML)  
(Special Nuclear Material  
License No. SNM-21)  
(Request to Renew  
for 10 Years)**

**ROCKWELL INTERNATIONAL  
CORPORATION  
(Rocketdyne Division)**

## **MEMORANDUM AND ORDER (Request for Information)**

After reviewing the Affidavit of Robert T. Lancet, filed by Applicants on September 27, 1989, I have some additional concerns and questions.

I have preliminarily and tentatively reached the following numbered conclusions, subject to further consideration should any of the parties submit contrary filings or argument, that:

1. The following incidents, disclosed by Applicants, have in common that they were contributed to by a material defect or other design error that *may* have been caused by careless engineering: (a) 9/23/88, "improper material selection by designer"; (b) 6/20/88, "material incompatibility"; (c) 2/18/86, "material defect" (appears to have resulted from improper plugging of the drain line — not clear the extent to which this is an engineering error); (d) 9/26/85, "material failure" (not clear whether this resulted from improper

engineering or even whether the disposition represented proper engineering — see the similar incident on 2/18/86); (e) 4/13/84, "incompatible material"; (f) 7/1/82, failure of a gasket seal — with prescription for regular inspections but no indication of engineered gasket life or replacement period; (g) 5/22/81 (apparently inadvertently omitted from Table 1), sodium leak due to intergranular stress corrosion cracking apparently caused by direct contact between mineral fiber insulation and the pipe, with "no sheet metal oven between"; (h) 8/5/72, "design error resulted in fatigue failure of thermowell" (failure of engineer to consider properly forces resulting from flow-induced vibration); (i) 2/6/71, cause of incident not clear but solution is to re-engineer the system to delete a hot trap; and (j) 9/28/70, "material failure" (bellows seal valve to be replaced by a stem freeze seal type valve).

2. This may represent a pattern of events that should have been trended.<sup>1</sup>

3. The reports given may also show patterns with respect to procedure errors and operator errors, possibly due to training, quality assurance deficiencies, or personnel selection. There appears to be insufficient information on the forms to know whether any systematic errors of these types exist. There is no indication on the forms that serious attention has been given to trending.

I respectfully request that similar reports (unusual occurrences, NCRs, RDs, environmental nonconformance reports, etc.) for events that occurred during the past 20 years, involving releases of radioactive materials, should be filed within 1 month, regardless of whether or not the standards of 10 C.F.R. §§ 20.105 and 20.106 have been exceeded. Applicants may file other comments on this memorandum within 1 month as well.

Intervenors may desire to litigate a concern derived from my inquiries. To do so, they may file their concern within 28 days or, if it relates to Applicant's response to this memorandum, within 15 days of the filing of that response.

Respectfully ORDERED,

Peter B. Bloch  
ADMINISTRATIVE JUDGE

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<sup>1</sup>The Application is required by 10 C.F.R. § 70.22(f), including footnote 2 to that section, to comply with 10 C.F.R. Part 50, Appendix B, particularly ¶ XVI, which requires prompt identification and correction of conditions adverse to quality and — for significant conditions — determination of the cause of the condition and corrective action to preclude repetition.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Administrative Law Judge:

Morton B. Margulles

In the Matter of

Docket No. 30-05004-MLA  
(ASLBP No. 90-599-01-ML)  
(Byproduct Material License  
No. 22-08799-02)

NORTHERN STATES POWER  
COMPANY  
(Pathfinder Atomic Plant)

October 24, 1989

RULES OF PRACTICE: STANDING

A comprehensive review is conducted of the elements that are necessary to establish standing under 10 C.F.R. Part 2, "Subpart L — Informal Hearing Procedures for Adjudications in Materials Licensing Proceedings."

MEMORANDUM AND ORDER  
(Hearing Request)

On August 24, 1989, the Nuclear Regulatory Commission published in the *Federal Register* (54 Fed. Reg. 35,267) a notice of opportunity for hearing on the proposed amendment of Byproduct Material License No. 22-08799-02, issued to Northern States Power Company (Licensee), which would authorize it to perform final decommissioning of the fuel-handling building and the reactor building of the Pathfinder Atomic Plant, in Minnehaha County, South Dakota, in accordance with the Licensee's decommissioning plan. The notice states that the reactor terminated operation in September 1967. Subsequently, the fuel was

removed, the reactor was permanently disabled, and the facility was refitted with three package boilers that burn fossil fuel. The fuel-handling and reactor buildings were partially dismantled and decontaminated, placed in a safe-storage condition, and isolated from the balance of the plant.

By a joint petition timely filed September 22, 1989, Requestors Citizens for Responsible Government, South Dakota Resources Coalition, Technical Information Project, and Catherine Hunt seek a hearing on the proposed amendment.

This proceeding is governed by 10 C.F.R. Part 2, "Subpart L — Informal Hearing Procedures for Material Licensing Adjudications," 10 C.F.R. §§ 1201-1263. On October 11, 1989, pursuant to 10 C.F.R. § 2.1207, I was designated to rule on the request for a hearing and, if necessary, to serve as the presiding officer to conduct a hearing. In turn, I have appointed, in accordance with 10 C.F.R. § 2.1209(j), Administrative Judge Jerry R. Kline from the Atomic Safety and Licensing Board Panel as a special assistant to assist me in taking evidence and preparing a suitable record for review. Judge Kline's background will be discussed further in this Memorandum.

Northern States Power Company has not filed an answer to Requestors' petition for a hearing. NRC Staff, by letter of October 18, 1989, informed me that it had decided not to participate in this proceeding as a party but that it is willing to assist upon request.

Considering the posture of the proceeding, it would be premature to request Staff's assistance at this time. However, recognizing that the proposed amendment is to permit decommissioning and an NRC environmental impact statement or assessment will become part of the hearing file, a request for Staff participation may be made by me at some future time during the course of the proceeding.

This Memorandum will request additional information from each of the Requestors in order that there be sufficient information available to rule on the request for a hearing.

## LEGAL REQUIREMENTS

Section 2.1205(g) of 10 C.F.R. provides that in ruling on a request for a hearing, the presiding officer shall determine, *inter alia*, that "the requestor meets the judicial standards for standing." Although the "Informal Hearing Procedures for Adjudications in Material Licensing Proceedings" have only recently been promulgated, i.e., February 28, 1989, the judicial standards for standing have long been in effect.

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 statutes covering the proceeding. *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-83-25, 18 NRC 327, 332 (1983). A petitioner should allege in a Nuclear Regulatory Commission proceeding an injury-in-fact that is within the zone of interests protected by the Atomic Energy Act of 1954 or the National Environmental Policy Act of 1969, as amended. *Niagara Mohawk Power Corp.* (Nine Mile Point Nuclear Station, Unit 2), LBP-83-45, 18 NRC 213, 215 (1983).

Economic interest as a ratepayer does not confer standing in NRC licensing proceedings. *Three Mile Island*, CLI-83-25, *supra*, 18 NRC at 332 n.4. Those economic concerns are more properly raised before state economic regulatory agencies. *Public Service Co. of New Hampshire* (Seabrook Station, Unit 2), CLI-84-6, 19 NRC 975, 978 (1984). Economic injury gives standing under the National Environmental Policy Act only if it is environmentally related. *Tennessee Valley Authority* (Watts Bar Nuclear Plant, Units 1 and 2), ALAB-413, 5 NRC 1418, 1421 (1977). 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 Nuclear Regulatory adjudicatory process. *Three Mile Island*, CLI-83-25, *supra*, 18 NRC at 332.

For an organization to have standing, it must show injury in fact to its organizational interests or to the interest of members who have authorized it to act for them. If the organization is depending upon injury to the interests of its members to establish standing, the organization must provide with its petition identification of at least one member who will be injured, a description of the nature of that injury, and an authorization for the organization to represent that individual in the proceeding. *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), LBP-82-43A, 15 NRC 1423, 1437 (1982).

Where an organization has no members, its sponsors can be considered equivalent to members where they financially support the organization's objectives and have indicated a desire to be represented by the organization. *Consolidated Edison Co. of New York* (Indian Point, Unit 2), LBP-82-25, 15 NRC 715, 734-36 (1982).

An organization cannot meet the interest requirements for standing by acquiring a new member who meets the interest requirements, more than 2 months after the deadline for filing of intervention petitions, without establishing good cause for the out-of-time filing. *Washington Public Power Supply System* (WPPSS Nuclear Project No. 2), LBP-79-7, 9 NRC 330, 335 (1979).

## THE REQUESTS FOR A HEARING

Having reviewed applicable law, it is apparent that the Requestors have not submitted sufficient information to make a determination on their standing to request a hearing.

### A. Citizens for Responsible Government

Requestor Citizens for Responsible Government describes itself as a nonprofit corporation organized under the laws of the State of South Dakota, that is governed by a three-member Board of Directors, and has no members.

It, and the three other Requestors all subscribe to the same set of stated interests. They say in substance:

- (1) Requestors and their members are taxpayers with the State of South Dakota. An inadequate or inappropriate decommissioning of the plant will cause state and local taxes to rise, to their detriment.
- (2) Requestors and their members reside within and hold property within the area reasonably expected to be impacted by decommissioning activities. An inadequate or inappropriate decommissioning will jeopardize the health and safety of Requestors and their members and will diminish the value of their property.
- (3) Requestors and their members are ratepayers within the area serviced by Northern States Power Company. An inadequate or inappropriate decommissioning will cause a rise in charges for electricity by the utility and affect Requestors in a detrimental fashion.
- (4) Requestors and their members will be affected by the environmental and radiological impacts of the decommissioning. An inadequate or inappropriate decommissioning will degrade the soil, water, and air in violation of state and federal laws and regulations.

Citizens for Responsible Government has not provided sufficient information for determining its standing. The purpose of the corporation is unknown. It has no members so that it evidently cannot be proceeding in their behalf. Should it have financial sponsors that support the organization's objectives and desire to be represented by Citizens for Responsible Government, it can represent them. To do so, Requestor must identify at least one sponsor who will be injured, give a description of the nature of that injury, and provide an authorization for the organization to represent that sponsor in the proceeding.

Whether an organization seeks standing on its own, or in a representational capacity, it must specifically answer the question, "What is the injury-in-fact, within the zone of interests protected by the Atomic Energy Act or the National Environmental Policy Act, upon which Requestor relies?"

Looking to its four stated interests, I find that, as to (1), its economic interest as a state and local taxpayer does not provide a basis for standing in this proceeding. It is not within the zone of interests protected by the Atomic Energy Act or the National Environmental Policy Act. Likewise, as to (3), Requestor's economic interest as a ratepayer is not protected by the Nuclear Regulatory Commission. The proper forums for such interests are state and local agencies.

As to interest (2), residing and holding property within an area expected to be impacted by decommissioning activities so as to jeopardize the health and safety of the Requestor, this can provide a satisfactory basis to establish standing.

The interest as set forth is too general to be legally sufficient. A Requestor acting in its own behalf or in any representative capacity should set forth the nature of the property and its proximity to the plant, as well as for any residence relied upon, and should state more specifically how the health and safety of the Requestor is expected to be jeopardized. Citizens for Responsible Government should supplement its request with such information.

As to Requestor's additionally stated interest in (3), of not having the value of its property diminished, this injury cannot be considered, unless it can be shown that economic injury is protected against by the Atomic Energy Act or the National Environmental Policy Act.

As to stated interest (4), concerning environmental and radiological impacts of the decommissioning that will degrade the soil, water, and air in violation of federal laws and regulations, again it is too general to be legally sufficient. Information should be furnished to establish the locale of the soil, water, and air that is the subject of the concern, the relationship of the organization to it, and a statement as to the nature of the environmental and radiological impacts that are expected to cause the alleged degradation.

Requestors further stated interest in (4), for prohibiting violations of state laws and regulations, would best be handled by the appropriate state bodies.

## B. South Dakota Resources Coalition

The organization is described as a nonprofit, South Dakota Corporation having 120 citizen members and 10 member groups. It subscribes to the same interests that were previously set forth. The same rulings on interest made as to Citizens for Responsible Government are equally applicable to South Dakota Resources Coalition. Similar omissions of information, as previously discussed, exist as to this Requestor and should be furnished so that a ruling can be made as to its standing.

Because South Dakota Resources Coalition has members, it can representationally participate for the interest of members who have authorized it to act for them. In so doing, the organization must provide with its petition identification of at least one member who will be injured, a description of the nature of that

injury, and an authorization for the organization to represent that member in the proceeding.

It is noted from the signatures on the petition that Catherine Hunt is president of South Dakota Resources Coalition. She also seeks individual participation status on the basis that she resides in Garretson, South Dakota, within 20 miles of the Pathfinder Plant, that she owns land and property that would be affected by the decommissioning and travels a road located within a few hundred feet from the plant.

South Dakota Resources Coalition may base its standing on representing Catherine Hunt, it being assumed from her office in the organization that she is a member and has authorized the corporation to act for her. However, she must describe her alleged injury in greater detail than she has.

The proximity of a person's home or property can be relevant to standing depending on the radiological materials and the potential hazard involved. There must be sufficient information provided to determine that there is a possibility of injury.

A presumption of standing may exist if one is frequently within a few hundred feet of a site. Catherine Hunt should supplement the information she provided by describing the nature of her travel near the plant, including its frequency.

#### C. Catherine Hunt

Catherine Hunt can have her interest protected by participating as an individual or by having South Dakota Resources Coalition represent her interest. It would be detrimental to the process to have a person appear in the proceeding individually and to be represented by an organization. Assuming Catherine Hunt has provided all the necessary information to establish standing individually or for representation by the organization, she should elect whether to appear individually or to be represented by the organization. If she wishes to proceed with both representations, she should inform the presiding officer of the reasons for the need to do so. This should be done when the other additional information requested is filed.

#### D. Technical Information Project

Technical Information Project is a nonprofit, South Dakota corporation governed by a ten-member Board of Directors and has nine member groups. Like the other organizations, its purpose is unknown. That information should be furnished along with the type of information requested of the other organizations. In that its stated interests are identical to the others, the same ruling on interest is made as to Technical Information Project.

It should be pointed out that an organization acting in a representational capacity for its standing does so based on the interest of its members. In that Technical Information Project only has member groups, its acting in a representational capacity only extends to its member groups and not to the member groups' members.

The information requested above of the Requestors shall be filed (mailed) by November 17, 1989. Without this information, it is premature to determine whether Requestors' specified areas of concern are germane to the subject matter of this proceeding.

### ADDITIONAL RULINGS

Requestors have requested that, if a hearing is granted, it be held in Sioux Falls, South Dakota. It should be pointed out that under the rules, the granting of a request for a hearing is not synonymous with the granting of an oral hearing. Section 2.1233 of 10 C.F.R. provides that the hearing process will commence with written presentations. Section 2.1235 allows for oral presentations upon a determination that it is necessary to create an adequate record for decision or in the discretion of the presiding officer. It is the Commission's practice to hold oral hearings in the area of the plant site. Should an oral hearing be held, it will be held in Sioux Falls, Minnehaha County, South Dakota.

Requestors suggest that any hearing date regarding this matter await completion of all necessary documentation, more particularly the Environmental Assessment. The suggestion is consistent with the procedures set forth in the regulations, which will be followed. Section 2.131 of 10 C.F.R. provides for the filing of the hearing file in the docket within 30 days of the entry of an order granting a hearing. It should "consist of the application and any amendment thereto, any NRC environmental impact statement or assessment relating to the application, and any NRC report and any correspondence between the applicant and the NRC that is relevant to the application." Section 2.1233 of 10 C.F.R. further provides that after the NRC Staff has made the hearing file available, the parties and participants shall be afforded the opportunity to submit their written presentations.

For future filings in the proceeding, whether of pleadings or statements, the signatures that appear on the documents should be those of the individuals for whom the documents were prepared and not those of individuals signing for the persons.

## **APPOINTMENT OF ADMINISTRATIVE JUDGE KLINE**

I have appointed Administrative Judge Jerry R. Kline as a special assistant for taking evidence and preparing a suitable record for review because of his technical abilities. He is well qualified, being an environmental scientist and having served as an Administrative Judge for 7 years with the Atomic Safety and Licensing Board Panel.

In an attached statement, Judge Kline calls attention to certain facts that relate to a family connection with the Licensee, which he believes do not disqualify him from participation.

Judge Kline's participation in this proceeding has been held in abeyance pending (1) a determination of who the parties to the proceeding will be and (2) a review is made of any objections from the parties as to his participation in the case. Following a determination of who the parties to the proceeding will be, they will be given 10 days within which to file any objection to his participation.

It is so ORDERED.

Morton B. Margulies, Presiding  
Officer  
**ADMINISTRATIVE LAW JUDGE**

Bethesda, Maryland  
October 24, 1989

## **STATEMENT OF JUDGE KLINE**

Judge Kline advises of the following facts that might have a bearing in his participation in this case as special adviser to Judge Margulies.

- (1) My father, Frederick A. Kline (deceased), was employed by Northern States Power Company in Minneapolis, Minnesota, from approximately 1931 to approximately 1970.
- (2) My father drew a retirement pension from the company from approximately 1970 until his death in 1980.
- (3) My mother now receives a monetary pension from the company.
- (4) My mother lives in Minneapolis, Minnesota, and is not a member of my immediate household which is located in Silver Spring, Maryland.
- (5) I am not a fiduciary on my mother's behalf.

- (6) My mother has no financial interest in the subject matter of this proceeding or any other interest that could be affected by the outcome of the proceeding.

I conclude that none of the foregoing facts require me to disqualify myself from this case under the standards of 28 U.S.C. § 455(b). The foregoing information is disclosed to the parties so that they may have the opportunity to object to my participation in this case under the standards of 28 U.S.C. § 455(a) which requires a judge to disqualify himself if his impartiality might reasonably be questioned.

Jerry R. Kline  
ADMINISTRATIVE JUDGE

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judge:

Charles Bechhoefer

In the Matter of

Docket No. 70-36-MLA  
(ASLBP No. 89-593-01-MLA)  
(Special Nuclear Materials  
License No. SNM-33)

COMBUSTION ENGINEERING, INC.  
(Hematite Fuel Fabrication Facility)

October 27, 1989

The Presiding Officer in a materials license proceeding approves a stipulation between the Applicant and two Intervenors, grants the withdrawal of those Intervenors subject to the terms of the stipulation, dismisses a third Intervenor, grants the requested withdrawal of a petitioner for intervention, and terminates the proceeding.

**PREHEARING CONFERENCE ORDER**  
**(Settlement Agreement and Termination of Proceeding)**

This proceeding involves a proposed amendment to the materials license of Combustion Engineering, Inc. (Applicant), to authorize the Applicant to operate new pellet production lines at its facility in Hematite, Missouri. The undersigned has been designated Presiding Officer.<sup>1</sup> Parties to the proceeding, which is being conducted under 10 C.F.R. Part 2, Subpart L, the Commission's Informal Hearing Procedures for Adjudications in Materials Licensing Proceedings, are

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<sup>1</sup>54 Fed. Reg. 31,749 (Aug. 1, 1989).

the Applicant and three Intervenors: State Senator Jeremiah W. (Jay) Nixon, Ms. Martha T. Dodson, and Ms. Karen Sisk.<sup>2</sup> The Coalition for the Environment had also sought admission to the proceeding; ruling on its petition had been deferred.<sup>3</sup>

On October 25, 1989, the Presiding Officer conducted a prehearing conference in Hillsboro, Missouri.<sup>4</sup> Participating parties at the conference were the Applicant, Senator Nixon, and Ms. Dodson. At the conference, the participating parties agreed to a settlement designed to terminate the proceeding, subject to specified conditions. The text of the agreement is set forth as an Appendix to this Order.<sup>5</sup>

In LBP-89-25, *supra*, I had directed the Intervenors and petitioner to file statements of proposed issues that they wished to litigate. Senator Nixon and Ms. Dodson filed statements which together included nine issues. By letter dated October 19, 1989, the Coalition stated that it was withdrawing its intervention petition. Ms. Sisk neither filed a statement of proposed issues nor appeared at the prehearing conference.

In LBP-89-25, *supra*, I urged the parties to attempt to settle the outstanding issues. I suggested the prehearing conference as an appropriate medium for conferring on settlement. The agreement presented to me at the conference represents a fruitful outcome of this effort. The participating parties each agreed that, subject to my approval of the stipulation, the proceeding should be terminated. Tr. 54 (Applicant); Tr. 53 (Sen. Nixon); Tr. 54 (Ms. Dodson).

As I stated at the conference, I am accepting the stipulation (Tr. 48-49, 54). Its terms are not inconsistent with NRC regulations and represent a fair settlement for the parties. As I also announced, I am accepting the withdrawal of the Coalition for the Environment and am dismissing the petition of Ms. Sisk for failure to file a statement of issues or to appear at the conference (Tr. 49, 54).<sup>6</sup>

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<sup>2</sup> By letter dated August 3, 1989, the NRC Staff, as permitted by 10 C.F.R. § 2.1213, declined to participate in the proceeding. The Staff responded satisfactorily to certain questions that I posed to it.

<sup>3</sup> Rulings on various intervention petitions appear in Memorandum and Order (Requests for a Hearing), LBP-89-23, 30 NRC 140 (1989), and in Memorandum and Order (Additional Intervention Petitions, Issues, and Schedules), LBP-89-25, 30 NRC 187 (1989).

<sup>4</sup> On the prior evening, October 24, 1989, the Presiding Officer heard limited appearance statements from members of the public, as authorized by 10 C.F.R. § 2.1211(a). The conference and limited appearance session were each announced in LBP-89-25, *supra* note 3. Notice of the conference and limited appearance session, dated September 26, 1989, was published in 54 Fed. Reg. 40,548 (Oct. 2, 1989).

<sup>5</sup> The Appendix consists of a retyped version of the original, which included hand-written changes to a typewritten document. Copies of the original are bound into the transcript, following the last page of each session (ff. Tr. 37 and 55). Pages of the October 25, 1989 transcript were initially numbered 1-18 but have been renumbered as Tr. 38-55, following consecutively the numbers of the October 24, 1989 session. This Order refers to the renumbered transcript pages.

<sup>6</sup> The Applicant advised that it had unsuccessfully attempted to contact Ms. Sisk concerning issues that she wished to raise (Tr. 41). I previously had ascertained by telephone that the date for the conference was convenient for

(Continued)

Finally, the questions that I posed to the Applicant and Staff in LBP-89-25, concerning criticality standards inherent in certain of the concerns expressed by the initial intervention petitions, were satisfactorily answered. During the limited appearance session, I asked for a report at the prehearing conference concerning the Applicant's plans for conforming to the Commission's regulations on offsite emergency planning, which go into effect next year but, to some extent, were inherent in the relief sought by certain of the Intervenors' issues (Tr. 19). After receiving the proposed stipulation, I made no further inquiry on this question, inasmuch as the terms of the stipulated agreement appear to respond to the Intervenors' concerns in this regard.

Accordingly, on the basis of the foregoing, it is, this 27th day of October 1989, ORDERED:

1. The stipulation of Senator Jeremiah W. (Jay) Nixon, Ms. Martha T. Dodson, and the Applicant, as set forth in the Appendix to this Order, is *approved*.
2. The withdrawal of the intervention petitions of Senator Jeremiah W. (Jay) Nixon and Ms. Martha T. Dodson is *approved*, subject to the terms of the above-referenced stipulation.
3. The requested withdrawal of the petition of the Coalition for the Environment is *granted*.
4. The intervention petition of Ms. Karen Sisk is *dismissed* for failure of Ms. Sisk to have filed a statement of issues or to have participated at the prehearing conference.
5. This proceeding is *terminated*.
6. Pursuant to 10 C.F.R. § 2.1251, this Order is effective immediately and will constitute the final action of the Commission thirty (30) days after the date of its issuance unless an appeal is taken in accordance with 10 C.F.R. § 2.1253. As set forth in 10 C.F.R. §§ 2.1253 and 2.762, any party may file an appeal from this Order within 10 days of service hereof. Appeals are to be filed with the Atomic Safety and Licensing Appeal Board and must conform to the standards set forth in 10 C.F.R. § 2.762.

Charles Bechhoefer, Presiding  
Officer  
ADMINISTRATIVE JUDGE

Bethesda, Maryland  
October 27, 1989

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Ms. Sisk (as well as for the other participants). When Ms. Sisk filed no statement of issues, I again sought to contact Ms. Sisk to ascertain her continuing interest in the proceeding but was unable to reach her.

## APPENDIX

**Joint Stipulation Among Combustion Engineering, Inc.,  
Sen. Jeremiah W. (Jay) Nixon, and  
Mrs. Martha Dodson**

1. The amendment does not authorize an increase in the limitations on quantities of radioactive material authorized on site.
2. The amendment will not authorize an increase in quantities of uranium product transported to and from the site by Combustion Engineering.
3. Combustion Engineering's intention is to remove low-level radioactive waste produced by the pelletizing operations under the amendment from the site for disposal at an approved offsite facility, as reasonably available. Except for high-efficiency filters (used to remove uranium from exhaust air), Combustion Engineering does not anticipate any significant increases in the quantity of low-level radioactive waste from this amendment.
4. On or before July 27, 1990, Combustion Engineering will comply with the NRC's new regulations on funding decommissioning (10 C.F.R. § 70.25). These regulations provide greater independent assurance of the availability of funds for decommissioning than under the NRC's practices in 1979.
5. Upon approval by the NRC, Combustion Engineering will provide an additional remote sampling site. In the unlikely event of releases of radioactive material in excess of license "action levels," Combustion Engineering will perform radiation surveys, including, as appropriate, offsite surveys.
6. In the event of an offsite release — similar or more severe than that which occurred in August 1989 — Combustion Engineering will notify, as appropriate, offsite response organizations.
7. Combustion Engineering will continue to work with the NRC to meet the NRC's regulatory requirements concerning the evaporation ponds.

This Joint Stipulation will become effective upon the Presiding Officer's approval of the withdrawal of the petitions of Senator Nixon and Mrs. Dodson and the termination of the NRC proceedings.



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

**Kenneth M. Carr, Chairman**  
**Thomas M. Roberts**  
**Kenneth C. Rogers**  
**James R. Curtiss**

In the Matter of

Docket Nos. 50-335  
50-389

**FLORIDA POWER & LIGHT  
COMPANY**  
**(St. Lucie Nuclear Power Plant,  
Units 1 and 2)**

November 30, 1989

The Commission denies Petitioner Thomas J. Saporito, Jr.'s request to intervene and for a hearing on its grant of Licensee's request for an exemption from the requirements of 10 C.F.R. Part 20, Appendix A, footnote d-2(c), concerning the use of "protection factors" in respirators used by workers in radioactive environments. The Commission finds that Petitioner's request fails to meet the threshold standards for instituting a proceeding under the Commission's regulations.

**AEA: HEARING RIGHT**

Even if section 189a of the AEA requires an adjudicatory hearing on a request for an exemption from the Commission's regulations, threshold procedural requirements for institution of a hearing still have to be met.

**RULES OF PRACTICE: STANDING TO INTERVENE**

The Commission has consistently applied "contemporaneous judicial concepts" of standing to determine whether a petitioner has a sufficient interest in

a proceeding to be entitled to intervene as a matter of right. *Portland General Electric Co.* (Pebble Springs Nuclear Plant, Units 1 and 2), CLI-76-27, 4 NRC 610, 614 (1976); *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-83-25, 18 NRC 327, 332-33 (1983).

## **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.

## **RULES OF PRACTICE: STANDING TO INTERVENE (INJURY IN FACT)**

Living within a specified distance from a plant does not in all cases establish standing. In situations not involving the construction or operation of the reactor itself or major alterations to the facility with a clear potential for offsite consequences, in order to establish standing a petitioner must allege some specific "injury in fact" that will result from the action taken.

# **MEMORANDUM AND ORDER**

## **I. INTRODUCTION**

This matter is before the Commission on a request for a hearing and petition to intervene by Mr. Thomas J. Saporito, Jr. ("Petitioner"), on behalf of himself and the Advanced Electronics Corporation, regarding a request by Florida Power and Light ("FPL" or "Licensee") for an exemption from one of the Commission's regulations at the St. Lucie facility. After due consideration, we deny the request because the Petitioner has not demonstrated a cognizable interest that could be addressed in any proceeding. 10 C.F.R. § 2.714(a)(2).

## **II. FACTUAL BACKGROUND**

On February 3, 1988, FPL filed an application for an exemption from the requirements of 10 C.F.R. Part 20, Appendix A, footnote d-2(c), dealing with the use of "protection factors" in respirators used by workers in radioactive environments. Briefly, the requested exemption would allow FPL to take credit for a "protection factor" when using a "sorbent," i.e., a chemical absorbent, in

an air-purifying respirator in an atmosphere contaminated with a radioiodine gas or vapor. FPL workers would then use air-purifying respirators in place of either supplied-air or self-contained respirators in those areas where airborne levels of radioiodine necessitate respiratory protection.

In its request for the exemption, FPL argued that the air-supplied apparatus can limit a worker's efficiency because the worker is restricted to the reach of the air supply hose. The self-contained apparatus is usually very heavy and cumbersome with a limited air supply, making wearers less mobile and less efficient in performing their duties. Air-purifying respirators, however, are lighter and (according to FPL) their use would reduce the workers' physical effort and time spent in the work area, thereby reducing the workers' occupational exposure.

The requested exemption is necessary if FPL is to use this type of respirator because the Commission's regulations provide that "[n]o allowance is to be made for the use of sorbents against radioactive gases or vapors." See 10 C.F.R. Part 20, Appendix A, footnote d-2(c) (1989). Therefore, FPL submitted test data to the NRC Staff demonstrating that a particular brand of sorbent-containing, air-purifying respirators, the SCOTT 631-TEDA-H canister, provided a protection factor of 50 during continuous use for more than 8 hours in a specified environment of radioiodines in gaseous or vapor form. See 54 Fed. Reg. 32,545-46. FPL argued that these data satisfied the requirements for Commission authorization of the use of this equipment in the absence of normal certification. See 10 C.F.R. § 20.103(e). Thus, FPL requested an exemption under 10 C.F.R. § 20.501 allowing the use of that particular brand of respirator with its tested "sorbents."

The NRC Staff reviewed the request and supplemental filings by FPL and determined that granting the exemption would not have a significant impact on the human environment. Therefore, the Staff published an "Environmental Assessment and Finding of No Significant Impact" in the *Federal Register*. 54 Fed. Reg. 31,902 (Aug. 2, 1989). The "Environmental Assessment" did not contain a "Notice of Opportunity for a Hearing," which is published when Commission regulations provide the opportunity to request a hearing regarding the proposed action under the Atomic Energy Act. The Staff then made a finding that granting the exemption would not result in any undue hazard to life or property. See 10 C.F.R. § 20.501. Accordingly, the Staff granted the requested exemption and published notice of that action in the *Federal Register*. 54 Fed. Reg. 32,545 (Aug. 8, 1989).

On August 14, 1989, the Commission received Mr. Saporito's petition. Mr. Saporito alleges that he (and the Advanced Electronics Corporation) resides in Jupiter, Florida, approximately 40 miles from the St. Lucie facility, and that he "otherwise use[s] and enjoy[s] a geographic area within the immediate vicinity of the St. Lucie nuclear power plants . . ." Petition at 1-2. He further alleges

that he is "an appropriate party to represent the interest of persons similarly situated and those persons currently employed by the licensee whose interests might otherwise go unrepresented." *Id.* at 2.

Mr. Saporito then alleges that granting the exemption would (1) "result in a substantial increase in the amount of low-level solid waste due to the disposal of used sorbent canisters;" (2) "result in the [FPL] employees being subjected to a much higher possibility and risk of internal radioactive contamination;" (3) "most likely increase the individual or cumulative occupational radiation exposure . . . by increasing worker time spent in radiation areas;" and (4) "most likely increase the employee's risk to heat stress effects due to the loss of the cooling effect from the forced air respirators." *Id.* at 3.

Finally, Mr. Saporito argues that if he were permitted to intervene, he "would [attempt to] address . . . the following issues:" (1) any risk of health and safety to the FPL employees; (2) the increase in low-level waste generated by FPL; (3) the validity of the justification for the exemption offered by FPL; (4) the validity of the NRC Staff's determination; and (5) the NRC Staff's alleged failure to consult with any other agencies or persons in their consideration of the exemption. *Id.* at 3-4.

FPL and the Staff have responded, urging that we deny the petition to intervene. Both FPL and the Staff argue that we should deny the petition because neither the Atomic Energy Act nor NRC regulations provides an opportunity to request a hearing on an exemption from the Commission's regulations. The Staff also asserts that procedural requirements for institution of a hearing have not been met. We address these arguments in the analysis that follows.

### III. ANALYSIS

#### A. Hearing Rights

As we noted in *Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant), CLI-86-24, 24 NRC 769, 774 (1986), "[e]ven if § 189a of the Atomic Energy Act required an adjudicatory hearing on this exemption request, . . . threshold procedural requirements for institution of a hearing would still have to be met." Since, as we will discuss below, the Petitioner has failed to demonstrate compliance with the basic procedural requirements for a hearing, we need not, and once again do not, reach and address the broader question as to whether the Atomic Energy Act establishes the right to request a hearing on exemptions in the first place.

## B. Procedural Requirements for a Hearing

Initially, the Petitioner fails to satisfy the Commission's "interest" requirements. We have consistently applied "contemporaneous judicial concepts" of standing to determine whether a petitioner has a sufficient interest in a proceeding to be entitled to intervene as a matter of right. *Portland General Electric Co.* (Pebble Springs Nuclear Plant, Units 1 and 2), CLI-76-27, 4 NRC 610, 614 (1976); *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-83-25, 18 NRC 327, 332-33 (1983). "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 that proceeding." *Three Mile Island*, CLI-83-25, *supra*, 18 NRC at 332.

In this case, the exemption at issue deals with the protection of workers in the plant, not protection of the general public. In other words, those individuals affected will be workers in the plant, not members of the general public. The Petitioner is not a worker at the plant and has not alleged an "injury in fact" that he may suffer as a result of the Commission decision in this case.

Moreover, the Petitioner must himself fulfill the requirement for standing; he may not derive standing from the interests of another person or organization, *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-470, 7 NRC 473, 474-75 & n.1 (1978); *Tennessee Valley Authority* (Watts Bar Nuclear Plant, Units 1 and 2), ALAB-413, 5 NRC 1418, 1421 & n.4 (1977), or represent them without express authorization. *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-535, 9 NRC 377, 394-400 (1979). Thus, absent some express authorization, the Petitioner cannot represent FPL employees in the plant, especially since they have not indicated any intent to intervene in opposition to this exemption themselves.<sup>1</sup>

Finally, the petition is not saved by its reference to the potential for the creation of additional low-level waste in the form of used sorbent canisters. See Petition at 3. It is true that in the past, we have held that living within a specific distance from the plant is enough to confer standing on an individual or group in proceedings for construction permits, operating licenses, or significant amendments thereto such as the expansion of the capacity of a spent fuel pool. See, e.g., *Virginia Electric and Power Co.* (North Anna Power Station, Units 1 and 2), ALAB-522, 9 NRC 54 (1979). However, those cases involved the construction or operation of the reactor itself, with clear implications for the offsite environment, or major alterations to the facility with a clear potential for offsite consequences. See, e.g., *Gulf States Utilities Co.* (River Bend Station, Units 1 and 2), ALAB-183, 8 AEC 222, 226 (1974). Absent situations involving

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<sup>1</sup> Additionally the petition does not directly address the three factors of 10 C.F.R. § 2.714(d) as required in § 2.714(a)(2).

such obvious potential for offsite consequences, a petitioner must allege some specific "injury in fact" that will result from the action taken: here, the granting of the exemption. In this case, the Petitioner has not alleged any "injury in fact" that he will suffer because of the accumulation of used sorbent canisters at the plant. Thus, we find that he has not satisfied the Commission's "interest" requirements.

#### IV. SUMMARY

In summary, we find that the petition fails to meet the threshold standards for instituting a proceeding under the Commission's regulations.<sup>2</sup> Therefore, we need not determine whether the Petitioner has raised a "material issue of fact" regarding the factual determinations underlying the granting of the exemptions, or reach the generic question of whether section 189a of the Atomic Energy Act provides the opportunity to request a hearing on a proposed exemption from a Commission regulation. *Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant), CLI-86-24, 24 NRC 769, 774-75 (1986), *aff'd sub nom. Eddleman v. NRC*, 825 F.2d 46 (4th Cir. 1987). Accordingly, the request for hearing and petition for leave to intervene are denied.

It is so ORDERED.

For the Commission

SAMUEL J. CHILK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 30th day of November 1989.

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<sup>2</sup> We emphatically reject the Licensee's suggestion that the Commission cannot revoke an exemption. See FPL Response at 4. If the Commission has authority to grant an exemption, it certainly has authority to revoke that exemption.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

**Administrative Judges:**

**G. Paul Bollwerk, III, Chairman**  
**Alan S. Rosenthal**  
**Howard A. Wilber**

In the Matter of

Docket Nos. 50-443-OL  
50-444-OL  
(Offsite Emergency  
Planning Issues)

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

November 7, 1989

In reviewing LBP-88-32, 28 NRC 667 (1988), concerning the New Hampshire Radiological Emergency Response Plan (NHRERP) for the Seabrook Station, with respect to those portions of the decision concerning letters of agreement (LOAs), transportation availability and support services, decontamination and reception centers, and sheltering of beach population, the Appeal Board reverses and remands for further consideration the Licensing Board's findings that: (1) school personnel are recipients of emergency response services and, therefore, are not required to execute LOAs concerning the evacuation of students; (2) evacuation times for hospital, nursing home, and other special facility advanced life support (ALS) patients are adequately reflected in evacuation time assumptions; and (3) no further implementing details are required for sheltering options. The Appeal Board also holds that the Licensing Board erred in granting a motion for partial summary disposition of an intervenor's contention challenging the adequacy of a survey intended to identify individuals with special evacuation transportation needs.

## **APPEAL BOARD(S): SCOPE OF REVIEW**

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

Appeal Board need not consider allegation of Licensing Board error if appealing party fails to provide any explanation of why the ruling in question was erroneous. *Detroit Edison Co.* (Enrico Fermi Atomic Plant, Unit 2), ALAB-469, 7 NRC 470, 471 (1978).

## **EMERGENCY PLANNING: REGULATORY GUIDANCE (NUREG-0654); LETTERS OF AGREEMENT**

NUREG-0654 Criterion II.A.3 requires LOAs between a federal agency, a state agency, or a local agency, and other emergency response support organizations. It does not require LOAs between and among the federal, state, and local agencies themselves.

## **EMERGENCY PLANNING: REGULATORY GUIDANCE (NUREG-0654); LETTERS OF AGREEMENT**

NUREG-0654 distinguishes between local government organizations that have a “*principal* or *lead* role in emergency planning and preparedness” and those having a supportive role. NUREG-0654, App. 5, at 5-2 (emphasis in original). Based on this distinction, how a local government organization functions (i.e., in either a lead or support role) will govern whether that organization is a “local agency” or an “emergency response support organization” for the purpose of determining that organization’s responsibilities for executing any LOAs.

## **EMERGENCY PLANNING: LETTERS OF AGREEMENTS**

For those involved in the emergency response process, a sensible distinction can be made between “providers” of emergency assistance services, who generally must execute LOAs, and “recipients” of services, for whom no LOAs are needed. Moreover, in the former instance, LOAs need only be obtained from those providing services of singular import to emergency response planning.

## **EMERGENCY PLANNING: LETTERS OF AGREEMENT**

Because those with custodial responsibilities, such as school or nursing home personnel, appear to have a dual role, to determine whether they are “providers” or “recipients” of services, one should consider whether they are being asked

to perform assistance functions not ordinarily included as part of their everyday duties, thereby becoming service "providers."

### **RULES OF PRACTICE: ADEQUACY OF ADJUDICATORY RECORD**

Inconsistent interpretations of the administrative record regarding the same matter require a remand for resolution.

### **EMERGENCY PLANNING: LETTERS OF AGREEMENT**

LOAs need not be as specific as contracts, but they must provide sufficient detail to ensure that signatories are generally aware of and willing to fulfill their emergency response assistance responsibilities.

### **EMERGENCY PLANNING: REGULATORY GUIDANCE (NUREG-0654); TRANSPORTATION ASSISTANCE**

Emergency planning requires that efforts be made to ascertain the number of individuals needing transportation assistance and related support services and to ensure that sufficient resources are available to meet those needs. See NUREG-0654 Criterion II.J.10.d.

### **RULES OF PRACTICE: SUMMARY DISPOSITION**

The Licensing Board erred in granting summary disposition when there were unresolved issues of material fact.

### **EMERGENCY PLANNING: REQUIREMENTS; TRANSPORTATION ASSISTANCE**

Emergency planning does not require "extraordinary measures," such as the construction of additional hospital facilities, to handle a possible radiological emergency; however, this principle does not foreclose adjudicatory consideration of the adequacy of a survey intended to supply information clearly relevant to establishing the planning basis for transportation assistance. See *Southern California Edison Co. (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-83-10, 17 NRC 528, 536 (1983), rev'd in part on other grounds, GUARD v. NRC, 753 F.2d 1144 (D.C. Cir. 1985)*.

## **EVIDENCE: WAIVER OF OBJECTION**

Party prevailing on an evidentiary objection resulting in the exclusion of proffered evidence waives its objection by later introducing essentially the same evidence. *McCormick on Evidence* § 55, at 143 & n.13 (3d ed. 1984).

## **RULES OF PRACTICE: SUMMARY DISPOSITION (HARMLESS ERROR)**

Improper grant of applicants' summary disposition request excluding consideration of adequacy of special transportation needs survey was not rendered harmless error by later applicant submission of evidence concerning survey. Additional evidence, which was essentially background information, was insufficient to constitute waiver of objection. Also, application of waiver principle would be inappropriate given Licensing Board's reliance upon Commission's legal and policy precedent concerning "extraordinary measures" as basis for granting summary disposition motion.

## **EMERGENCY PLANNING: REGULATORY GUIDANCE (NUREG-0654); TRANSPORTATION ASSISTANCE**

Evacuation planning guidance calls for (1) an institution-by-institution estimate of the population for "special facilities," including schools, hospitals, nursing homes, day care centers, and jails, and (2) a description of the individualized transportation requirements of those "special facilities" individuals. See NUREG-0654, App. 4, at 4-3.

## **EMERGENCY PLAN(S): IMPLEMENTING PROCEDURES**

Changes in vehicle allocations for evacuating certain "transit dependent" individuals are not impermissibly "ad hoc" if procedures for making changes are incorporated as part of the emergency plan's implementation measures.

## **EMERGENCY PLANNING: EVACUATION TIME ESTIMATES**

## **EMERGENCY PLAN(S): CONTENT (EVACUATION)**

Because the protection provided by sheltering at a "special facility" institution may be greater than for residential properties, making sheltering a more acceptable alternative than evacuation, the issue of how much evacuation time estimates may be increased by preparing a special facility ALS patient for transit and loading is a relevant concern.

## **EMERGENCY PLAN(S): CONTENT (EVACUATION)**

Remand is required to resolve discrepancy between Licensing Board description of emergency plan as based upon patient assembly at special facility loading points when transportation arrives, which would encompass ALS patient preparation time, and plan's language indicating that assembly begins only upon vehicle arrival, which seemingly would not include preparation time.

## **EMERGENCY PLAN(S): FEMA FINDINGS (REBUTTABLE PRESUMPTION)**

A FEMA finding on the planning basis for radiological monitoring of evacuees at reception centers constitutes a rebuttable presumption that must be respected absent any evidence to the contrary. 10 C.F.R. § 50.47(a)(2).

## **RULES OF PRACTICE: APPELLATE REVIEW**

### **APPEAL BOARD(S): SCOPE OF REVIEW**

It is a well-settled principle of appellate practice that an appellant is precluded from raising issues or arguments not originally presented at the trial level, except possibly "in the case of a serious substantive issue as to which a genuine problem has been demonstrated." *Tennessee Valley Authority* (Hartsville Nuclear Plant, Units 1A, 2A, 1B, and 2B), ALAB-463, 7 NRC 341, 348 (1978) (referring to *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-244, 8 AEC 857, 864 (1974)). *Accord Pennsylvania Power and Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-693, 16 NRC 952, 956 n.6 (1982); *Public Service Electric and Gas Co.* (Salem Nuclear Generating Station, Unit 1), ALAB-650, 14 NRC 43, 49 (1981), *aff'd sub nom. Township of Lower Alloways Creek v. Public Service Electric and Gas Co.*, 687 F.2d 732 (3d Cir. 1982). See also *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-709, 17 NRC 17, 22 (1983).

## **RULES OF PRACTICE: RES JUDICATA; COLLATERAL ESTOPPEL**

*Res judicata* would not apply to require effect be given to an earlier Appeal Board decision because (1) the party in the earlier proceeding was not the same party (or one in privity with that party) in this proceeding, and (2) the same cause of action, claim, or demand was not at issue in this proceeding. See *Alabama Power Co.* (Joseph M. Farley Nuclear Plant, Units 1 and 2), ALAB-182, 7 AEC 210, 212, *remanded on other grounds*, CLI-74-12, 7 AEC 203 (1974). Similarly, the related issue preclusion doctrine of collateral estoppel is

not applicable because of the difference in parties. *See id.* at 213; *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-673, 15 NRC 688, 695 (1982).

#### **RULES OF PRACTICE: *STARE DECISIS***

To apply the principle of *stare decisis* requires that "an issue of law must have been heard and decided." *EEOC v. Trabucco*, 791 F.2d 1, 4 (1st Cir. 1986) (citing 1B *Moore's Federal Practice* ¶0.402[2] at 30).

#### **RULES OF PRACTICE: *STARE DECISIS***

#### **LICENSING BOARD: RESPONSIBILITIES**

When the Appeal Board in a prior decision has determined, not as a matter of law but on the basis of the evidentiary record, that the analysis in a FEMA memorandum failed to produce an adequate planning basis, the Licensing Board need only consider that prior decision. The Licensing Board was not obligated by *stare decisis* to give dispositive effect to the Appeal Board's resolution of that issue.

#### **APPEAL BOARD(S): STANDARD OF REVIEW (UNCHALLENGED TESTIMONY OR EVIDENCE)**

Intervenor's failure in case below — either in presentation of affirmative case or in witness cross-examination — to question analysis undergirding FEMA memorandum's conclusion in support of planning basis precludes appellate attack upon analysis.

#### **EMERGENCY PLANNING: REGULATORY GUIDANCE (NUREG-0654)**

NUREG-0654 Criterion II.A.4, which requires "continuous (24-hour) operation for a protracted period" is intended to cover principal emergency response organizations (e.g., the state or a local government response organization), not a particular facility such as a reception center. Under Criterion II.J.12 reception centers need be capable of monitoring arriving persons "within about a 12-hour period."

## **APPEAL BOARD(S): STANDARD OF REVIEW**

After giving the Licensing Board's factual determination regarding the planning basis for the NHRERP limited beach sheltering option the probative force it intrinsically commands, Appeal Board concludes no basis exists for reversing that finding.

## **EMERGENCY PLAN(S): CONTEXT (PROTECTIVE MEASURES)**

### **REGULATIONS: INTERPRETATION (10 C.F.R. 50.47(b))**

Section 50.47(b)(10) of 10 C.F.R. requires only that planners should consider whether sheltering is to be a part of the "range of protective actions" for an emergency plan. Whether to adopt sheltering as a recommended protective action option will depend upon the site-specific circumstances.

## **EMERGENCY PLANNING: OBJECTIVE**

In general, emergency planning efforts are intended to make emergency response officials aware of the benefits and constraints associated with their actions to enable them to make informed decisions.

## **EMERGENCY PLANNING: BASIS FOR REQUIREMENT**

"The Commission's emergency planning regulations are premised on the assumption that a serious accident might occur and that evacuation of the EPZ might well be necessary. . . . The adequacy of a given emergency plan therefore must be adjudged with this underlying assumption in mind. As a corollary, a possible deficiency in an emergency plan cannot properly be disregarded because of the low probability that action pursuant to the plan will ever be necessary." *Long Island Lighting Co.* (Shoreham Nuclear Station, Unit 1), ALAB-832, 23 NRC 135, 155-56 (1986) (quoting *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 713 (1985), *review declined*, CLI-86-5, 23 NRC 125 (1986)), *aff'd*, CLI-87-12, 26 NRC 383, 398-99 (1987).

## **EMERGENCY PLAN(S): CONTENT (IMPLEMENTING PROCEDURES)**

Regulatory requirement that plan provide analysis of time to take protective actions, 10 C.F.R. Part 50, App. E, § IV, and guidance criteria calling for protective action implementation measures including shelter area maps and no-

tification of transient and resident populations, NUREG-0654 Criteria II.J.10.a, c, suggest that sheltering option should not be left to ad hoc implementation once an emergency arises.

#### **EMERGENCY PLAN(S): CONTENT (IMPLEMENTING PROCEDURES)**

While not all implementing details must be in place in order for emergency plan to be approved, the absence of any concerted attempt to incorporate implementing details for a protective action option arrived at as a result of the planning process is a deficiency that must be remedied.

#### **LICENSING BOARD(S): DISCRETION IN MANAGING PROCEEDINGS (TIMELINESS OF MOTIONS)**

In light of the broad discretion afforded licensing boards in the conduct of the proceedings before them, determinations on such questions as the timeliness of motions are not likely candidates for reversal so long as they have a rational foundation. *Long Island Lighting Co.* (Shoreham Nuclear Station, Unit 1), ALAB-832, 23 NRC 135, 159 (1986).

#### **TECHNICAL ISSUES DISCUSSED**

Emergency Plans.

#### **APPEARANCES**

**John Traficonte**, Boston, Massachusetts (with whom Alan Fierce, Boston, Massachusetts, was on the brief), for the intervenor James M. Shannon, Attorney General of Massachusetts.

**Diane Curran**, 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.

**Paul McEachern**, Portsmouth, New Hampshire (with whom Matthew T. Brock, Portsmouth, New Hampshire, was on the brief), for the intervenor Town of Hampton.

Thomas G. Dignan, Jr., Boston, Massachusetts (with whom George H. Lewald, Kathryn A. Selleck, Jeffrey P. Trout, Jay Bradford Smith, and Geoffrey C. Cook, Boston, Massachusetts, were on the brief), for the applicants Public Service Company of New Hampshire, *et al.*

Sherwin E. Turk for the Nuclear Regulatory Commission staff.

## DECISION

In order to resolve one of the central issues presented by the pending appeals of intervenors Attorney General of Massachusetts (MassAG), the New England Coalition on Nuclear Pollution (NECNP), the Seacoast Anti-Pollution League (SAPL), and the Town of Hampton (TOH) from the Licensing Board's December 30, 1988 partial initial decision on emergency planning for the New Hampshire portion of the Emergency Planning Zone (EPZ) for the Seabrook Station,<sup>1</sup> in ALAB-922 we certified to the Commission an issue concerning the meaning of the term "reasonable and feasible dose reductions under the circumstances" as used in its 1986 *Shoreham*<sup>2</sup> emergency planning decision.<sup>3</sup> Despite the pendency of that certification, we believe it is appropriate to address at this time certain additional issues raised by intervenors in their appeals.

In its December 1988 decision, the Licensing Board found that the New Hampshire Radiological Emergency Response Plan (NHRERP) met the Commission's emergency planning standards. As previously noted, intervenors have raised a variety of challenges to the legal and factual findings made by the Licensing Board in support of its determination. In this decision, we will address issues raised concerning those portions of the Licensing Board's decision titled "Letters of Agreement," "Transportation Availability and Support Services," "Decontamination and Reception Centers," and "Sheltering of Beach Population."<sup>4</sup>

### I. LETTERS OF AGREEMENT

Under the Commission's emergency planning regulations, emergency plans such as the NHRERP must assign the primary emergency response responsibil-

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<sup>1</sup> LBP-88-32, 28 NRC 667 (1988).

<sup>2</sup> *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-86-13, 24 NRC 22, 30 (1986).

<sup>3</sup> ALAB-922, 30 NRC 247 (1989).

<sup>4</sup> Intervenors' challenges to other portions of the Licensing Board's December 1988 decision will be dealt with in a subsequent issuance.

ties among the utility and appropriate state and local emergency response organizations; establish the responsibilities of supporting organizations; and ensure that arrangements have been made for effectively using assistance resources.<sup>5</sup> Guidance for fulfilling these requirements has been provided in NUREG-0654/FEMA-REP-1 (NUREG-0654), a document issued jointly by the NRC and the Federal Emergency Management Agency (FEMA).<sup>6</sup> Among other things, NUREG-0654 declares that written agreements, also referred to as letters of agreement (LOAs), should be obtained from various participants in the emergency planning process to show the allocation of operational responsibilities and the availability of assistance from various sources.<sup>7</sup> Before us, intervenors SAPL and TOH contend that the Licensing Board erred on a number of accounts in its findings on the adequacy of LOAs entered into by various parties and on the need for additional LOAs for other organizations and individuals.<sup>8</sup>

In two instances, intervenors' assertions merit extended discussion. The genesis of both these concerns is a May 21, 1986 Licensing Board order rejecting certain bases for SAPL Contention 15 challenging the adequacy of LOAs for the NHRERP. The Licensing Board held that no LOAs are required between the State of New Hampshire and the seventeen local New Hampshire communities in the Seabrook EPZ or the four communities that will host the reception and decontamination centers outside of the EPZ.<sup>9</sup> Also in that order, the Board ruled that LOAs are necessary only for "providers" of services and, therefore, are not required with schools, school personnel, day-care centers, and nursing homes because they are the "recipients" of services.<sup>10</sup> Intervenors now assert that in both instances the Licensing Board reached the wrong conclusion.<sup>11</sup>

A. Before the Licensing Board, SAPL contended that LOAs are required for local EPZ and host communities under Criterion II.A.3 of NUREG-0654.<sup>12</sup> That provision states in pertinent part that, to aid in the assignment of organizational control responsibilities "[e]ach plan shall include written agreements referring to the concept of operations developed between Federal, State, and local agencies

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<sup>5</sup>10 C.F.R. § 50.47(b)(1), (3); *id.* Part 50, App. E, § II.B.

<sup>6</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" (Nov. 1980).

<sup>7</sup>*Id.* Criteria II.A.3, II.C.4, II.P.4.

<sup>8</sup>Seacoast Anti-Pollution League's Brief on Appeal (Mar. 21, 1989) at 25-28 [hereinafter SAPL Brief]; Town of Hampton's Brief in Support of Appeal (Feb. 10, 1989) at 40-42 [hereinafter TOH Brief].

<sup>9</sup>Memorandum and Order of May 21, 1986, at 7-8 (unpublished). *See also* LBP-88-32, 28 NRC at 673.

<sup>10</sup>Memorandum and Order of May 21, 1986, at 8. *See also* LBP-88-32, 28 NRC at 673.

<sup>11</sup>In the context of its challenge to the Licensing Board's May 1986 order, SAPL Brief at 25-26, SAPL also makes reference to a May 18, 1987 order in which the Board ruled that LOAs are not required for individuals, like bus drivers, who collectively supply a labor force or activity, Memorandum and Order of May 18, 1987, at 18-19. SAPL provides no explanation as to why this ruling was erroneous; therefore, we need not consider the matter further. *Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-469, 7 NRC 470, 471 (1978).

<sup>12</sup>[SAPL's] Third Supplemental Petition for Leave to Intervene (Apr. 8, 1986) at 5 [hereinafter SAPL Third Supplemental Intervention Petition].

and other support organizations having an emergency response role within the Emergency Planning Zones.” The language of Criterion II.A.3 is not without ambiguity; nonetheless, we have concluded that in the particular circumstances here there is no merit to SAPL’s assertion that, to provide “reasonable assurance” consistent with this criterion, written agreements with the local communities are necessary.

In specifying that written operational responsibility agreements (or signature pages verifying those operational responsibility matters agreed to in the plan) are needed “between Federal, state, and local agencies and other support organizations having an emergency response role,” we believe that Criterion II.A.3 suggests that a written agreement should be executed to cover the allocation of operational responsibilities *between* a federal agency, a state agency, and a local agency, on the one hand, *and*, on the other, some emergency response support organization (rather than between any two of the three named agencies as well as between a named agency and a support organization). As a result, SAPL’s assertion that written agreements are needed with local EPZ and host communities regarding the allocation of their operational responsibilities with New Hampshire “state agencies” turns on whether those communities are considered “local agencies” (in which instance NUREG-0654 would not require a written agreement) or are “support organizations” (for which agreements would be needed).

Although NUREG-0654 does not define either the term “local agency” or the term “support organization,” its glossary does include an enunciation of the term “local organization” that provides helpful guidance in resolving this question. The NUREG-0654 definition of “local organization” distinguishes between the “*local* government agency or office having the *principal* or *lead* role in emergency planning and preparedness” and “[o]ther local government entities . . . with supportive roles to the *principal* or lead local government organization.”<sup>13</sup> This distinction between “principal/lead” and “supportive” local government entities can reasonably be employed to differentiate between the terms “local agency” and “support organization” used in Criterion II.A.3. Further, in determining here whether local EPZ communities and host communities are principal/lead (“local agency”) or supportive (“support organization”) local government entities, we note that the emergency plans for each of the seventeen EPZ communities and the four host communities declare that under the NHRERP and in accordance with New Hampshire state law, the local EPZ communities and host communities, rather than the county governments, have assumed all local emergency planning responsibilities.<sup>14</sup> In such instances, NUREG-0654

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<sup>13</sup> NUREG-0654, App. 5, at 5-2 (emphasis in original). See also *Philadelphia Electric Co. (Limerick Generating Station, Units 1 and 2)*, ALAB-845, 24 NRC 220, 231 n.9 (1986).

<sup>14</sup> E.g., NHRERP (Town of Seabrook), Vol. 16, at I-16 (Rev. 2 1986); *id.* (Salem Host Plan), Vol. 38, at I-12.

indicates that the local community becomes a principal/lead organization.<sup>15</sup> It follows, therefore, that these communities, having the principal or lead role in local emergency planning and preparedness, would be considered to be "local agencies" rather than "support organizations" under Criterion II.A.3. They are not, therefore, required to execute written agreements (or plan signature pages) as part of the planning process.

B. The second issue raised by SAPL, and by TOH as well, is whether the Licensing Board correctly concluded that LOAs are required only for the "providers" of services, not the "recipients." On this matter, we agree with the general proposition stated by the Licensing Board, but find that further explanation is required from the Board relative to one of its particular applications of the principle.

In its Contention 15, SAPL asserted that LOAs are required with schools, schoolteachers, day-care centers, and nursing homes under Criterion II.C.4 of NUREG-0654.<sup>16</sup> Criterion II.C.4 specifies that "[e]ach 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." In rejecting this portion of the contention as without basis, the Licensing Board focused upon the specified participants' roles in the emergency response process. Because school or nursing home personnel essentially *receive services provided* by others involved in the emergency response process (such as from the bus drivers that would evacuate schoolchildren to reception centers or the ambulance drivers that would transport nursing home residents to special care facilities outside the EPZ), the Board concluded that emergency planners were not required to obtain LOAs from school or nursing home personnel.

Contrary to SAPL's assertion, in assessing the need for LOAs under Criterion II.C.4, the Licensing Board's distinction between "providers" and "recipients" is a sensible one. It recognizes that LOAs need not be sought from everyone involved in the emergency response process; rather, they can be limited to those who contribute assistance services. Moreover, there is considerable merit to what we perceive as the Board's additional qualification, reached in the context of its separate discussion of intervenor concerns relating to human behavior in emergencies, that such services must be of singular import to radiological emergency response planning. Thus, as the Board's December 1988 decision correctly suggests, by performing their usual role as the custodians of the students in their charge, at least so long as those students remain on the grounds

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<sup>15</sup> NUREG-0654, at 20. Compare *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-717, 17 NRC 346, 377-78 (1983) (city without extensive emergency resources need not take lead role but can, by mutual agreement, integrate into overall county plan), *aff'd*, *Carstens v. NRC*, 742 F.2d 1546 (D.C. Cir. 1984), *cert. denied*, 471 U.S. 1136 (1985).

<sup>16</sup> SAPL Third Supplemental Intervention Petition at 5.

of the school, school personnel do not become "providers" of services for which letters of agreement would be necessary.<sup>17</sup> Further, we have no quarrel with the Licensing Board's additional conclusion there that to the extent school personnel are expected to accompany their students in an evacuation, they become "service providers."<sup>18</sup> As intervenors point out, however, this last conclusion is not consistent with the Board's May 1986 ruling that school personnel are not "service providers" so that no LOAs are necessary for school personnel.<sup>19</sup>

Recognizing this disparity, the NRC staff argues that the Licensing Board's initial determination that no LOAs were required for school personnel is correct because, even though they would be accompanying students to reception centers,<sup>20</sup> teachers are not being asked to do other than what they ordinarily do.<sup>21</sup> While this may be the case, review of the present record fails to disclose any definitive evidence addressing whether school personnel usually would (or would not) be expected to accompany their students in emergency evacuation situations. Certainly, the record citations and other precedent cited by the staff, including one of our *Shoreham* decisions,<sup>22</sup> do not provide an answer to this question or otherwise resolve this inconsistency. The staff's citations support the proposition that school personnel generally do not abandon their role as student custodians in times of emergency.<sup>23</sup> This does not, however, address the issue of whether school personnel acting in that role are ordinarily expected to accompany their students in an evacuation, the point upon which the Licensing Board's finding seemingly turned.<sup>24</sup>

In these circumstances, therefore, we find it necessary to remand this issue to the Licensing Board with the direction that it resolve the existing inconsistency in

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<sup>17</sup> See LBP-88-32, 28 NRC at 730.

<sup>18</sup> Ibid.

<sup>19</sup> See *supra* p. 342.

<sup>20</sup> See, e.g., NHRERP (Hampton Special Facilities Plans), Vol. 18A, App. F, at F.1-5 (school principal shall assign one teacher to accompany each evacuation bus).

<sup>21</sup> NRC Staff's Brief in Response to Intervenors' Appeals (June 5, 1989) at 7 [hereinafter NRC Staff Brief].

<sup>22</sup> Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), ALAB-832, 23 NRC 135, 151-52 (1986), aff'd in part and rev'd in part, CLI-87-12, 26 NRC 383 (1987).

<sup>23</sup> See NRC Staff Brief at 7 & n.8.

<sup>24</sup> In this regard, we note that in addressing the issue of teacher role abandonment in this proceeding, the Board's findings appear to be limited to the role of teachers in accounting for students and seeing their charges to a bus. LBP-88-32, 28 NRC at 732. Similarly, while FEMA's direct testimony on the issue of response personnel adequacy contains the observation that "[w]hile schools are in session, it is the normal responsibility of the staff to provide for the safety of the student population," FEMA Pre-filed Testimony, fol. Tr. 4051, at 10, this begs the question of whether the normal responsibility extends to participation in an evacuation situation, when school seemingly is not "in session."

its interpretations of the role of school personnel in an evacuation and determine whether any LOAs should be obtained from school personnel.<sup>25</sup>

C. We need deal but briefly with the remaining intervenor concerns regarding LOAs.<sup>26</sup> First, SAPL asserts that the LOAs for the NHRERP generally are lacking in sufficient detail to be found in compliance with the NUREG-0654 guidance. LOAs, which need not have the specificity of a contract, nonetheless must provide sufficient detail to ensure that LOA signatories counted upon to provide assistance services material to an emergency response are in a general way aware of and willing to carry out their assistance role. SAPL, however, has not pointed to any specific LOA that is deficient in this regard.<sup>27</sup> Nor has it referenced any evidence that contravenes the Licensing Board's findings that the LOAs adequately point out what is expected of signatories and that the LOAs were obtained by state officials in a manner that was candid and not misleading.<sup>28</sup> Moreover, contrary to SAPL's assertions, we agree with the Licensing Board that there is no significance in the fact that LOAs referred to "technological" accidents at locations including Seabrook, rather than referring specifically to "radiological emergencies," and that the emergency planning professionals who were gathering the LOAs were not cognizant of all requirements of NUREG-0654.<sup>29</sup>

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<sup>25</sup> Before us, applicants have asserted that the Licensing Board's "service provider" determination for school personnel is consistent with its determination that LOAs are not required for teachers under NUREG-0654 because, as employees of a political subdivision of the State of New Hampshire, school personnel are not required to have LOAs with the state. Brief of Applicants-Appellees (Apr. 24, 1989) at 33 [hereinafter Applicants Brief]. This is an interpretation of NUREG-0654 with which FEMA apparently agrees. See FEMA Pre-filed Testimony at 10. Even assuming that this interpretation is correct, about which we express some doubt, it is not dispositive of the issue here because it does not provide an answer for those school personnel from private and parochial schools in the Seabrook EPZ. E.g., NIRERP (Hampton Special Facilities Plans), Vol. 18A, App. F, at F.5-4 (Sacred Heart School).

Should applicants desire to pursue this "political subdivision" interpretation before the Licensing Board upon remand, we note that it appears to be inconsistent with the guidance provided by Criterion II.A.3 of NUREG-0654 on the closely related matter of obtaining written agreements (or signature pages verifying such agreements) for operational responsibilities allocated between government entities. See NRC Staff's Response to Contentions Filed by Towns of Hampton, Hampton Falls, Kensington, Rye and South Hampton, and by the Massachusetts Attorney General, NECNP and SAPL, Attach. on Town of Kensington Contentions (Mar. 14, 1986) at 4. Moreover, even under a restrictive interpretation of NUREG-0654 guidance adopted by the Licensing Board in another context, the need for an LOA with a governmental body would be suspended only if its emergency response assistance involves the performance of a statutorily required duty. See Memorandum and Order of Apr. 29, 1986, at 19 (unpublished). To this point, there has been no showing about what statutorily required duties school personnel have relative to emergency response for the Seabrook facility. Finally, even accepting applicants' argument *in toto*, we are unaware of any confirmation in the existing record that the Seabrook area public school systems are, in fact, "political subdivisions" of the State of New Hampshire.

<sup>26</sup> See SAPL Brief at 26-28.

<sup>27</sup> SAPL does reference the LOAs for McKerley Health Care Center and Lemire Enterprises as examples of deficient LOAs, asserting they fail to specify responsibility for monitoring of the special care evacuees that those facilities will receive. *Id.* at 26. However, as applicants point out, Applicants Brief at 33-34, those LOAs do not need to specify monitoring responsibilities because monitoring is to be provided by persons assigned from one of the four primary reception centers. See LBP-88-32, 28 NRC at 718.

<sup>28</sup> *Id.* at 677.

<sup>29</sup> *Id.* at 677-78.

We also find no substance to SAPL's attacks upon the LOAs for particular transportation assistance providers. SAPL asserts that an initial LOA with officials of Teamsters Local No. 633 was deficient because intervenor cross-examination caused planning officials to reduce substantially the number of Teamster personnel relied upon as bus drivers. SAPL fails, however, to show any deficiency in the subsequently-executed LOAs for the forty-eight Teamster drivers now being counted as part of the emergency driver pool. Nor is there any merit to SAPL's allegations of inadequacies in the LOAs for National School Bus Service (NSBS) or Jan-Car Bus Company. In the former instance, intervenor-exposed shortfalls in the number of drivers covered by the LOA with NSBS have been reflected in a revised LOA,<sup>30</sup> while the transportation planning deficiency caused by Jan-Car's business cessation has been corrected by a new LOA with its successor company.<sup>31</sup> In both instances, therefore, there is no significant deficiency in the LOAs.

## II. TRANSPORTATION AVAILABILITY AND SUPPORT SERVICES

As part of the emergency planning process, efforts are made to ascertain the number of persons who would need transportation assistance and related support services during a radiological emergency and to ensure that sufficient resources are available to meet those needs.<sup>32</sup> Intervenor SAPL raises several issues relating to the Licensing Board's findings on the availability of transportation and support services under the NHRERP,<sup>33</sup> two of which we find require further Licensing Board consideration.

A. In order to provide adequate transportation assistance for the Seabrook EPZ population, planners sought to identify those individuals who would be "transit dependent." In addition to schoolchildren (when school is in session) and those persons confined to institutions such as hospitals, nursing homes, day-care centers, and correctional institutions, as part of this "transit dependent" population NHRERP planners attempted to identify those individuals with "special transportation needs." This included homebound, physically impaired persons and those who are likely to be without transportation during an emergency.<sup>34</sup> In its Contentions 18 and 25, intervenor SAPL challenged, among other things, the adequacy of the methods employed by planners to ascertain the "special needs"

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<sup>30</sup> See [SAPL's] Motion for Extension of Record of Litigation in Re: The NHRERP Notice of Appeal (Mar. 21, 1989), Attach. A.

<sup>31</sup> Tr. 3034-37; Applicants' Exh. 7.

<sup>32</sup> See NUREG-0654 Criterion II.J.10.d.

<sup>33</sup> SAPL Brief at 35-42.

<sup>34</sup> LBP-88-32, 28 NRC at 691.

population.<sup>35</sup> In November 1986, the Licensing Board granted applicants' motion for partial summary disposition of SAPL's Contentions 18 and 25 "insofar as these contentions assert that adequate procedures for identifying persons with special needs do not exist."<sup>36</sup> As the basis for this determination, the Licensing Board made reference to the March 1986 Special Needs Survey conducted by the New Hampshire Civil Defense Agency (NHCDA). The Board concluded that because the SAPL contentions suggesting that different or enhanced procedures were necessary, they entailed consideration of "extraordinary measures." Such measures previously had been barred by the Commission's ruling in the *San Onofre* proceeding.<sup>37</sup> The Board found summary disposition thus was appropriate. SAPL now challenges this Board determination.

As support for their motion for partial summary disposition, applicants put before the Licensing Board an affidavit executed by Richard H. Strome, then director of NHCDA, in which he described the general methodology employed in conducting the 1986 Special Needs Survey.<sup>38</sup> In support of its response to the motion, SAPL provided the affidavit of Frederick H. Anderson, Jr., the President of Ideas + Information, Inc. Mr. Anderson, who stated he had twenty years experience in the area of design and implementation of questionnaires and surveys, maintained that various deficiencies existed in the methodology employed in conducting the survey, including aspects of its design and the system used for its distribution.<sup>39</sup> Although the Licensing Board never expressly addressed the question, review of these presentations makes it apparent that, as SAPL asserts, there were issues of material fact relating to the survey.<sup>40</sup> This included issues relating to the methodology utilized to identify the special needs population, survey design, accuracy verification, response motivation, and update procedures. Further, we cannot accept the Licensing Board's determination that litigation on this matter nonetheless was precluded by the "no extraordinary measures" principle enunciated in the Commission's *San Onofre* decision. We find no basis for the Board's unexplained conclusion that the Commission's declaration in *San Onofre* that emergency planning does not require "extraordinary measures" — such as the construction of additional

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<sup>35</sup> [SAPL's] Second Supplemental Petition for Leave to Intervene (Feb. 21, 1986) at 22-23, 29-30.

<sup>36</sup> Memorandum and Order of Nov. 4, 1986, at 14-17 (unpublished).

<sup>37</sup> Southern California Edison Co. (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-83-10, 17 NRC 528, 536 (1983), *rev'd in part on other grounds*, *GUARD v. NRC*, 753 F.2d 1144 (D.C. Cir. 1985).

<sup>38</sup> Applicants' Motion for Partial Summary Disposition of South Hampton Contention No. 8, NECNP Contention NHLP-4 and SAPL Contentions 18 and 25 (May 20, 1986), Affidavit of Richard H. Strome.

<sup>39</sup> SAPL's Response to Applicants' Motion for Summary Disposition of SAPL Contentions 5, 7, 14 and 17 and Motion for Partial Summary Disposition of SAPL Contentions 18 and 25 (June 9, 1986), Affidavit of Frederick H. Anderson, Jr.

<sup>40</sup> Applicants' terse response to SAPL's argument that there were material factual issues is the assertion that it is too "conclusory" to address "intelligently." Applicants Brief at 39. SAPL's assertion in this regard may well be conclusional; however, perusal of the record establishes that it is also correct.

hospitals or the recruitment of substantial additional medical personnel just to deal with a possible radiological emergency — forecloses consideration of the adequacy of a survey intended to provide information that clearly was relevant to establishing the planning basis necessary to ensure transportation availability. Whatever the reach of the Commission's *San Onofre* holding, it does not extend to the circumstances here.<sup>41</sup>

We thus conclude that, on the basis of the presentations then before it, the Licensing Board acted improvidently in granting the applicants' motion for partial summary disposition so as to preclude further consideration of the adequacy of the 1986 Special Needs Survey. Perhaps anticipating our conclusion in this regard, the staff asserts that any error that may have been committed by the Licensing Board was ameliorated by subsequent events that render the error harmless to SAPL.<sup>42</sup> This result follows, according to the staff, because in their direct testimony responding to a number of intervenor contentions on the subject of transportation availability, applicants put before the Licensing Board evidence concerning the Special Needs Survey.<sup>43</sup> According to the staff, the introduction of this evidence effectively opened the door for SAPL to cross-examine applicants' witnesses on the sufficiency of the survey and to present rebuttal testimony on the matter. Having failed to do so,<sup>44</sup> SAPL itself made harmless any error resulting from the Board's ruling.

As authority for its harmless error argument, the staff appears to be relying upon (or analogizing to) the proposition that if a party prevails on an evidentiary objection resulting in the exclusion of proffered evidence, it effectively waives or nullifies its objection by later introducing essentially the same evidence.<sup>45</sup> We find this general principle inapplicable here. First, the applicants' brief discussion of the survey was essentially background testimony. Their witnesses' description of the survey and its results were intended only to provide a historical explanation of the origin of the information utilized to determine transportation

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<sup>41</sup> See *Philadelphia Electric Co. (Limerick Generating Station, Units 1 and 2)*, ALAB-836, 23 NRC 479, 486-89 (1986) (special needs survey upheld based upon evidentiary record established during hearing).

<sup>42</sup> NRC Staff Brief at 22. The Board's ruling was an adoption of the applicants' position, which at that time apparently did not have the support of the staff. See NRC Staff's Answer to Motions for Summary Disposition of Off-Site Emergency Planning Contentions (June 11, 1986) at 7. See also Memorandum and Order of Nov. 4, 1986, at 16.

<sup>43</sup> Subsequent to the Licensing Board's November 1986 summary disposition ruling, intervenor SAPL again put forth Contentions 18 and 25 with new bases derived from the second revision of the NHRERP. See [SAPL's] Contentions on Revision 2 of the [NHRERP] (Nov. 26, 1986) at 25-29. In proffering these contentions, SAPL made it clear that it was not making any waiver of its right to challenge the Licensing Board's November ruling. *Id.* at 29. Thereafter, the Licensing Board admitted the new contentions for litigation, with the caveat that they were limited to the revised bases. Memorandum and Order of May 18, 1987, at 38-40 (unpublished). The staff expressed some doubt whether the Board's second order revised its initial determination excluding a SAPL challenge to the survey's sufficiency, see NRC Staff Brief at 22, but we see no indication of any change in its earlier ruling.

<sup>44</sup> See Tr. 4282-331.

<sup>45</sup> See McCormick on Evidence § 55, at 143 & n.13 (3d ed. 1984).

assistance for the special needs population.<sup>46</sup> This hardly constituted a sufficient basis for placing the excluded issue of the survey's sufficiency back into contest. Further, in the context of a summary disposition ruling in which the Licensing Board determined that existing Commission legal and policy precedent regarding "extraordinary measures" precluded further consideration of the survey, the application of an evidentiary waiver principle is singularly inappropriate. We are, therefore, unable to accept the staff's harmless error argument in this instance.<sup>47</sup>

Accordingly, we remand the matter of the sufficiency of the 1986 Special Needs Survey for further consideration by the Licensing Board. Further, in light of our remand of this issue for additional proceedings, it is premature for us to render any judgment regarding intervenor SAPL's challenges to the Licensing Board's findings concerning availability of adequate numbers of vehicles and drivers.<sup>48</sup> Once the propriety of this special needs survey's methodology has been aired, it then will be appropriate for the Licensing Board to consider whether the number of vehicles and drivers identified as available to assist in transportation of the "special needs" population is sufficient.<sup>49</sup>

B. In addition to ascertaining transportation requirements for the "special needs" portion of the "transit dependent" population, evacuation planning guidance also calls for an institution-by-institution estimate of the population in "special facilities," including schools, hospitals, nursing homes, day-care centers, and jails, and a description of their individualized transportation requirements.<sup>50</sup> After evaluating the testimony and exhibits, the Licensing Board concluded that adequate transportation and support services will be available to evacuate this segment of the transit dependent population.<sup>51</sup>

Intervenor SAPL takes issue with this conclusion, particularly as it relates to health care institutions such as hospitals and nursing homes.<sup>52</sup> SAPL complains that the Licensing Board failed to give appropriate consideration to testimony that it contends refuted many of the bases employed in developing transportation assistance for such institutions. Further, SAPL asserts, in making its finding concerning transportation adequacy, the Board improperly relied on the fact

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<sup>46</sup> See Applicants' Direct Testimony No. 2 (Special Needs/Transportation), fol. Tr. 4228, at 9-10.

<sup>47</sup> We also are unable in this instance to rely upon the Licensing Board's determination that there is an excess of available evacuation vehicles and drivers, see LBP-88-32, 28 NRC at 695, as the foundation for a finding of harmless error. In many instances, intervenor assertions establish an upper limit against which the adequacy of planning can be judged. See *infra* pp. 361-62. On the present record, however, we have no basis for setting a limit on the uncertainty about the size of the "special needs" population that accrues from the Licensing Board's erroneous summary disposition ruling.

<sup>48</sup> See SAPL Brief at 37-39.

<sup>49</sup> See ALAB-832, 23 NRC at 154.

<sup>50</sup> NUREG-0654, App. 4, at 4-3.

<sup>51</sup> LBP-88-32, 28 NRC at 691-92, 698-99.

<sup>52</sup> SAPL Brief at 39-42.

that, in the event of an emergency, ad hoc responses may be utilized to change the number of vehicles assigned to an institution under the current plan.

We find no basis for disturbing the Licensing Board's determinations relative to most of the matters that SAPL maintains were, in the face of intervenor-sponsored testimony, incorrectly decided. As the Licensing Board noted, the concerns of intervenors' witnesses Joan Pilot, Maureen Barrows, and Daniel Trahan about the need for particular types of vehicles (e.g., ambulances) and the number of vehicles needed were not persuasive. First, evidence in the record established that, in setting the "default" values for transportation assignments (i.e., the preplanned number and type of vehicles that would be dispatched to an institution absent changes requested by institution staff at the time of an emergency evacuation), the staff at each institution was consulted about the amount and type of transportation required.<sup>53</sup> Further, the record evidence also demonstrated that each institution would be contacted at least annually to ascertain new information concerning changing transportation needs.<sup>54</sup> This was in addition to evidence showing that physicians and nurses or those otherwise charged with making care determinations would decide what transportation would be appropriate for their patients in an emergency situation.<sup>55</sup> By the same token, given the evidence that complete disaster evacuation plans existed at the institutions at which they were employed and that their institutions previously had carried out successful emergency evacuations, the Licensing Board acted within the discretion afforded it to resolve evidentiary disputes by declining to credit the general concerns of witnesses Barrows and Trahan about nursing home staffing being inadequate for an emergency response.<sup>56</sup>

We also find no merit in SAPL's argument that the Board's acceptance and endorsement of potential ad hoc changes in the vehicle "default values" for particular institutions is violative of our decision in ALAB-832 in the *Shoreham* proceeding.<sup>57</sup> The situation in *Shoreham* bears little similarity. Our concerns there rested, *inter alia*, on the fact that (1) different standards were used in planning the protective actions for nursing homes, on one hand, and hospitals, on the other, and (2) there was a deliberate omission in planning

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<sup>53</sup> Tr. 4398; *see* Tr. 7824-25.

<sup>54</sup> E.g., NHRERP (Town of Seabrook), Vol. 16, at III-14; *see* Applicants' Direct Testimony No. 2, at 4.

<sup>55</sup> *See* Applicants' Direct Testimony No. 2, at 4; Tr. 7678-80.

<sup>56</sup> *See* Tr. 4426-31, 4434, 7810, 7821-22, 7843-44; Applicants' Exhs. 11, 12, 25. Particularly unconvincing in this regard is the testimony of witness Trahan. Mr. Trahan stated that his facility was not adequately staffed to carry out a radiological emergency evacuation, but thereafter declared that the facility was adequately staffed for the number of patients it had, that the facility staff was trained in all aspects of disaster preparedness, and that the staff has participated in training and drills so they can promptly and correctly carry out their specific roles during a disaster. *Compare* Prefiled Testimony of Daniel Trahan, fol. Tr. 7806, at 5-6 with Tr. 7816, 7823.

<sup>57</sup> ALAB-832, 23 NRC 135, 154-57 (1986), *aff'd*, CLI-87-12, 26 NRC 383, 398-99 (1987). SAPL does not specify what part of ALAB-832 is relevant to its argument and neither the applicants nor the staff address SAPL's argument in their briefs. We presume, however, that the pertinent portion of ALAB-832 is that addressing the evacuation of EPZ hospitals.

for the implementation of hospital evacuation, which did not conform to regulatory requirements.<sup>58</sup> That is not the case with respect to vehicle "default value" changes for the NHRERP. Appropriate planning implementation has been undertaken, as evidenced by the specification of the number and type of vehicles assigned to evacuate particular special medical facilities "based on the maximum capacity of each facility and on the best judgment of each facility's administrators, physicians, and disaster committee members," and actions undertaken to ensure that the appropriate vehicles and drivers are available.<sup>59</sup> Moreover, going a step beyond, the plan requires that at the early "Alert" stage of any emergency,<sup>60</sup> local emergency response officials will contact each of the particular facilities either to obtain confirmation that the predetermined, "default value" transportation remains adequate and should be dispatched, or to ascertain that transportation needs now have changed and will require different vehicle allocations from the state's emergency response vehicle pool.<sup>61</sup> Although these changes in vehicle allocations might be loosely referred to as "ad hoc," they come about as the result of emergency plan implementation measures that evidence the flexibility appropriate to satisfy fully the guidance of NUREG-0654 that an institution-by-institution review of needs be undertaken.<sup>62</sup> In no way do they touch upon our concerns about inconsistent or insufficient implementing measures that were the focus of ALAB-832.

There remains, however, a SAPL concern about the time it would take to prepare special facility advanced life support (ALS) patients for transit and to load them into emergency vehicles and the effect this preparation time may have upon evacuation time estimates (ETEs).<sup>63</sup> As the Licensing Board noted:

The primary purpose for having evacuation time estimates is to assist responsible governmental officials in making informed decisions regarding what protective actions are appropriate in a given radiological emergency in order to maximize dose savings. To make these decisions the government officials must have available to them evacuation time estimates that are realistic appraisals of the minimum period in which, in light of existing local conditions, evacuation could reasonably be accomplished. The nearer to plant the area that might have to be evacuated, the greater the importance of accurate time estimates.<sup>64</sup>

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<sup>58</sup> *Ibid.*

<sup>59</sup> Applicants' Direct Testimony No. 2, at 4-5.

<sup>60</sup> See *infra* p. 363.

<sup>61</sup> Applicants' Direct Testimony No. 2, at 17-19; Tr. 4398-99.

<sup>62</sup> See *supra* note 50.

<sup>63</sup> SAPL Brief at 41-42.

<sup>64</sup> LBP-88-32, 28 NRC at 777 (citing *Cincinnati Gas & Electric Co.* (William H. Zimmer Nuclear Power Station, Unit 1), ALAB-727, 17 NRC 760, 770-71 (1983)).

In view of the proximity of several special facilities to the Seabrook plant,<sup>65</sup> as well as the fact that sheltering in large buildings such as these institutions may offer greater protection than that assigned to residential properties,<sup>66</sup> thus making sheltering a more acceptable alternative to evacuation if the evacuation times increase appreciably, the question of how much ETEs for these patients will be increased by preparation time is a matter of concern.

Intervenors' witness Joan Pilot testified, without apparent contradiction, that because of the intravenous lines and the medical complexity of the cases involved, it would take from "28 minutes to an hour" to move an ALS patient from a bed to a stretcher adjacent to the bed and that none of this activity can be accomplished before the arrival of the evacuation vehicle.<sup>67</sup> In dismissing SAPL's challenge concerning evacuation times for special facilities, however, the Licensing Board stated that "[t]he plan assumes that patients are at the loading point when transportation arrives (NHRERP, Vol. 6 at 11-[21]), not in their beds awaiting pickup as Intervenors argue."<sup>68</sup> If this were the case, then present planning assumptions seemingly would encompass the not inconsiderable amount of time that Ms. Pilot asserted it would take to prepare special facility ALS patients before taking them to the transportation loading point. The Board's statement, however, is inconsistent with the direction given in the individual emergency plans for New Hampshire EPZ towns that patients/residents of special facilities will be assembled *as* (not before) the evacuation vehicles arrive.<sup>69</sup> If, as these plans suggest, assembly begins only when the evacuation vehicles arrive, then the preparation time factor highlighted by Ms. Pilot seemingly has not been considered as part of the present planning basis for ETEs.<sup>70</sup>

In these circumstances, we are unable to conclude that the issue of preparation time has received appropriate consideration as a factor in deriving accurate ETEs

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<sup>65</sup> *E.g.*, NHRERP (Hampton Special Facilities Plans), Vol. 18A, App. F, Seacoast Health Center Plan; *id.* (Exeter Special Facilities Plans), Vol. 26A, App. F., Exeter Hospital Plan, Exeter Healthcare Plan, Eventide Home Plan, Goodwin's of Exeter Plan.

<sup>66</sup> See LBP-88-32, 28 NRC at 760.

<sup>67</sup> Rebuttal Testimony of Joan Pilot, fol. Tr. 7670, at 1-2; Tr. 7674-76.

<sup>68</sup> LBP-88-32, 28 NRC at 699.

<sup>69</sup> See NHRERP (Hampton Special Facilities Plans), Vol. 18A, App. F, Seacoast Health Center Plan at 15-16; *id.* (Town of Rye), Vol. 20, App. F, Webster at Rye Plan at 15-16; *id.* (Portsmouth Special Facilities Plans), Vol. 21A, App. F, Portsmouth Hospital Plan at 17, Edgewood Centre Plan at 15, Mark H. Wentworth Home Plan at 15, Clipper Home Plan at 15-16, Parrot Avenue Home at 15; *id.* (Exeter Special Facilities Plans), Vol. 26A, App. F, Exeter Hospital Plan at 18, Exeter Healthcare Plan at 15-16, Eventide Home Plan at 15, Goodwin's of Exeter Plan at 15.

<sup>70</sup> Richard H. Strome, Director of New Hampshire Office of State Emergency Management, also testified that he was not aware of any state time estimate for loading advanced life support patients into ambulances. Tr. 4302.

for this class of the special facility population.<sup>71</sup> Accordingly, we remand the matter to the Board to resolve this deficiency.<sup>72</sup>

### III. DECONTAMINATION AND RECEPTION CENTERS

Another central issue raised by SAPL's appeal goes to the treatment the Licensing Board gave to SAPL's contentions respecting the adequacy of the reception centers for evacuees from the Seabrook EPZ in the event of a radiological emergency. In essence, SAPL charges the Board below with a failure to give proper effect to ALAB-905,<sup>73</sup> which was rendered in the *Shoreham* proceeding just a month before the issuance of LBP-88-32.

We necessarily commence our appraisal of the SAPL claim with a close look at ALAB-905. With the setting and holding of that decision in mind, we will then turn to a consideration of what SAPL put before the Licensing Board in support of its contentions pertaining to reception center inadequacy. From that point, we will move on to explore whether there is an inconsistency between the Licensing Board's disposition of the contentions and ALAB-905. Finally, we will undertake to determine whether, ALAB-905 to one side, there is a sufficient record foundation for the reception center contentions with the consequence that SAPL should have prevailed on those contentions.

A. In ALAB-905 we came to grips with an important aspect of the general requirement that emergency plans for the area surrounding a nuclear power plant provide adequate facilities and equipment to support the emergency response.<sup>74</sup> Specifically, we focused upon the matter of the radiological monitoring of

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<sup>71</sup> Correction of the preparation time omission suggested by the Licensing Board's statement also will ensure that special facility planning conforms to the guidance of NUREG-0654 that evacuation time "[e]stimates for special facilities shall be made with consideration for the means of mobilization of equipment and manpower to aid in evacuation" and that "[e]ach special facility shall be treated on an individual basis." NUREG-0654, App. 4, at 4.9 to -10.

<sup>72</sup> Also on the subject of transportation availability, as we earlier noted, in their testimony on this subject applicants stated that the planning basis for determining transportation needs was the maximum capacity of each facility. *See supra* note 59 and accompanying text. It seems, however, that this criterion was not met in the cases of Webster at Rye Plan and the Exeter Healthcare Plan because the assigned transportation resources do not appear to accommodate the number of patients/residents. For the Webster facility at Rye, New Hampshire, the plan states that two school buses with conversion beds that accommodate ten persons per bus and one reclining seat bus that accommodates 40 persons are to be made available. NHRER (Town of Rye), Vol. 20, App. F, Webster at Rye Plan at B-1. The stated number of residents, however, is 70. *Ibid.* *See also id.* (State Agency Procedures for Seabrook Station), Vol. 4, App. B, at 18B-20. At the Exeter Healthcare facility in Exeter, New Hampshire, the shortfall is 15. *Id.* (Exeter Special Facilities Plans), Vol. 26A, App. F., Exeter Healthcare Plan at B-1. *See also id.* Vol. 4, App. B, at 18B-5.

In the context of its consideration of the adequacy of transportation and drivers, *see supra* p. 348, the Board should ensure that these plans conform with the commitment given in the applicants' testimony.

<sup>73</sup> *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-905, 28 NRC 515 (1988). By memorandum to the Appeal Board and the parties dated February 17, 1989, the Commission indicated that it had declined any review of ALAB-905.

<sup>74</sup> *See* 10 C.F.R. § 50.47(b)(8).

evacuees at reception centers. On that score, we took note of the guidance provided in NUREG-0654. Criterion II.J.12 of that document specifies that

[e]ach organization shall describe the means for registering and monitoring of evacuees at relocation centers in host areas. The personnel and equipment available should be capable of monitoring within about a 12 hour period all residents and transients in the plume exposure EPZ arriving at relocation centers.<sup>75</sup>

ALAB-905 went on to observe that NUREG-0654 does not directly address the question of the number of individuals (expressed as a percentage of the total EPZ population) that must be used as a planning basis in deciding upon the necessary facilities and equipment for monitoring evacuees. FEMA placed before the *Shoreham* Licensing Board, however, an internal FEMA memorandum, dated December 24, 1985, and signed by Richard W. Krimm, Assistant Associate Director for Natural and Technological Hazards, Office of State and Local Programs and Support. Directed to certain regional FEMA officials, the memorandum stated at the outset that its purpose was to provide "interpretative guidance" with respect to Criterion II.J.12. After a brief discussion of the matter, it opined that state and local radiological emergency preparedness plans should include trained personnel and equipment at relocation centers for the monitoring of a minimum of twenty percent of the population within the EPZ.<sup>76</sup>

The *Shoreham* intervenors closely interrogated the sponsoring FEMA witnesses with respect to the foundation for the Krimm memorandum.<sup>77</sup> Moreover, in their proposed findings of fact, those intervenors devoted ten pages to a detailed attack upon the memorandum in a section titled "The Krimm Memorandum."<sup>78</sup> The attack concluded with a proposed finding to the effect that "substantial weight" could not be given to "FEMA's interpretation of the meaning of [Criterion II.J.12] as reflected in the Krimm Memorandum or to its witnesses' opinions regarding an appropriate planning basis for monitoring."<sup>79</sup> "Likewise," the proposed finding continued, "the Krimm Memorandum provides no persuasive support for [the *Shoreham* applicant's] planning basis."<sup>80</sup>

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<sup>75</sup> NUREG-0654, at 65. This guidance was reinforced in the recent September 1988 supplement to NUREG-0654 concerning utility-prepared offsite emergency response plans, such as the ones in issue in *Shoreham* and in this proceeding with respect to the Massachusetts portion of the EPZ. The supplement states that the personnel and equipment available *shall* be capable of monitoring within about a 12-hour period all residents and transients in the plume exposure pathway EPZ arriving at relocation centers. NUREG-0654 (Rev. 1, Supp. 1) at 20.

<sup>76</sup> See ALAB-905, 28 NRC at 523-24, setting out the full text of the three-paragraph analysis in the Krimm memorandum. In addition, ALAB-905 described the genesis of the memorandum. *Id.* at 524.

<sup>77</sup> See *id.* at 525 and accompanying citations to the *Shoreham* record.

<sup>78</sup> See Docket No. 50-322-OL-3, Suffolk County, State of New York and Town of Southampton Proposed Findings of Fact and Conclusions of Law on the Suitability of Reception Centers (Sept. 14, 1987) at 28-37.

<sup>79</sup> *Id.* at 37.

<sup>80</sup> *Ibid.*

In a partial initial decision, the Licensing Board rejected the intervenors' position. As a foundation for its determination that the appropriate planning basis was twenty percent of the EPZ population, the Board relied virtually exclusively upon the Krimm memorandum.<sup>81</sup>

On their appeal decided in ALAB-905, the intervenors insisted that the Licensing Board's reliance on the Krimm memorandum was misplaced. We agreed. In our view, apart from the lack of proper sponsorship,<sup>82</sup> the memorandum had crucial shortcomings. For one thing, without explanation, it appeared to rest on the tacit but dubious assumption that the issue is generic in character: i.e., that a twenty percent planning basis will suffice in the formulation of monitoring arrangements for all nuclear facilities.<sup>83</sup> For another, we pointed to weaknesses in each of the three factors that had been identified in the memorandum as the bases for its guidance, deficiencies we found had not been resolved on the Licensing Board record.<sup>84</sup>

For all of these reasons, we concluded in ALAB-905 that the Licensing Board erred in endorsing, on the strength of the Krimm memorandum alone, the twenty percent planning basis for the monitoring of evacuees.<sup>85</sup> Determining that there was no other evidence of record so compelling as to have mandated the acceptance of the twenty percent figure, we remanded the planning basis issue to the Licensing Board for further consideration.<sup>86</sup> In doing so, we stressed:

This is not to say that we have now determined that it would be impossible to justify the use of the twenty percent figure. We need not and do not speculate on that point. It is enough for present purposes to decide that nothing in the portions of the existing record brought to our attention supplies the requisite justification. It may be, of course, that the parties have overlooked some crucial evidence nestled in the deep recesses of that record. It is also conceivable that the applicant and staff might be able to adduce additional evidence that would cure the deficiencies in the proof presented by them to date. But these are matters that must be dealt with by the Licensing Board in the first instance.

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In this connection, we appreciate that there has been no prior experience in this country with the immediate monitoring of individuals who were located within a nuclear facility's EPZ at the time of a radiological accident at that facility. Moreover, our attention has not been directed to any other type of accident or natural disaster that might call for some form

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<sup>81</sup> See *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-88-13, 27 NRC 509, 523-24 (1988). In this connection, the Board set forth at some length the intervenors' criticism of the Krimm memorandum. *Id.* at 517-18.

<sup>82</sup> None of the sponsoring witnesses had contributed to the preparation of the memorandum and the single FEMA employee among those witnesses disclaimed any role in the formulation of FEMA policy. Moreover, the witnesses were unable to provide significant information on either the memorandum's development or the reasoning behind its assumptions. See ALAB-905, 28 NRC at 525.

<sup>83</sup> *Id.* at 526.

<sup>84</sup> *Id.* at 527-28.

<sup>85</sup> *Id.* at 528.

<sup>86</sup> *Id.* at 528-31, 535.

of monitoring. Consequently, there will not likely be hard empirical evidence to justify any conclusion respecting the number of persons likely to seek monitoring, but not sheltering, in the event of a Shoreham radiological emergency. It does not perforce follow, however, that it will prove impossible to provide a *reasoned* estimate on that score, sufficient to undergird a monitoring planning basis well under one hundred percent of the EPZ population. There are many areas in which estimates likewise must be made, for one purpose or another, without the benefit of empirical experience. Whether an estimate so disadvantaged can carry the day necessarily hinges upon whether a rational explanation has been supplied for it. As we have seen, the present difficulty with the Krimm memorandum (and the Licensing Board's finding based upon it) is that they are devoid of such an explanation.<sup>87</sup>

B. In common with the intervenors in *Shoreham*, SAPL put into issue in this proceeding the adequacy of the monitoring capacity of the designated reception centers.<sup>88</sup> And, as in *Shoreham*, the Krimm memorandum was offered by the applicants in response to SAPL's claims — i.e., as establishing that, for planning purposes, it could properly be assumed that twenty percent of the EPZ population would arrive at a reception center in quest of monitoring.<sup>89</sup> Subsequently, FEMA referred to the memorandum in the course of its testimony on the monitoring capability question.<sup>90</sup>

SAPL counsel extensively cross-examined the witnesses for both the applicants and FEMA.<sup>91</sup> In sharp contrast to the interrogation conducted by intervenors' counsel in *Shoreham*, however, the cross-examination did not undertake to discredit the analysis contained in the Krimm memorandum.

In questioning the applicants' panel, SAPL's counsel did take note of the twenty percent planning basis and of the fact that its selection was founded upon the Krimm memorandum.<sup>92</sup> Counsel went on to inquire why a more conservative figure was not used,<sup>93</sup> but that was the sole extent of the cross-examination on the subject. More specifically, counsel made no attempt to probe the ingredients

<sup>87</sup> *Id.* at 530-31 (emphasis in original; footnote omitted).

<sup>88</sup> This was accomplished through the Licensing Board's admission of SAPL Revised Contentions 7 and 33. See Memorandum and Order of May 18, 1987, at 33-35, 44-45 (unpublished).

<sup>89</sup> See Applicants' Direct Testimony No. 4 (Decontamination and Reception Centers), fol. Tr. 4740. The Krimm memorandum was appended as Attachment 1 and was discussed at pp. 3-4 of the testimony under the heading "Anticipated Number of Evacuees."

<sup>90</sup> See Direct Testimony of FEMA Panel on Reception Centers, fol. Tr. 5091. The reference to the Krimm memorandum as representing FEMA's position on the planning basis matter is contained in the section titled "FEMA Response to SAPL 7" on a page bearing the number 59.

<sup>91</sup> Tr. 4742-4928 (applicants' witnesses); Tr. 5092-99 (FEMA witnesses). For its part, as stated at the outset of Applicants' Direct Testimony No. 4, the applicants' witness panel included officials of both the New Hampshire state government (e.g., the Director of the New Hampshire Office of Emergency Management) and the lead applicant (e.g., the Manager, Emergency Planning, of New Hampshire Yankee). The FEMA panel was composed of two agency officials (e.g., the Chief of the Natural and Technological Hazards Division in FEMA's Region I office in Boston) and one consultant in the employ of the Argonne National Laboratory in Illinois. See Direct Testimony of Edward A. Thomas, Edward A. Tanzman, and Bruce J. Swire on the [NHRER] Presented on Behalf of [FEMA], fol. Tr. 3088.

<sup>92</sup> Tr. 4767.

<sup>93</sup> Tr. 4768-70.

of the memorandum for the purpose of showing that its conclusion rested on a shaky foundation.<sup>94</sup>

The SAPL cross-examination of the FEMA witnesses was not materially different. Counsel inquired as to whether the Krimm memorandum reflected a FEMA position that twenty percent of the total EPZ population was the "minimum number of evacuees that should be potentially considered to be needing monitoring."<sup>95</sup> After receiving the answer that it is the "minimum number of evacuees that should be planned for within 12 hours," counsel stated his understanding that it is "FEMA's position that if one is prepared to monitor and potentially decontaminate 20 [percent] of the evacuees within 12 hours, that an ad hoc response can be counted on to take care of higher numbers than that."<sup>96</sup> Obtaining the agreement of the witness that this was the FEMA position,<sup>97</sup> counsel did not further pursue the matter of the Krimm memorandum with the FEMA panel.

SAPL presented one witness of its own on the reception center matter, Dr. Donald L. Herzberg. Dr. Herzberg is the Director of the Division of Nuclear Medicine and a staff radiologist at the Mary Hitchcock Memorial Hospital in Hanover, New Hampshire. He also is a Clinical Professor of Medicine (Radiology) at the Dartmouth-Hitchcock Medical Center.<sup>98</sup> In his supplemental testimony, presented in question and answer form, Dr. Herzberg made no direct reference to the Krimm memorandum. Responding, however, to a question seeking to elicit his concerns about the number of individuals projected to arrive at the Seabrook reception centers, he had this to say:

Based upon my experience with small decontamination exercises it is my opinion that the vast majority of evacuees will come to be checked. I have for many years observed the reaction of human beings to information about radioactivity and it is my opinion that more people would report for services after potential exposure to radioactivity than would report for services following other natural or technological emergencies. It would interest me greatly to find out what is alleged to form the empirical basis of the 20% estimate of evacuees reporting for services.<sup>99</sup>

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<sup>94</sup> In this connection, SAPL's cross-examination plan for the applicants' witnesses on reception centers contemplated only the following line of inquiry on the Krimm memorandum:

2. Is it not true that the FEMA Memorandum from Richard W. Krimm, referred to at p. 4 of Applicants' direct testimony states that provisions should be made for personnel and equipment to monitor a *minimum* of 20% of the estimated population to be evacuated? (See Attachment 1 (2 of 2) at page 2). Why is the State of New Hampshire not basing its planning more conservatively and planning for more than 20%?

[SAPL's] Cross-Examination Plan for Applicants on Reception Centers, fol. Tr. 4928, at 1.

<sup>95</sup> Tr. 5093.

<sup>96</sup> Tr. 5093-94.

<sup>97</sup> Tr. 5094.

<sup>98</sup> See Dr. Herzberg's curriculum vitae appended to Direct Testimony of Donald L. Herzberg, M.D., Relative to SAPL Contentions 7 and 33, fol. Tr. 5011.

<sup>99</sup> Supplemental Testimony of Donald L. Herzberg, M.D., Relative to [SAPL's] Contentions 7 and 33, fol. Tr. 5012, at 2.

Similarly, at no point during his cross-examination or redirect examination did Dr. Herzberg undertake an analysis of the Krimm memorandum, let alone embark upon a critical evaluation of its content.<sup>100</sup>

In the circumstances, it is not surprising that, again in contrast to the situation in *Shoreham*, SAPL's proposed findings of fact did not confront the Krimm memorandum directly and assert (with a supporting explanation) that its guidance rested upon faulty reasoning. The most that the Licensing Board was asked by SAPL to find as a fact was that this guidance conflicted with the testimony of Dr. Herzberg that, based on his experience in observing human reaction to information about radiation, the vast majority of evacuees would report to reception centers to be checked.<sup>101</sup> In its proposed conclusions of fact, SAPL invited the Licensing Board to find, on the strength of Dr. Herzberg's opinion, that "it is unreasonable to plan for only 20% of evacuees reporting to centers for services" and that, instead, "all evacuees must be afforded a reasonable opportunity to be monitored for radiation contamination within a 12-hour timeframe."<sup>102</sup> Here too, however, SAPL made no effort to enlighten the Board respecting the justification for preferring Dr. Herzberg's conclusion to that of FEMA.<sup>103</sup>

C.1. In determining in LBP-88-32 that the twenty percent planning basis employed in the NHRERP "is both reasonable and adequately supported in the record,"<sup>104</sup> the Licensing Board took note of ALAB-905. Acknowledging "the apparent contradictory holding on facially similar facts" in that *Shoreham* decision, the Board nonetheless concluded that continued reliance on the FEMA guidance found in the Krimm memorandum was appropriate in the present case.<sup>105</sup>

In a nutshell, the foundation for this conclusion was the fact that, in ALAB-905, we were "faced with a direct and specific challenge to the FEMA analysis underlying its guidance and the application of that guidance to the Shoreham EPZ," as well as an unsuccessful attempt to learn from FEMA's witnesses the basis for that guidance.<sup>106</sup> A similar challenge, the Licensing Board continued, had not been mounted by SAPL in this proceeding.<sup>107</sup> On that score, the Board found Dr. Herzberg's testimony to be of no assistance to SAPL. For, in addition to what the Board deemed to be his "limited value as an expert," it also

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<sup>100</sup> See Tr. 5014-73. Indeed, the Krimm memorandum was not mentioned at all by Dr. Herzberg while on the witness stand.

<sup>101</sup> See [SAPL's] Proposed Findings of Fact, Rulings of Law and Conclusions of Fact (May 9, 1988) at 56-57.

<sup>102</sup> Id. at 69-70.

<sup>103</sup> None of the other intervenors was significantly involved in the reception center issue before the Licensing Board.

<sup>104</sup> LBP-88-32, 28 NRC at 714-15.

<sup>105</sup> Id. at 713.

<sup>106</sup> Ibid.

<sup>107</sup> Ibid.

declared that "a close reading of his testimony reveals that he did not assert that the 20% planning standard was based on a flawed analytical basis but rather, simply expressed an interest in learning about the empirical basis for the 20% standard."<sup>108</sup>

In these circumstances, the Board reasoned, the day was carried by the "FEMA finding" reflected by the testimony of the FEMA witnesses to the effect that FEMA's position is that the monitoring provisions must address at least twenty percent of the total EPZ population. This was because, under Commission regulations, a FEMA finding constitutes a rebuttable presumption and, thus, must be respected in the absence of contrary evidence.<sup>109</sup>

2. We find ourselves in essential agreement with this disposition of the matter. To begin with, it is a settled principle of appellate practice that an appellant is ordinarily precluded from pressing issues or advancing arguments not presented to the trial tribunal. We long ago declared our acceptance of that general principle, with the notation that an exception might possibly be made "in the case of a serious substantive issue as to which a genuine problem has been demonstrated."<sup>110</sup> In this instance, there is every reason to apply the principle in full measure.

As we have seen, unlike the *Shoreham* intervenors, SAPL made no endeavor below — either in the presentation of its affirmative case or in its cross-examination of the witnesses for other parties — to bring into serious question the analysis undergirding the Krimm memorandum's conclusion, let alone to demonstrate that its analysis was faulty. This being so, but for the intercession of ALAB-905 there would be little room for doubt as to the outcome of any attempt by SAPL to attack the analysis for the first time on appeal. Accordingly, the question is whether a different outcome is mandated by that intercession. Stated otherwise, was the Licensing Board obliged to give effect as a matter of *stare decisis* to our Krimm memorandum determinations in ALAB-905,

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<sup>108</sup> *Id.* at 714. Just prior to discussing ALAB-905, the Board pointed to Dr. Herzberg's "limited experience with radiation emergency plans" and, based thereon, found that he "is no expert at all in the area of large-scale emergency planning or the prediction of populace response in the case of an emergency." *Id.* at 713. Accordingly, his "observations about the possible response of evacuees in the face of an emergency at Seabrook" were dismissed as "but speculations entitled to little, if any, weight." *Ibid.*

<sup>109</sup> *Id.* at 714 (citing 10 C.F.R. § 50.47(a)(2) and, among other decisions, *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-698, 16 NRC 1290, 1298 (1982), *aff'd*, LBP-81-59, 14 NRC 1211, 1460-66 (1981)).

<sup>110</sup> *Tennessee Valley Authority* (Hartsville Nuclear Plant, Units 1A, 2A, 1B, and 2B), ALAB-463, 7 NRC 341, 348 (1978) (referring to *Northern States Power Co.* (*Prairie Island Nuclear Generating Plant, Units 1 and 2*), ALAB-244, 8 AEC 857, 864 (1974)). *Accord Pennsylvania Power and Light Co.* (*Susquehanna Steam Electric Station, Units 1 and 2*), ALAB-693, 16 NRC 952, 956 n.6 (1982); *Public Service Electric and Gas Co.* (*Salem Nuclear Generating Station, Unit 1*), ALAB-650, 14 NRC 43, 49 (1981), *aff'd sub nom. Township of Lower Alloways Creek v. Public Service Electric & Gas Co.*, 687 F.2d 732 (3d Cir. 1982). See also *Detroit Edison Co.* (*Enrico Fermi Atomic Power Plant, Unit 2*), ALAB-709, 17 NRC 17, 22 (1983).

notwithstanding the total failure of SAPL (or any other intervenor) to challenge the analysis contained in the memorandum?<sup>111</sup>

As the United States Court of Appeals for the First Circuit has observed, one of the "essential principles" of *stare decisis* is that "an issue of law must have been heard and decided."<sup>112</sup> Manifestly, no issue of that stripe is involved here. We did not decide in ALAB-905 that, *as a matter of law*, the twenty percent planning basis was unacceptable. To the contrary, all that we determined was that the evidentiary record then before us did not supply an adequate foundation for such a planning basis. It was in that context that we agreed with the intervenors' claim, advanced before the Licensing Board and renewed on their appeal, that within its four corners the Krimm memorandum did not provide a reasoned explanation for the adoption of the twenty percent figure.<sup>113</sup>

Thus, while the Licensing Board in the proceeding at bar was certainly obliged to consider ALAB-905, it was not obligated by *stare decisis* principles to give dispositive effect to the portion of ALAB-905 concerned with the Krimm memorandum. Moreover, considerations of fundamental fairness militate strongly against allowing SAPL to rely on ALAB-905 now, notwithstanding its failure to have mounted a serious attack upon the Krimm memorandum below. SAPL had, of course, the same opportunity to challenge the memorandum as was available to, and utilized by, the *Shoreham* intervenors.<sup>114</sup> Had SAPL chosen to take advantage of that opportunity, either through the affirmative testimony of a witness or during cross-examination of the witnesses for the applicants and FEMA, the applicants might well have proffered additional evidence to shore up the analysis contained in the Krimm memorandum. There being no substantial attempt to discredit the memorandum, however, both the applicants and FEMA could justifiably have assumed that there was no occasion for any such rebuttal. That being so, justice would hardly be served by now remanding the matter to the Licensing Board on the authority of ALAB-905. Such a course would enable SAPL to profit, to the applicants' detriment, from its failure (for whatever reason) to put the Krimm memorandum squarely in issue at the appropriate time.

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<sup>111</sup>Needless to say, the doctrine of *res judicata* could not possibly come into play inasmuch as (1) neither SAPL nor anyone in privity with it was a party to the *Shoreham* proceeding; and (2) there is not the requisite identity of cause of action, claim or demand. See *Alabama Power Co.* (Joseph M. Farley Nuclear Plant Units 1 and 2), ALAB-182, 7 AEC 210, 212, remanded on other grounds, CLI-74-12, 7 AEC 203 (1974). The difference in parties likewise forecloses resort to the related issue preclusion doctrine of collateral estoppel. See *id.* at 213; *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-673, 15 NRC 688, 695 (1982).

<sup>112</sup>*EEOC v. Trabucco*, 791 F.2d 1, 4 (1st Cir. 1986) (citing 1B *Moore's Federal Practice* ¶ 0.402[2], at 30).

<sup>113</sup>See *supra* pp. 354-55.

<sup>114</sup>In common with SAPL here, the *Shoreham* intervenors had no advance knowledge respecting how we might regard the Krimm memorandum were we called upon to appraise its content.

It follows from the foregoing that, notwithstanding ALAB-905, the Licensing Board was entitled to treat as presumptively correct the FEMA conclusion that, for planning purposes, it may be assumed that at least twenty percent of the total New Hampshire EPZ population would require or seek radiological monitoring in the event of an accident at Seabrook. It is much too late in the day for SAPL (or any other intervenor) to claim with respect to the NHRERP that this conclusion should be entirely disregarded as resting upon a faulty analysis on FEMA's part. What remains for decision is whether the Licensing Board was equally justified in finding that the presumption was not satisfactorily rebutted by Dr. Herzberg's testimony.

In answering this question in the affirmative, we think it unnecessary to pass ultimate judgment on the warrant for the Licensing Board's belief that Dr. Herzberg "is no expert at all in the area of large-scale emergency planning or the prediction of populace response in the case of an emergency."<sup>115</sup> Be that as it may, we are persuaded, as was the Licensing Board, that Dr. Herzberg's testimony fell far short of rebutting the presumption favoring the FEMA determination.<sup>116</sup> On this score, it suffices to take note of the factors to which the Board pointed:

Dr. Herzberg's observation, based on his experience in nuclear medicine and perhaps six small decontamination exercises at medical facilities involving less than twenty people, was that a "vast majority" of evacuees would seek monitoring. In arriving at this view for the Seabrook EPZ, however, Dr. Herzberg did not review or even know of the plans or planning standards developed with respect to other nuclear facilities, did not review all parts of NHRERP Revision 2, and could not quantify his proposed "vast majority" approach. Moreover, Dr. Herzberg testified that his only experience with implementing a nuclear power reactor emergency plan was as a participant in, rather than planner or evaluator of, a medical facility's portion of a 1978 or 1979 emergency drill in the Midwest.<sup>117</sup>

When these factors are combined with the additional consideration (likewise noted by the Licensing Board) that Dr. Herzberg's sole reaction to the Krimm memorandum was an expressed interest in the empirical basis for the twenty percent standard,<sup>118</sup> it is simply impossible to conclude that the trier of fact was obliged to reject the FEMA position on the strength of Dr. Herzberg's contrary opinion.<sup>119</sup>

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<sup>115</sup> See *supra* note 108.

<sup>116</sup> See 10 C.F.R. § 50.47(a)(2).

<sup>117</sup> LBP-88-32, 28 NRC at 713 (citations omitted).

<sup>118</sup> See *supra* p. 356.

<sup>119</sup> For the reasons set forth in the text, we are also satisfied that allowing SAPL to challenge the analysis in the Krimm memorandum for the first time on appeal could not be justified on the theory that there exists "a serious substantive issue as to which a genuine problem has been demonstrated" and thus the general rule precluding such a challenge should be waived. See *supra* p. 358.

D. For the foregoing reasons, we affirm the Licensing Board's acceptance of the twenty percent standard. The question remains whether the NHRERP satisfies that standard: i.e., whether the four designated New Hampshire primary reception centers are capable of monitoring, within a twelve-hour period, twenty percent of the total population within the New Hampshire portion of the EPZ.<sup>120</sup>

As one applicants' witness testified, each of the primary centers will be staffed to accommodate, within the twelve-hour period, 9,667 evacuees (making a total for the four centers of 38,668 persons).<sup>121</sup> Thus, the twenty-percent standard is met if the total New Hampshire EPZ population does not exceed approximately 193,000 persons. On that score, there are four components to that population. The size of three of them is not in dispute: the permanent residents, nonbeach transients, and nonresident workers within the EPZ total approximately 106,000.<sup>122</sup> There is not similar agreement on the number of beach transients that might be found in the New Hampshire portion of the EPZ. We find nothing in the record, however, to suggest that, even on a peak population day on a summer weekend, that figure would exceed the 87,000 persons needed to reach the previously-calculated base population value — a figure about seventy-five percent greater than the applicants' estimate of 49,000.<sup>123</sup> To the contrary, as we read the expert testimony adduced by the MassAG, the intervenors' position is that the peak New Hampshire beach population would be in the

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<sup>120</sup>Because our review of the record did not reveal the basis for the Licensing Board's conclusions concerning compliance with the 20 percent standard, by order dated August 30, 1989, we requested that applicants provide us with the necessary numerical quantities (and appropriate record citations) that would establish the NHRERP's conformance with that standard. Intervenors MassAG and SAPL utilized the opportunity afforded them to comment on applicants' response to raise a host of new issues concerning the adequacy of reception centers. As we have already indicated in this decision, *see supra* p. 358, arguments first raised on appeal generally will not be considered. This admonition is particularly appropriate in this context; we decline, therefore, to accord any substantive consideration to these freshly hatched concerns.

<sup>121</sup>See Applicants' Direct Testimony No. 4, at 5. SAPL raised several challenges to the adequacy of staffing for the reception centers. SAPL asserts that the centers need more administrative and registration personnel, SAPL Brief at 45-46, more training for these personnel, *id.* at 46-47, more firefighters to perform monitoring functions, *id.* at 47, and monitors for evacuees from special facilities, *id.* at 48. For the reasons set forth by the Licensing Board, LBP-88-32, 28 NRC at 717-21, we find these claims are without basis. We will, however, require (rather than suggest, as did the Licensing Board, *id.* at 721) that the NHRERP be revised to document the availability of nonhost community fire department personnel for decontamination and monitoring services.

<sup>122</sup>See Applicants' Exh. 5; NHRERP (Seabrook Station Evacuation Time Study), Vol. 6, at 2-5, 5-7; *id.* App. M, at M-1 to -5; Applicants' Direct Testimony No. 7 (Evacuation Time Estimates and Human Behavior in Emergencies), fol. Tr. 5622, at 16-17.

<sup>123</sup>See Applicants' Direct Testimony No. 7, at 16-17, 38. We are aware, of course, that at least in the first instance there might not be an even distribution of evacuees among the four reception centers. This should not be a potential problem except on peak population days. Also, two of the reception centers (Rochester and Dover) are located within approximately 10 miles of one another and the distance between the other two (Manchester and Salem) is approximately 20 miles. These relatively close proximities undoubtedly will enable a redistribution of evacuees in the event it proves necessary. Moreover, these figures do not take into account the additional capacity at the secondary centers included in the planning. See Applicants' Direct Testimony No. 4, at 11.

neighborhood of 70,000.<sup>124</sup> Accordingly, the NHRERP complies with the twenty percent standard.<sup>125</sup>

#### IV. SHELTERING OF BEACH POPULATION

As is recognized in NUREG-0654, in assessing the range of protective actions to be afforded by a radiological emergency plan, one component to be considered is the use of sheltering. In ruling on three intervenor contentions (NECNP/RERP-8, SAPL-16, and TOH-VIII) relating to sheltering of persons within the beach areas near the Seabrook facility, the Licensing Board concluded that, although sheltering would be utilized in only a few, narrowly defined circumstances and would be implemented in an essentially ad hoc fashion, the NHRERP gave sufficient consideration to this protective action option so as to comply with regulatory requirements and the guidance of NUREG-0654.

Intervenors challenge the Licensing Board's findings on the sheltering option on two principal grounds. First, they question whether the Board correctly concluded that sheltering was an option to be utilized only in very limited circumstances. Second, they dispute whether adequate measures have been taken to implement the sheltering option in the instances in which it has been found to be appropriate. For the reasons set forth below, we find that the Licensing Board was essentially correct in the first instance, but erred in failing to require appropriate implementing measures.

A. As described in some detail in the Licensing Board's decision,<sup>126</sup> in accordance with NUREG-0654 the NHRERP incorporates the Environmental Protection Agency's (EPA) protective action guide dose projections as guidance

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<sup>124</sup> See Testimony of Colin High, Thomas J. Adler and William A. Beffort on Behalf of the [MassAG] on SAPL Contention No. 32, SAPL Contention No. 34 and Town of Hampton Revised Contention III, fol. Tr. 6849, at 5 n.1, 16. The witnesses estimated a presence of 24,664 vehicles in the beach area, with an occupancy rate of 2.854 persons per vehicle.

<sup>125</sup> Also with regard to the matter of decontamination and reception centers, intervenor NECNP argues that guidance in NUREG-0654 requires that a second-shift (i.e., 24-hour capability) be provided for reception centers. New England Coalition on Nuclear Pollution's Brief in Support of Appeal (Mar. 24, 1989) at 24-25 [hereinafter NECNP Brief]. NECNP asserts that this result is mandated by the guidance in NUREG-0654 Criterion II.A.4, which requires that principal organizations "shall be capable of continuous (24-hour) operations for a protracted period," rather than Criterion II.J.12 relied upon by the Licensing Board in affirming the adequacy of one 12-hour shift, which provides that state and local organizations are to ensure that personnel and equipment at reception centers are capable of monitoring within "about a 12 hour period" all arriving residents and transients. This challenge, however, fails to recognize the purpose and scope of each of these guidance elements. The former criterion specifies the terms under which the existence of a major emergency response organization (e.g., the state or a local emergency response organization) is to be maintained, while the latter is intended to provide guidance on the period of operation of a particular type of emergency response facility. The specification in Criterion II.A.4 that emergency response organizations, which provide a variety of services, must function on a continuing basis for a protracted period does not extend or otherwise revise the length of time particular decontamination facilities must be operated under Criterion II.J.12. Thus, there is no regulatory foundation for NECNP's argument. Moreover, as the applicants and the staff have suggested, Applicants Brief at 37; NRC Staff Brief at 20 n.19, there is no realistic basis for NECNP's related concern that the reception centers will cease operations prematurely.

<sup>126</sup> LBP-88-32, 28 NRC at 751-58.

tools to determine the need for protective actions and for choosing appropriate protective actions.<sup>127</sup> NUREG-0654 recognizes four classes of emergency action levels (in ascending order of significance): Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency.<sup>128</sup> At the "General Emergency" level, which is triggered by the possibility that EPA protective action guides may be exceeded outside the perimeters of the nuclear facility, NUREG-0654 indicates that evacuation of the general population may be necessary.<sup>129</sup> On the other hand, under NUREG-0654 guidance, no offsite emergency action involving extensive relocation of the general public ordinarily would be warranted at either the "Alert" or "Site Area Emergency" classifications because any offsite releases are not expected to exceed EPA's protective action guides except near the site boundary of the facility.<sup>130</sup>

Because of concern over the special circumstances created by the large summertime beach population near the Seabrook plant, the NHRERP provides that certain offsite actions affecting a relocation of the general public should be taken at the earlier action levels. Under its terms, beach closings and beach area access restrictions are to be considered by emergency planning officials as early as the "Alert" classification, and further precautionary or protective actions such as beach closure or evacuation would be recommended by state officials at the "Site Area Emergency" classification.<sup>131</sup> Moreover, even if accident conditions do not allow for implementation of early precautionary measures (such as beach closing), evacuation, as opposed to sheltering, would continue to be the preferred protective action.<sup>132</sup>

Under the NHRERP, therefore, the preferred protective actions for the New Hampshire seasonal beach population are early beach closure and, as necessary thereafter, evacuation. Nonetheless, the plan recognizes that, in the following narrowly defined instances, sheltering would be the favored protective action for at least a portion of the beach population:

- (1) if sheltering is the most effective option in achieving maximum dose reduction, based upon EPA protective action guides of 1 rem whole body dose and 5 rem thyroid dose;
- (2) if there are "physical" impediments to evacuation;

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<sup>127</sup> NHRERP, Vol. 1, at 2.6-1 to -2. The EPA protective action guides are found in its "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," EPA-520/1-75-001 (June 1980 rev.) [hereinafter PAG Manual].

<sup>128</sup> 10 C.F.R. Part 50, App. E, § IV.C.

<sup>129</sup> See NUREG-0654, App. 1, at 1-16.

<sup>130</sup> See id. at 1-8, 1-12.

<sup>131</sup> See Applicants' Direct Testimony No. 6 (Sheltering), fol. Tr. 10,022, at 10-12.

<sup>132</sup> See id. at 17.

(3) if an evacuation is recommended, while a beachgoer without his or her own means of transportation is awaiting transportation assistance.<sup>133</sup>

Applicants' emergency planners and New Hampshire emergency planning officials stated that in these circumstances use of sheltering would be limited.<sup>134</sup> Indeed, they could conceive of only one situation in which it would be applicable under condition (1) to achieve a "maximum dose reduction": a short duration, nonparticulate (gaseous) release that would arrive at the beach within a relatively short time period when, because of a substantial beach population, the evacuation time would be significantly longer than the exposure duration.<sup>135</sup> According to these witnesses, this limited use of sheltering would be appropriate to avoid situations in which the sheltered population would be exposed or reexposed to radioactive ground particulates during their subsequent, postrelease evacuation.<sup>136</sup>

Intervenors' central concern is whether confining sheltering to such a limited use under the plan is, in accordance with the first condition specified in the NHRERP, the most effective use of this protective action option to achieve maximum dose reductions. Before the Licensing Board, the MassAG challenged the adequacy of state officials' planning assumptions about sheltering limitations through testimony from a panel of witnesses.<sup>137</sup> Principal among these witnesses was Dr. Robert Goble, a Research Associate Professor of Environment, Technology, and Society and an adjunct Associate Professor of Physics at Clark University in Worcester, Massachusetts.<sup>138</sup> In his testimony, Dr. Goble acknowledged that shelter was indeed a limited option for the beach population.<sup>139</sup> He nonetheless maintained that there were two situations in which sheltering was the preferred action option. He described the first as a short duration, primarily gaseous release.<sup>140</sup> This release, which he categorized as a "less severe problem,"<sup>141</sup> appears to be substantially the same as the release that state emergency planning officials recognized could call for use of sheltering.<sup>142</sup> Dr. Goble also asserted, however, that the use of shelter for the beach population would be appropriate in instances when there is a relatively early release of a substantial amount of radioactive material that would involve ground deposition (ground-

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<sup>133</sup> See Applicants' Direct Testimony No. 6, at 19-20; *id.* App. 1, at 7-8. Planning officials consider "physical" impediments under condition (2) to include fog, snow, hazardous road and bridge conditions, and highway construction. Tr. 10,721.

<sup>134</sup> Tr. 10,714.

<sup>135</sup> Tr. 10,719-20.

<sup>136</sup> Tr. 10,720.

<sup>137</sup> See Corrected Testimony of Robert L. Goble, Orwin Renn, Robert T. Eckert, and Victor N. Evdokimoff on Behalf of the Attorney General for the Commonwealth of Massachusetts on Sheltering Contentions, fol. Tr. 10,963.

<sup>138</sup> *Id.* at 1-2; *id.* Attach. 1.

<sup>139</sup> *Id.* at 13, 16-17; Tr. 11,461-62.

<sup>140</sup> Tr. 11,462.

<sup>141</sup> *Ibid.*; see Tr. 11,464.

<sup>142</sup> See *supra* note 135 and accompanying text.

shine) and possible inhalation doses.<sup>143</sup> He criticized the NHRERP planning process for failing to afford adequate consideration of whether sheltering also should be the preferred protective action for such a release as well.

In support of the NHRERP's planning assumptions on sheltering and evacuation, FEMA presented the testimony of its technical consultant Joseph H. Keller. A chemist by training, Mr. Keller is a scientist with the United States Department of Energy's (DOE) Idaho National Engineering Laboratory.<sup>144</sup> Under an interagency agreement between FEMA and DOE, he provides advice to FEMA on matters relating to emergency planning for radiological emergencies.<sup>145</sup>

In his testimony, Mr. Keller declared that for the various potential dose components — plume immersion exposure, exposure from a plume overhead (cloud-shine), plume inhalation exposure, and groundshine — the exact relationship among the various components will vary with time and distance from the point of release; however, groundshine was most likely to be the major contributor to total dose in severe accident sequences if no protective actions are taken.<sup>146</sup> He also explained that, because the plume is dispersed and diluted as it moves away from the point of release, this groundshine dose is reduced as a function of distance from the source.<sup>147</sup> Immediate evacuation of beach areas near the facility thus provides the distinct advantage, even in those seeming "worst case" instances when plume dispersion and evacuation routes coincide, of moving the population away from the more concentrated groundshine dose areas.<sup>148</sup>

The effect of sheltering, on the other hand, is to reduce the doses primarily from plume immersion/cloudshine and from inhalation, according to Mr. Keller.<sup>149</sup> In the case of the Seabrook beach area, however, the predominance of wood-frame (as contrasted with concrete or brick) structures caused state officials to assign to area shelter an extremely limited dose reduction factor of 0.9 (a dose reduction of only ten percent) for the plume immersion/cloudshine dose component.<sup>150</sup> Moreover, although recognizing that the inhalation dose reduction afforded by these structures would be greater than ten percent, he noted that to the degree that the beach area structures were "unwinterized," their ef-

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<sup>143</sup> Tr. 11,462, 11,485.

<sup>144</sup> See Amended Testimony of William R. Cumming and Joseph H. Keller on Behalf of [FEMA] on Sheltering/Beach Population Issues, fol. Tr. 13,968, Attach. B, at 1-2 [hereinafter Cumming/Keller Testimony]. Mr. Keller is employed by Westinghouse Idaho Nuclear Company, Inc. (a wholly owned subsidiary of Westinghouse Electric Company), which is the private contractor that operates the Idaho National Engineering Laboratory for the Department of Energy. Tr. 14,141.

<sup>145</sup> Tr. 14,142-43.

<sup>146</sup> Cumming/Keller Testimony at 9; Tr. 14,230-31.

<sup>147</sup> Cumming/Keller Testimony at 10-11.

<sup>148</sup> See *id.* at 11; Tr. 14,230-31, 14,242.

<sup>149</sup> Cumming/Keller Testimony at 9.

<sup>150</sup> See *id.* at 9-10; Tr. 14,222, 14,243. See also Applicants' Direct Testimony No. 6, at 25-26.

fectiveness in reducing inhalation exposures likely would degrade much sooner than the two hours generally accepted for wood-frame buildings.<sup>151</sup>

Finally, Mr. Keller emphasized that, to make an accurate assessment of whether, in any particular instance, evacuation or sheltering would afford greater dose protection, it would be necessary to have certain vital information on the nature of the particular release — i.e., the release's projected beginning, duration, and magnitude and the meteorological conditions affecting release distribution.<sup>152</sup> It was likely, however, that in the event of a radiological emergency this information would not be available or would be highly uncertain.<sup>153</sup> Given the need to avoid groundshine and the general protection evacuation affords from that dose component, Mr. Keller found these information uncertainties further tipped the balance in favor of evacuation rather than sheltering.<sup>154</sup>

In light of these factors, Mr. Keller concluded that, for the beach areas, it was a better strategy to begin evacuation immediately.<sup>155</sup> This would ensure that the groundshine dose savings inherent in immediate evacuation would be secured, while avoiding the groundshine exposure to individuals that would accrue during the inevitable postshelter evacuation.<sup>156</sup> As a consequence, Mr. Keller found, the determination to rely upon sheltering as a protective action option in the NHRERP only in the very limited circumstances specified had an appropriate technical basis.<sup>157</sup>

In upholding the NHRERP's limited use of sheltering for the beach population, the Licensing Board adopted Mr. Keller's testimony almost *in toto*, declaring it "well reasoned."<sup>158</sup> Before us, intervenors have launched a vigorous attack upon that testimony. The MassAG presents a multi-pronged assault, asserting that uncertainty about warning time, the duration of any release, and whether the release will be particulate or gaseous favor, or at least warrant further consideration of, the use of sheltering as a protective action option.<sup>159</sup> The MassAG, SAPL, and TOH also assert that the Licensing Board improperly relied on the Keller testimony. They maintain that because the testimony is generic in nature, its use by the Board is inconsistent with the principle that emergency planning determinations should be made on a site-specific basis.<sup>160</sup>

Although the parties have spent considerable effort challenging and defending various aspects of the planning basis underlying the NHRERP's limited

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<sup>151</sup> Cumming/Keller Testimony at 10.

<sup>152</sup> See *id.* at 9; Tr. 14,240-41.

<sup>153</sup> See Cumming/Keller Testimony at 9-10; Tr. 14,240-41.

<sup>154</sup> See Tr. 14,240-41.

<sup>155</sup> See Cumming/Keller Testimony at 10-11; Tr. 14,240-42.

<sup>156</sup> See Cumming/Keller Testimony at 10; Tr. 14,243-44.

<sup>157</sup> Cumming/Keller Testimony at 11.

<sup>158</sup> LBP-88-32, 28 NRC at 768.

<sup>159</sup> Massachusetts Attorney General's Brief on Appeal (Mar. 24, 1989) at 61-69 [hereinafter MassAG Brief].

<sup>160</sup> *Id.* at 69-71; SAPL Brief at 20-21; TOH Brief at 44-49.

utilization of the sheltering option, review of the Licensing Board's findings, the parties' arguments, and the evidentiary record leads inexorably to one crucial conclusion: for the New Hampshire beach area at issue, the physical attributes of most available structures makes sheltering a protective action option of limited utility. The primary dose reduction of ten percent in the plume immersion/cloudshine component that is afforded, on average, by the predominantly wood-frame shelter in the Seabrook beach area is, as Mr. Keller graphically described it, so "down in the dirt in the error band, it's trivial. And it basically is, we don't have much in the way of shelter."<sup>161</sup> His recognition of this important site-specific factor makes it apparent that Mr. Keller's analysis is not, as intervenors charge, impermissibly "generic."<sup>162</sup> Moreover, added to the poor dose reduction quality of existing shelter in the beach area are the substantial uncertainties acknowledged to be involved in calculating meteorological conditions and the elements of release beginning, duration, and magnitude, all of which would be critical to making an informed choice between evacuation and sheltering in any specific situation.<sup>163</sup> Taken together, these factors provide an appropriate basis for the NHRERP planning judgment that, for the beach area, sheltering is to be limited as a protective action option to those instances in which it undeniably will provide the maximum dose savings.<sup>164</sup> Therefore, giving the Licensing Board's factual determination the probative force it intrinsically commands, we find no basis for reversing its judgment regarding the efficacy of the NHRERP planning basis for limited sheltering.<sup>165</sup>

B. Also raised by intervenors MassAG, SAPL, and TOH is the question

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<sup>161</sup> Tr. 14,243-44. Although the MassAG also asserts that shelter would afford greater protection from groundshine than evacuation because wood-frame structures may provide "significantly" more protection from this dose component than an automobile, MassAG Brief at 67 n.58, the evidence before the Licensing Board indicates that the protection afforded is of the same order of magnitude, *see* Tr. 14,229.

<sup>162</sup> Further emphasizing the site-specific nature of his findings, Mr. Keller declared during cross-examination that, "[i]f the State of New Hampshire had come in with a recommendation or an assertion . . . that the shelters, the average shelter in the vicinity we're talking about, had a shelter factor of .5 [(50 percent)] or .4 [60 percent]), all right. My personal opinion is, you might have looked at [sheltering] a little harder." Tr. 14,243.

<sup>163</sup> MassAG witness Dr. Goble also recognized the difficulties attendant upon obtaining the necessary information regarding various of these factors in order to make emergency planning decisions. *See* Tr. 11,481-82, 11,485.

<sup>164</sup> Intervenors also contend that the Licensing Board erred in its interpretation of the requirement of section 50.47(b)(10) that "[a] range of protective actions have been developed for the plume exposure pathway EPZ for emergency workers and the public." E.g., MassAG Brief at 72-75. To the degree that intervenors' challenge is based upon the premise that the development of a "range of protective actions" is governed by the status of section 50.47 as an "adequate protection" standard and thereby requires that "adequate" sheltering must be provided as a risk reduction measure, we addressed and rejected it in ALAB-922. Nor do we read section 50.47(b)(10), as intervenors do, to impose such a requirement itself. It is apparent that under section 50.47 planners should consider whether to employ sheltering as part of the "range of protective actions" for a particular emergency plan, *see* NUREG-0654 Criterion II.J.10.m (bases for choice of recommended protective actions must be included in emergency plan, including expected protection afforded in shelter for direct and inhalation exposure). Nonetheless, the situations in which sheltering is adopted as the recommended protective action ultimately will depend, as here, upon the site-specific circumstances.

<sup>165</sup> *See, e.g., General Public Utilities Nuclear Corp. (Three Mile Island Nuclear Station, Unit No. 1), ALAB-881, 26 NRC 465, 473 & nn.30-31 (1987).*

of the implementation of the sheltering option for the beach population in the limited instances in which it is to be utilized.<sup>166</sup> Although the Licensing Board declined to require implementing measures, for the reasons set forth below we find that such measures are required so long as sheltering for the beach population is a protective action option under the NHRERP.

As it now stands, planners have undertaken to provide "some degree of implementing detail," which includes identification of potential shelter locations in the NHRERP, only under sheltering condition (3) for the estimated two percent of the New Hampshire transient beach population who, being without their own transportation, will be provided shelter pending evacuation.<sup>167</sup> For the total beach population that potentially is to be sheltered under conditions (1) and (2), which applicants' figures indicate could reach nearly 50,000 during peak summertime weekend days,<sup>168</sup> the planners now contemplate, and the NHRERP reflects, no "preset sheltering implementation."<sup>169</sup> In the event of an emergency in which the general transient beach population would be sheltered, voice instructions would be given over the existing audible alert system directing beachgoers to find shelter in buildings near the beach.<sup>170</sup> Available shelter in the beach area — which is envisioned to include private residences and public access buildings such as shops, motels, and restaurants — was identified in a survey sponsored by applicants and conducted by Stone and Webster Engineering Corporation.<sup>171</sup> The planners indicated, however, that while this study led them to the judgment that adequate shelter exists, they do not intend to incorporate the study into the NHRERP or rely on the study as a planning basis for sheltering the total beach population.<sup>172</sup> For their part, FEMA witnesses declared in their direct testimony and during cross-examination that further implementing efforts for sheltering were necessary, a position they then appeared to back away from during redirect examination.<sup>173</sup>

Acknowledging that FEMA's position on the need for further implementation was "not clear," the Licensing Board declared that the low-probability that the sheltering option would have to be implemented, in conjunction with its present lack of knowledge about the type of implementing detail that might be included in the NHRERP, led the Board to conclude that it would be a mistake to require additional implementing detail.<sup>174</sup> According to the Board,

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<sup>166</sup> MassAG Brief at 54-56 & n.44; SAPL Brief at 22-25; TOH Brief at 33-35.

<sup>167</sup> See LBP-88-32, 28 NRC at 769. See also Applicants' Direct Testimony No. 6, at 21; *id.* App. 1, at 10.

<sup>168</sup> See *supra* note 123 and accompanying text.

<sup>169</sup> LBP-88-32, 28 NRC at 769.

<sup>170</sup> Applicants' Direct Testimony No. 6, at 20.

<sup>171</sup> See *id.* at 21-22.

<sup>172</sup> *Id.* at 22.

<sup>173</sup> Compare Cumming/Keller Testimony at 11 and Tr. 14,220 with Tr. 14,252-54.

<sup>174</sup> LBP-88-32, 28 NRC at 769.

the current lack of implementing detail reduced the risk that a decisionmaker might implement the sheltering option without understanding its benefits and uncertainties; this made it unwise for the Board to accede to intervenors' request to require implementation as a condition of license approval.<sup>175</sup> The Board also found that "cluttering the NHRERP with unnecessary detail" would not improve it.<sup>176</sup> Further, noting its doubt that preset sheltering implementation was a "practical or conservative" approach, the Board declared that implementing detail was not "so material" as to preclude a "reasonable assurance" finding under section 50.47(a).<sup>177</sup> The Board also expressed its confidence that, because state emergency planning officials were in "virtually constant attendance" during the evidentiary hearing on the sheltering issue, they would "take advantage of any reasonably available opportunity to improve and to maintain the NHRERP and to ensure its implementability."<sup>178</sup>

Before us, intervenors challenge the Licensing Board's refusal to require implementing measures, asserting that the Board's determination is contrary to ALAB-832 in the *Shoreham* proceeding. As we noted earlier, in ALAB-832 we confronted the issue whether in fulfilling emergency planning obligations, it is sufficient merely to list the hospitals outside the EPZ to which patients from hospitals inside the EPZ were to be transferred in the event of an evacuation.<sup>179</sup> The Licensing Board found the listing was sufficient because there was little likelihood that patients would be evacuated and because the listed hospitals were on notice that they might be called upon for assistance. We concluded that the Board's analysis was flawed because (1) the probability of implementation was irrelevant in determining whether emergency planning obligations properly had been satisfied, and (2) the Commission's regulations and emergency planning guidance supported evacuation preplanning rather than an ad hoc response at the time of the emergency.

Responding to intervenors' challenge, applicants simply state their agreement with the Licensing Board's conclusion that the low probability that the sheltering option will ever be used means that implementing measures are unnecessary and distracting.<sup>180</sup> The staff, however, goes further and attempts to distinguish the present situation from ALAB-832. Acknowledging our holding there that the likelihood of utilization is irrelevant to a determination of whether planning obligations have been satisfied, the staff nonetheless asserts that the controlling consideration in ALAB-832 was the existence of Commission regulatory guidance that mandated hospital evacuation could not be undertaken

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<sup>175</sup> *Ibid.*

<sup>176</sup> *Ibid.*

<sup>177</sup> *Ibid.*

<sup>178</sup> *Id.* at 769-70.

<sup>179</sup> ALAB-832, 23 NRC 135, 154-57 (1986), *aff'd*, CLJ-87-12, 26 NRC 383, 398-99 (1987).

<sup>180</sup> Applicants Brief at 12-13.

without preplanning. According to the staff, no such guidance exists here. The staff also points out that, for the sheltering option under the NHRERP, the means of public notification exist; the mechanisms for a protective action determination are in place; and the size of the beach population and the quantity, quality, and location of the shelter are known. Planning thus is much less "ad hoc" than the hospital evacuation planning found deficient in ALAB-832. The staff concludes, therefore, that the denunciation of ad hoc evacuation planning in ALAB-832 has no relevance here.<sup>181</sup>

In reviewing this matter, we are unable to subscribe to the Licensing Board's reasons for declining to require implementing provisions for the beach sheltering option. Under the NHRERP, as prepared by state emergency planning officials and accepted by FEMA, there are two conditions under which sheltering may be used as a protective action option for the entire beach population. Putting aside for a moment the question of how likely it is that either of them will ever be invoked,<sup>182</sup> the fact that these sheltering options have been incorporated into the NHRERP planning basis speaks volumes about the need for appropriate implementing details.<sup>183</sup> Nor can we put an imprimatur upon an approach to implementation whereby the lack of implementing detail becomes a set of blinders that protects officials from seeing, and thereby improperly invoking, these emergency planning options. Planning efforts are intended to make emergency response officials aware of the benefits and constraints associated with their actions, thereby providing them with the information necessary to make informed protective action decisions.<sup>184</sup> Faced with a situation in which the NHRERP apparently calls for use of a sheltering option but provides no clue to the details involved in implementing that option, and thus no accurate picture of the option's overall benefits and limitations, emergency response officials essentially are required to speculate what will be the practical impact of a decision to follow that protective action measure. In the circumstances, rather than ameliorating the risk of misapplication, as the Licensing Board assumed, the failure to "clutter" the NHRERP with implementing provisions for sheltering enhances that risk, particularly the risk that sheltering will not be utilized in the appropriate, albeit limited, instances contemplated by the plan. Thus,

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<sup>181</sup> NRC Staff Brief at 55-58.

<sup>182</sup> Acknowledging the confusion created by FEMA's seemingly contradictory statements about the need for implementation of the sheltering option, *see supra* note 173, the Licensing Board nonetheless concluded that FEMA "may" be satisfied that, in light of the limited utility of the sheltering option, no further implementing detail is necessary for its approval. Given the existing record, the Licensing Board's attempt to discern what FEMA has decided involves more than a modicum of speculation on its part. Moreover, even assuming this is the case, we question whether a finding regarding the need to provide implementing detail for a protective action option can be based upon the probability that the option will have to be utilized. *See infra* pp. 371-72.

<sup>183</sup> *See* 45 Fed. Reg. 55,402, 55,406 (1980) (predetermined protective action plans are needed for the EPZ).

<sup>184</sup> *See* PAG Manual at 1.38-40.

the Licensing Board's reasons for rejecting implementing detail lack sufficient foundation to support its conclusion.<sup>185</sup>

We also do not find persuasive the staff's attempts to avoid the dictates of ALAB-832. The staff (and the applicants) explain that the sheltering options at issue are extremely unlikely to be utilized; therefore, there is no need for implementing details. In ALAB-832, we rejected just such an analysis, reiterating our observation in an earlier *Limerick* decision that for evacuation planning efforts:

"The Commission's emergency planning regulations are premised on the assumption that a serious accident might occur and that evacuation of the EPZ might well be necessary. . . . The adequacy of a given emergency plan therefore must be adjudged with this underlying assumption in mind. As a corollary, a possible deficiency in an emergency plan cannot properly be disregarded because of the low probability that action pursuant to the plan will ever be necessary."<sup>186</sup>

Anchored as it is in longstanding Commission guidance,<sup>187</sup> we again find no occasion to reconsider this general proposition, which is fully applicable to the NHRERP's beach population sheltering options as well.

In addition, like the hospital evacuation involved in ALAB-832, regulatory guidance relating to the sheltering option at issue here suggests that it should not be left to ad hoc implementation once an emergency occurs.<sup>188</sup> An emergency plan must provide "an analysis of the time required to evacuate *and for taking other protective actions* for various sectors and distances within the plume exposure pathway EPZ for transient and permanent populations."<sup>189</sup> As with an evacuation, such an analysis for sheltering cannot be made until there is some specific awareness of the extent of the sheltering that is available as well as an understanding of how the sheltering would be accomplished.<sup>190</sup> Echoing this theme, sheltering planning criteria in section II.J.10 of NUREG-0654 provide that the emergency planning organization's "plans to implement

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<sup>185</sup> We also are not persuaded by the Licensing Board's observation that implementation is not needed because New Hampshire planning officials were present during the hearings and, having heard all the testimony, will "take advantage of any reasonably available opportunity to improve and to maintain the NHRERP and to ensure its implementability." LBP-88-32, 28 NRC at 770. To base the prospect of implementation upon the hope that results will flow from the attendance at the Board proceedings of certain individuals whose involvement in the planning process could end at any time hardly seems consistent with the concept of "planning."

<sup>186</sup> ALAB-832, 23 NRC at 155-56 (quoting *Philadelphia Electric Co.* (*Limerick Generating Station, Units 1 and 2*), ALAB-819, 22 NRC 681, 713 (1985), *review declined*, CLI-86-5, 23 NRC 125 (1986)).

<sup>187</sup> See *San Onofre*, CLI-83-10, 17 NRC at 533.

<sup>188</sup> See *GUARD v. NRC*, 753 F.2d 1144, 1149 (D.C. Cir. 1985).

<sup>189</sup> 10 C.F.R. Part 50, App. E, §IV (emphasis supplied).

<sup>190</sup> See NUREG-0654 Criterion II.J.9 (each State and local organization shall establish a capability for implementing protective measures based upon EPA protective action guides and other criteria); *id.* Criterion II.J.10.m (plans for implementing protective measures shall include bases for the choice of recommended protective actions). See also PAG Manual at 138-40.

"protective measures" shall include "[m]aps showing . . . shelter areas" and "means for notifying all segments of the transient and resident population."<sup>191</sup> Map preparation requires efforts to identify and to designate available, suitable shelter. To plan for the means of notification carries the connotation that those means will be utilized in an effective manner. Indeed, that this was the view of planning officials with respect to sheltering condition (3) for the beach population without transportation is apparent from their declaration that "[t]he NHRERP will identify potential shelter locations for the transient beach population without transportation" and the "appropriate [emergency broadcast system] message will be modified to provide for instructions to persons on the beach who have no means of transportation to go to public shelters to await assistance in the event evacuation of the beach is recommended."<sup>192</sup> In terms of the benefits afforded by implementing details, under existing regulatory guidance we see no basis for distinguishing between those who will be provided shelter under condition (3) and those for whom sheltering is to be a protective action option under conditions (1) and (2).<sup>193</sup>

Finally, we are unable to accept the staff's characterization that, as compared to the circumstances at hand in ALAB-832, sheltering implementation under conditions (1) and (2) is "less ad hoc." The principal basis for this staff assertion is the Stone and Webster shelter survey and its "availability" for use by planning officials. This shelter survey might be considered a somewhat more elaborate list than that involved in ALAB-832. Nonetheless, it likewise is an unimplemented list. The planning efforts concerning sheltering already undertaken remain ad hoc until planning officials take appropriate implementing actions.<sup>194</sup> In this case, that would include designating in the NHRERP which shelters on the survey list are suitable and available for use in carrying out the protective action contemplated in sheltering conditions (1) and (2).<sup>195</sup>

In summary, the Licensing Board should have required that the same implementation actions that are being taken for the beach population without trans-

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<sup>191</sup> NUREG-0654 Criterion II.J.10.a, c. The need to provide for implementing details for sheltering condition (2), involving local condition impediments to evacuation, seeming arises also under NUREG-0654 Criterion II.J.10.k, which suggests the "[i]dentification of and means for dealing with potential impediments (e.g., seasonal impassability of roads) to use of evacuation routes, and contingency measures."

<sup>192</sup> Applicants' Direct Testimony No. 6, at 21; *see id.*, App. 1, at 10.

<sup>193</sup> *See* ALAB-832, 28 NRC at 156 & nn.79-80.

<sup>194</sup> While not all implementing details must be in place in order for a plan to be approved, *see Louisiana Power and Light Co. (Waterford Steam Electric Station, Unit 3)*, ALAB-732, 17 NRC 1076, 1107 (1983), in this instance the absence of any concerted attempt to incorporate implementing details for protective action options arrived at as a result of the planning process is a deficiency that must be remedied. *See* ALAB-832, 23 NRC at 156-57.

<sup>195</sup> The staff also contends that ALAB-832's mandate for implementation is not controlling because, unlike hospital evacuation preplanning that was necessary to identify and make available "scarce" transportation resources, there is no shelter resource limitation that would require preplanning. NRC Staff Brief at 57. Because we do not agree with the staff's premise that hospital evacuation preplanning is a matter of allocating scarce transportation resources (as opposed to ensuring that adequate resources are available), we find the staff's attempt to distinguish ALAB-832 on this basis unavailing.

portation under sheltering condition (3) be taken for the entire beach population under conditions (1) and (2). Therefore, we remand the matter for appropriate corrective action by the Licensing Board. When the potential shelters have been identified pursuant to our remand, it then will be appropriate for the Licensing Board (and for us) to address any intervenor concerns relative to the adequacy of that shelter.<sup>196</sup>

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For the foregoing reasons, with respect to intervenor claims on those portions of the Licensing Board's December 30, 1988 partial initial decision, LBP-88-32, 28 NRC 667, and related rulings, regarding "Letters of Agreement," "Transportation Availability and Support Services," "Decontamination and Reception Centers," and "Sheltering of Beach Population" the Board's initial decision and related rulings are *affirmed* except insofar as the Board (1) determined that school personnel were "recipients" of emergency response services so as not to require the execution of LOAs regarding their duties relating to the evacuation of schoolchildren; (2) granted partial summary disposition with respect to SAPL Contentions 18 and 25 as they challenged the adequacy of the 1986 Special Needs Survey; (3) found that intervenor SAPL's concerns regarding evacuation times for special facility ALS patients were adequately reflected in the NHRERP's evacuation time assumptions; and (4) declared that no further implementing details were necessary for conditions (1) and (2) relative to the NHRERP protective action option for sheltering the beach population. On those issues, we *reverse* and *remand* for further action consistent with this opinion.

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<sup>196</sup> Before us, intervenors have challenged the adequacy of the Stone and Webster shelter survey as to the quality, quantity, and availability of the shelter it identifies. The Licensing Board found that despite problems with the Stone and Webster survey, it nonetheless identified more than twice the shelter that would be required to accommodate the peak beach population with an average dose reduction factor of 0.9 or better. LBP-88-32, 28 NRC at 771-72. This made intervenor challenges to the quantity and quality of the shelter immaterial. *Id.* at 772. The Licensing Board also refused to accede to intervenors' challenge to the availability of the shelter based upon the theory that a significant number of beach community establishments would refuse to give shelter to the beach population. Calling intervenors' argument "logically flawed," the Licensing Board concluded it was more likely that the establishment owners would see the transient beach population as fellow victims and afford them shelter. *Ibid.* In light of our determination on implementation, we find it unnecessary to address these issues now.

Also with regard to the issue of sheltering, for the reasons stated in the Licensing Board's decision, *id.* at 772-74, we find intervenors' challenges to the change in the FEMA position regarding sheltering are without substance. We likewise reject the MassAG's assertion that the Licensing Board improperly denied as untimely both his June 14, 1988 motion seeking admission of certain rebuttal testimony concerning the applicants' and FEMA's positions on sheltering and his July 6, 1988 motion for reconsideration. In support of its determination, the Licensing Board found that the MassAG knew the substance of the applicants' and FEMA's positions on sheltering and thus was able to submit rebuttal testimony well in advance of the June 1988 motion and that he allowed three weeks to lapse between its June 16 oral ruling denying the MassAG's motion and the submission of his motion for reconsideration. Memorandum and Order of Sept. 9, 1988, at 4-8 (unpublished). In light of the broad discretion afforded licensing boards in the conduct of the proceedings before them, determinations on such questions as the timeliness of motions are not likely candidates for reversal so long as they have a rational foundation. ALAB-832, 23 NRC at 159. The Board's determination in this instance demonstrated such a rational foundation.

We also *direct* that (1) the NHRERP be revised to document the availability of nonhost community fire department personnel for decontamination and monitoring services, and (2) the Licensing Board take appropriate steps to ensure that the planning commitment to provide for the transportation needs of special facilities based upon maximum facility capacity has been met in the cases of the Webster facility in Rye, New Hampshire, and the Exeter Healthcare facility in Exeter, New Hampshire.

It is so ORDERED.

FOR THE APPEAL BOARD

Eleanor E. Hagins  
Secretary to the  
Appeal Board

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

**Before Administrative Judges:**

Ivan W. Smith, Chairman  
Dr. Richard F. Cole  
Dr. Kenneth A. McCollom

In the Matter of

Docket Nos. 50-443-OL

50-444-OL

(ASLBP No. 82-471-02-OL)  
(Offsite Emergency  
Planning Issues)

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

November 9, 1989

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**PARTIAL INITIAL DECISION**  
**(Seabrook Plan for Massachusetts Communities and**  
**1988 FEMA Graded Exercise)**

**1. INTRODUCTION, BACKGROUND, AND FEMA FINDINGS**

**A. Introduction**

1.1. This Partial Initial Decision addresses the contentions in this proceeding as to the radiological emergency response plans for that portion of the emergency planning zone (EPZ) for Seabrook Station (Seabrook) that lies within the Commonwealth of Massachusetts and the contentions concerning the FEMA 1988 Graded Exercise of the emergency plans for Seabrook.

1.2. Seabrook is a nuclear power facility located in the Town of Seabrook, New Hampshire, constructed and to be operated by the New Hampshire Yankee Division of Public Service Company of New Hampshire (NHY), the lead owner of Seabrook. The state border with the Commonwealth of Massachusetts lies about 2 miles south of Seabrook. Six communities lie within the Massachusetts portion of the EPZ.

1.3. This Board, with the exception of a discrete evacuation time estimate (ETE) issue involving returning commuters, as to which it has retained jurisdiction, has previously decided all issues arising from contentions concerning the New Hampshire Radiological Emergency Response Plan (NHRERP) (Appl. Exh. 5), which is the emergency plan for the portion of the Seabrook EPZ that lies within the State of New Hampshire. LBP-88-32, 28 NRC 667 (1988).

**B. Background**

1.4. The emergency plan litigated in this phase of the proceeding is known as the *Seabrook Plan for Massachusetts Communities* (SPMC). This plan was admitted into evidence as Applicants' Exhibit 42.

1.5. The SPMC is a utility-authored plan, made necessary by the decision of the Commonwealth of Massachusetts and the Massachusetts EPZ communities not to participate in emergency planning for Seabrook. It is the Applicants' effort to satisfy NRC emergency planning requirements by comporting with the provisions of 10 C.F.R. § 50.47(c)(1), the so-called "realism" rule of radiological emergency planning.

1.6. It is designed to be implemented either in "Mode 1" (which assumes that the Commonwealth responds to the emergency and calls upon the utility only for resources and personnel, as needed), or in "Mode 2" (sometimes referred to as "Full Mode 2"), which assumes that the Commonwealth delegates full authority to the utility to respond to the emergency and carry out the SPMC, or in any other mode lying between Mode 1 and Mode 2. There is also a Standby Mode in which the utility stands in readiness for the other modes.

1.7. The utility organization responsible for carrying out the SPMC is the NHY Offsite Response Organization (ORO), an association of "volunteers" drawn from various companies and callings. Many members of ORO are associated in their employment with New Hampshire Yankee.

1.8. Of some 198 contentions proffered by the Intervenors, a total of 123 were admitted for litigation. As consolidated, 63 were admitted with respect to the SPMC (Joint Intervenor (JI) Contentions JI-1 through JI-63), and 21 were admitted as to the FEMA Graded Exercise designated below by sponsoring party and number.

1.9. Of the above-stated admitted eighty-four contentions, a total of twenty-two were wholly withdrawn, resolved by settlement, or previously ruled upon by this Board, leaving a total of sixty-two to be litigated and resolved in this Initial Decision. Many contentions had multiple bases, each constituting a separate issue for litigation. The litigated contentions are:

### ***SPMC Contentions***

JI-1	(ETE Study)
JI-2	(Accuracy of Massachusetts ETEs)
JI-3	(Real-Time Beach Counter)
JI-4	(Traffic Management Plan)
JI-5	(Removal of Road Impediment)
JI-7	(Transit-Dependent Bus Routes)
JI-9	(Strikes)
JI-11	(Second-Shift Staffing)
JI-12	(Yankee Atomic as Second Shift)
JI-13	(Training for Specific Contentions)
JI-15	(Worker Liability)

JI-17	(Beach PARs) <sup>1</sup>
JI-18	(PAR Criteria)
JI-19	(Sector Evacuation)
JI-20	(ETEs and PARs)
JI-21	(Peak Summer Population)
JI-22	(Local Refusal to Accept ORO PARs)
JI-23	(PAR Coordination with New Hampshire)
JI-24	(Delays in PAR Decisionmaking)
JI-27	(Liaisons)
JI-30	(Telephone Communications)
JI-31	(Field Communications)
JI-34	(Notification of Contract Personnel)
JI-35	(EBS Messages)
JI-36	(Media Coordination)
JI-39	(Preemergency Information to Beach Transients)
JI-41	(Refusal of State/Local Governments to Follow SPMC)
JI-42	(Ad Hoc State/Local Response)
JI-43	(Uncertainty as to State/Local Response)
JI-45	(Schools)
JI-46	(EPZ Hospitals)
JI-47	(Institutionalized Persons Who Cannot Be Evacuated)
JI-48	(Special-Needs Survey)
JI-49	(Special-Needs Residents)
JI-50	(Special Facilities)
JI-51	(Special Host Facility)
JI-53	(Haverhill Staging Area)
JI-54	(Reliance on American Red Cross)
JI-55	(Manned Vehicles)
JI-56	(Radiological Monitoring)
JI-57	(Radioactive Waste)
JI-58	(Letters of Agreement)
JI-61	(Mode 1 Response)
JI-62	(Mixed-Mode Response)
JI-63	(State/Local Resources)

**FEMA Graded Exercise Contentions**

MAG EX-2	(Scope/Mass. EPZ Hospitals)
MAG EX-8	(ORO Radio Communications)
MAG EX-9	(EBS/Media Messages)

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<sup>1</sup> PAR means Protective Action Recommendation.

MAG EX-10	(PARs for Mass. Schools)
MAG EX-11	(ORO PAR Decisionmaking)
MAG EX-14	(MS-1 Hospital Performance)
MAG EX-19	(Onsite PAR Decisionmaking)
MAG EX-21	(Scope/Ambulances)
SAPL EX-2	(NH Bus/Ambulance Performance)
SAPL EX-4	(Scope/Sampling Teams)
SAPL EX-6	(Scope/Traffic Control)
SAPL EX-7	(Scope/Decontamination of NH Emergency Workers)
SAPL EX-8	(Scope/NH Shift Changes)
SAPL EX-12	(NH Reception Centers)
SAPL EX-13	(Scope/Special Facilities)
SAPL EX-14	(NH PARs)
TOH/NECNP EX-1	(Scope Generally)

1.10. The active parties to this phase of the proceeding are the Applicants, the Staff of the U.S. Nuclear Regulatory Commission (Staff), the Attorney General of the Commonwealth of Massachusetts (MAG), the Seacoast Anti-Pollution League (SAPL), the New England Coalition on Nuclear Pollution (NECNP), the Town of Amesbury, Massachusetts (TOA), the Town of Newbury, Massachusetts (TON), the Town of West Newbury, Massachusetts (TOWN), the Town of Salisbury, Massachusetts (TOS), the City of Newburyport, Massachusetts (CON), and the Town of Hampton, New Hampshire (TOH).

1.11. The Town of Merrimac, Massachusetts (TOM), and the City of Haverhill, Massachusetts (COH), participated pursuant to 10 C.F.R. § 2.715(c), but presented no evidence.

1.12. In addition, although not a party as such, the Federal Emergency Management Agency (FEMA) filed testimony and participated in the hearing as contemplated by the Memorandum of Understanding between the Nuclear Regulatory Commission (NRC) and FEMA. Memorandum of Understanding, 50 Fed. Reg. 15,485, 15,487 (Apr. 18, 1985) (MOU). FEMA, by special leave of the Board, also filed proposed findings and conclusions of law with respect to FEMA's regulatory role in nuclear power station emergency planning and the FEMA findings related to this proceeding.

1.13. During 58 hearing days in Boston, Massachusetts, and by agreement of the participants in the hearing, the litigable issues were tried, by various subject matters, as follows:

Evacuation Time Estimates  
 Traffic Management Plans  
 Evacuation of Transit-Dependent Persons  
 Personnel and Training

Protective Action Recommendation Generation  
Communications/Notification  
Protective Actions for Particular Populations  
Evacuation Equipment and Facilities  
Coordination of Governmental Resources and Response  
Exercise Contentions with Respect to SPMC  
New Hampshire Exercise Performance

In addition to the categories listed above, the Attorney General submitted proposed findings under the category "Introduction and Background" (this section) challenging the essential competence of FEMA and its officials to make findings and determinations worthy of weight. This Partial Initial Decision follows the above categorizations.

### C. FEMA's Findings

1.14. The Commission's radiological emergency planning rule, 10 C.F.R. § 50.47(a)(1) and (2), provides that: "no operating license . . . will be issued unless a finding is made by NRC that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency." Further, the NRC, including its adjudicators, will base its findings on a review of the FEMA findings and a "FEMA finding will constitute a rebuttable presumption on questions of adequacy and implementation capability."

1.15. The Applicants elected to carry their burden of proof in the proceeding, in part, by relying upon the rebuttable presumption attendant to FEMA findings as their *prima facie* case, supplemented sometimes by surrebuttal testimony and exhibits. In this section of the Partial Initial Decision we discuss the merits of the Attorney General's overall claim that FEMA and its officials, for a variety of reasons, are not competent to render findings entitled to a rebuttable presumption under the NRC regulations.

1.16. As contemplated by the regulations and the Memorandum of Understanding, FEMA conducted a review of the offsite radiological emergency plans for Seabrook, and the graded exercise thereof, and reached a conclusion that the plans, including the SPMC, were adequate. More specifically, FEMA found and concluded that, subject to the installation of a vehicular alert and notification system (VANS) for the Massachusetts portion of the EPZ,<sup>2</sup> and enhancements to the alert and notification system for the New Hampshire portion of the EPZ, the plans and preparedness will be adequate to protect the health and safety of the public living in the Seabrook EPZ by providing reasonable assurance that ap-

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<sup>2</sup>VANS is a matter that is within the jurisdiction of another Licensing Board and, therefore, is not dealt with in this Decision. See LBP-89-17, 29 NRC 519 (1989).

propriate protective measures can be taken off site in the event of a radiological emergency and are capable of being implemented. Letter, Peterson (FEMA) to Stello (NRC) (Dec. 14, 1988), Appl. Exh. 43A. *See also* Appl. Exhs. 43B-43F (FEMA reports); Donovan Dir., ff. Tr. 21,653, at 3.

1.17. The Regional Assistance Committee (RAC) was involved throughout the FEMA review and concurred in all reports filed. Tr. 19,092-93. Mr. Richard A. Donovan is the Chairman of the Region I RAC. He directed the review of the SPMC and directed the 1988 FEMA Graded Exercise of the Seabrook emergency response plans. Mr. Donovan appeared as a witness to sponsor the relevant FEMA reports and evaluations. Donovan Dir., ff. Tr. 17,943 (SPMC); *id.*, ff. Tr. 21,653 (Exercise). He was examined on FEMA's findings over many days. Tr. 17,943-19,199, 21,653-22,690. The Board believes that Mr. Donovan is a very credible witness. His command of the SPMC, the concepts and events of the exercise, and FEMA's regulatory scheme and policies was excellent.

1.18. Mr. Donovan explained that a FEMA reasonable assurance finding is based on four "legs." These are (1) review of the plan; (2) test of the plan in an exercise and an evaluation of that exercise; (3) verification that equipment, personnel, and resources are actually there; and (4) verification that the personnel have been trained. Tr. 18,498-99, 18,502.

1.19. FEMA thoroughly reviewed all facilities and equipment to be utilized to implement the SPMC. Tr. 19,108-09.

1.20. In addition, FEMA reviewed the results of the graded exercise of the radiological emergency response plans for Seabrook. Appl. Exh. 43F, *passim*.

1.21. The overall conclusion reached by FEMA in evaluating the June 1988 Seabrook exercise was that the exercise demonstrated that the SPMC and the emergency plans for the State of New Hampshire and the State of Maine can be implemented. Donovan Dir., ff. Tr. 21,653, at 3.

1.22. Applicants and the NRC Staff propose that the Board conclude (as we do below) that the FEMA findings constitute a rebuttable presumption that all aspects of the Seabrook offsite plans and emergency preparedness are adequate and capable of implementation except as otherwise specifically noted by FEMA. 10 C.F.R. § 50.47(a)(2). The Attorney General emphatically disputes this conclusion as we discuss in the following paragraphs.

1.23. In Section 10, *infra*, the various operational modes of the SPMC are explained. In short, FEMA reviewed the SPMC on a "Mode 2" basis; that is, the assumption was that the nonparticipating governments would delegate authority, but no resources or assistance would be given to the ORO to execute the plan. Tr. 18,422. The graded exercise also was conducted on the basis of Mode 2. Tr. 22,384-85.

1.24. Because FEMA found the SPMC to be adequate in this mode, and because it can be assumed that any response that included the additional benefits of assistance and/or resources from the Commonwealth would be better than a

response by the utility's ORO alone, FEMA believes, and has found, that the SPMC operating in Mode 1 (ORO contributing resources and personnel only), or in any mode between Mode 1 and Full Mode 2, would also provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at Seabrook. Tr. 18,432, 18,442, 18,444-45, 18,459-61. In addition, the graded exercise, conducted as Mode 2, demonstrated the implementability of other modes. Tr. 22,389.

1.25. FEMA also has found that, even though the Commonwealth's responders may not be familiar with the SPMC, the SPMC contains adequate plans, procedures, and liaison personnel to permit necessary explanations to be made to the Commonwealth's responders at the time of an emergency. The ability of ORO to provide that function was evaluated during the exercise and found to be adequate. Therefore, it is FEMA's finding that any lack of familiarity with SPMC on the part of the Commonwealth is adequately compensated for and has no adverse effect on the reasonable assurance finding with respect to operations in any mode less than Full Mode 2. Tr. 18,471-73.<sup>3</sup>

1.26. For his part, the Massachusetts Attorney General proposes a series of findings to the effect that Applicants have not even met the *threshold* requirements to entitle them to the presumptions of the "realism" amendments to the emergency planning rule, 10 C.F.R. § 50.47(c)(1)(iii)(B). Therefore, since FEMA's evaluation of the SPMC depends upon the "realism" presumptions of the rule, FEMA's findings are not entitled to the rebuttable presumption of 10 C.F.R. § 50.47(a)(2). First he argues that:

[T]he Applicants do not assert or demonstrate, as 50.47(c)(1) requires, that they are unable to comply with the requirements of 50.47(b). The Applicants' Proposed Findings . . . leaves this critical question open. Such a failure is significant because the rule permits us to make "due allowance" in evaluating the utility plan only for those planning elements compliance with which is infeasible because of nonparticipation. (50.47(c)(1)(iii)(A)). Also, we are to judge the utility's "compensatory measures" in light of these planning deficiencies. (50.47(c)(1)(iii)(B)).

#### MAG PF 1.15.B.1.

1.27. In the July 22, 1988 Memorandum and Order, Part I, ruling on SPMC Contentions, at 16-17, the Board rejected a similar "gotcha" proposition by the Attorney General. We rejected MAG Contention 2, in part, because we should not hear factual issues not genuinely in dispute. The Attorney General has never seriously contended that the Applicants in fact *do* meet the sixteen standards of 10 C.F.R. § 50.47(b). Indeed he has spent many weeks in the hearing trying to prove the opposite. His argument is circular and resembles a

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<sup>3</sup> In Finding 10.6, *infra*, we reject the proposition by the Attorney General that the Commonwealth is and will remain ignorant of the provisions of the SPMC.

word game. The reasoning seems to be that, if the SPMC satisfies the section 50.47(b) standards, Applicants then have failed to meet the provisions of section 50.47(c)(1) which provides, under the "realism" rule, for relief if any *failure to comply with paragraph (b)* is the result of the nonparticipation of state and local governments. The Attorney General's reasoning distorts the purpose of the rule and has no merit.

1.28. Second, the Massachusetts Attorney General argues that:

[T]he Applicants have not demonstrated that their inability to comply with the (b) standards is "wholly or substantially" the result of the non-participation of the Commonwealth. Cf. App. PF 1.26. Citation to a series of examples of *private groups* not participating in planning does not begin to establish this necessary finding. Nor does citing to the undisputed fact that the Commonwealth is not planning [to] establish that the Applicants' inability to comply with the (b) standards is "wholly or substantially" the result of the Commonwealth's position.

MAG PF 1.15.B.2 (emphasis in original).

1.29. The second argument is also without merit. In Finding 1.33, *infra*, we adopt the proposed findings of the Applicants and Staff, supported by the overwhelming preponderance of the evidence that any failure to comply with section 50.47(b) rests on the nonparticipation of the Commonwealth and local governments. Some of the citations refer to private groups whose participation was discouraged by the governments. Some citations refer to nonparticipation by the Commonwealth and local governments themselves. The Massachusetts Attorney General offered no evidence to the contrary. Indeed, a major litigation strategy consisted of trying to demonstrate deficiencies in the SPMC and the FEMA graded exercise attributable to the nonparticipation of the Commonwealth and local governments. See Section 10, *infra*.

1.30. In his third "threshold" argument, the Attorney General continues with the same theme, alleging that Applicants have not demonstrated that they have made a "good-faith effort" to gain the participation of the governments and that efforts to gain the participation of private entities will not suffice. MAG PF 1.15.B.2. Given the Attorney General's persistent avowals that the Commonwealth will not participate in emergency planning for Seabrook, this argument is facetious. E.g., Tr. 15,237-39, 16,039-41. See also Tr. 16,045-46, 16,049, 16,050, 16,052 (EPZ Communities). Moreover, based upon a sound evidentiary record, we have found to the contrary. See Finding 1.32, *infra*.

1.31. Finally the Attorney General argues that before the presumption that the governments would "generally follow" the utility plan may be entertained, Applicants must prove that the plan was adequate but for the nonparticipation of the governments — and that this Board so ruled. MAG PF 1.15.B.4. This is only partially correct. The Attorney General distorts the Board's ruling in the July 22, 1988 Memorandum. There we simply explained that Applicants do not enter

the hearing cloaked with the presumption that the governments will follow *any* plan. We made the obvious point that Applicants must ultimately prove that their plan is good enough to be followed. We also rejected the Attorney General's impractical proposal that the hearing must be held in segments, i.e., that the Applicants must sequentially proffer evidence of a hypothetical plan that would have been good except for government nonparticipation, then come forward with another plan that compensates for that government nonparticipation. July 22, 1988 Memorandum at 16-21.

1.32. The Board finds that Applicants have made a sustained, good-faith effort to secure and retain participation of the pertinent state and/or local governmental authorities, including the furnishing of copies of its emergency plan. Tr. 18,842-43, 18,974, 19,011, 21,062, 21,207, 21,400, 21,550-51, 22,412, 22,597-98; Appl. Reb. No. 23, ff. Tr. 22,702, Attach. D; Appl. Reb. No. 21, ff. Tr. 23,537, at 7, 8, and Attach. F; Tr. 23,668-69.

1.33. The Applicants' inability to comply with the requirements of 10 C.F.R. § 50.47(b), to the extent any such inability exists, is wholly or substantially the result of the nonparticipation in emergency planning by the Commonwealth and its political subdivisions. Tr. 16,849-52, 18,842-43, 18,973-74, 19,011, 21,062, 21,207-08, 21,400, 21,550-51, 22,412, 22,597-98; Appl. Reb. No. 23, ff. Tr. 22,702, Attach. D; Appl. Reb. No. 21, ff. Tr. 23,537, at 7, 8, and Attach. F.

1.34. The Attorney General revives an argument, previously rejected by this Board, that FEMA's findings on a *utility* plan are not entitled to the rebuttable presumption of 10 C.F.R. § 50.47(a)(2). MAG PF 1.16.A-A.2. He cites from the Statement of Considerations on the "realism" amendment in November 1987, 52 Fed. Reg. 42,078, 42,082, where the Commission stated that:

FEMA's *advice* would undoubtedly include identification of areas in which judgments are necessarily conjectural, and NRC's *overall judgment* on whether a utility's plan is adequate would in turn have to take account of the uncertainties included in FEMA's judgment.

*Id.* (emphasis supplied by Attorney General).

1.35. The Attorney General has overanalyzed those few words and has plucked them from the context of the entire regulatory scheme of radiological emergency planning. It is sufficient for this Board to observe that neither the Commission nor the Appeal Board shares his notion that FEMA's review of a utility plan is *ultra vires*. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-89-8, 29 NRC 399, 417-18 (1989); *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-903, 28 NRC 499, 507 (1988). This Board had previously explained the significance of ALAB-903 to the Attorney General in the Memorandum and Order (Ruling

on the June 1988 General Exercise Contentions), December 15, 1988, at 5. The failure of the Attorney General now to even mention these cases seriously erodes the credibility of his proposed findings.

1.36. The Attorney General contends that FEMA's findings on the adequacy of the SPMC should not be accorded a rebuttable presumption because FEMA reviewed the SPMC based on assumptions set forth in Supplement 1 to NUREG-0654, at D, that the nonparticipating governments will follow the utility plan and have the requisite resources to implement that plan. He would have us conclude, therefore:

It is manifestly circular and therefore illogical for the Applicants to assert that they have established the adequacy of the SPMC as a utility plan (and thereby earned the presumption that it will be followed by the nonparticipating governments) by means of FEMA's review of that plan when the FEMA review and finding were based on the assumption that the governments would follow the plan.

#### MAG PF 1.16.B.1.

1.37. What the Attorney General describes as "circular" is not circular at all. Rather, the phenomenon is that the Supplement 1 to NUREG-0654, FEMA's assumptions, and Applicants' assumptions are all founded in the same regulatory ground. 10 C.F.R. § 50.47(c)(1)(iii)(B).

1.38. To the extent that his proposed finding raises questions of government resources, in Section 10, Finding 10.29, *infra*, we discuss inferences to be drawn from the failure of the Attorney General to come forward with any evidence that the Commonwealth's best-efforts response to a radiological emergency would be inadequate. In any event, for the purposes of this discussion, FEMA mooted any issue concerning the Commonwealth's resources by having the June 1988 exercise conducted in Full Mode 2. FEMA did not assume the utilization of any resources from the Commonwealth or local governments. Appl. Exh. 43F. *See also* Section 10, *infra, passim*. Tr. 18,439-45.

1.39. The Attorney General submitted a very long series of proposed findings in which he characterizes other standards or procedures assertedly employed by FEMA in reviewing the SPMC. MAG PF 1.18-1.18D. He categorizes these standards as: (1) a "clear unqualified 'best-efforts' standard"; (2) a "vague and unspecified 'know it when you see it' standard"; and (3) "an objectively quantifiable [but not followed] standard." MAG PF 1.18.

1.40. Turning first to the allegation that FEMA applies an improper "best-efforts" standard<sup>4</sup> in its evaluation, the Attorney General cites as an example

<sup>4</sup>"Best efforts" as it is debated by the parties in this section means that the adequacy of a response is said to be measured by whether it is the best that the responder can do. The term "best efforts" is also used in another context in the realism amendment where it must be presumed that state and local governments will exercise their "best efforts" to protect the public. 10 C.F.R. § 50.47(c)(1)(iii)(B). In yet another twist to the concept, the Board

*(Continued)*

Mr. Donovan's testimony using those very words respecting the adequacy of the plan in identifying the special-needs population. MAG PF 1.18.A, *citing* Tr. 18,103, 18,156, 18,870. The Attorney General states, incorrectly, that FEMA's legal counsel also applied a "best-efforts" standard to the FEMA evaluation. *Citing* Tr. 18,874. The Attorney General then, having attempted to wrap FEMA's evaluation of the method of identifying the special-needs population into an inappropriate standard, urges the Board to reject any presumptive validity to FEMA's SPMC review "to the extent it is based on a best-effort approach . . ." He provides no other examples where he claims that a "best-effort" standard had been applied. MAG PF 1.18.A.

1.41. FEMA, however, does not remain quiescent. It challenged the Attorney General's statement, calling it a "distortion of the record." The distortion, FEMA believes, is demonstrated by an examination of those portions of Mr. Donovan's testimony cited by the Attorney General concerning the adequacy of the survey utilized by the SPMC to identify the special-needs population. FEMA PF 1.18.2, *citing* Tr. 18,093-119. We agree with FEMA that the Attorney General has not fairly cited the remarks by FEMA's counsel. "Distortion" is not too strong a term. *See* Tr. 18,874. Mr. Donovan, however, used the term as cited by the Attorney General. But the citation is not in context.

1.42. Mr. Donovan testified that FEMA has defined specific standards for conducting a survey to identify those persons in the EPZ that would require special assistance, referred to as "special populations." Tr. 18,094. In FEMA documents FEMA-REP-11 and Guidance Memorandum 24 (MAG Exh. 71), which set forth guidance for public education materials and for planning for special populations, it is stated that an annual mail survey with a mailback return card is an appropriate means to identify those people needing special assistance or special notification and to build a data base of special populations. Tr. 18,095, 18,225. *See also* Tr. 18,703-04.

1.43. Mr. Donovan testified also that he reviewed the New Hampshire Yankee public information calendar that was mailed out to all residents in the Massachusetts portion of the Seabrook plume EPZ. The calendar contained a postage-paid mailback survey questionnaire card that completely addressed the issues in FEMA guidance regarding special populations. He therefore determined that the SPMC's mailback survey is an adequate means for identifying special populations in the Massachusetts EPZ and thus meets the planning requirements of the NRC and FEMA set forth in NUREG-0654/FEMA-REP-1, Rev. 1. Tr. 18,096.

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discusses in Section 10, *infra*, whether the governments' "best-efforts" response to be presumed under the rule is also presumed to be an adequate response.

1.44. Mr. Donovan further testified that he reviewed additional efforts by NHY ORO, beyond that required by FEMA guidance, to develop a data base of special-population needs in the Massachusetts EPZ, including telephone verifications of responses received in the mail survey and contacts with organizations of special populations. Tr. 18,101.

1.45. FEMA explained its position respecting the "best-effort" allegation in its proposed findings and during the hearing when the identification of the special-needs population was in issue: When evaluating the adequacy of an offsite radiological emergency response plan, FEMA does not utilize a standard requiring that a particular level of dose savings or safety must be achieved. Tr. 18,873-74. Rather, FEMA applies the standards in NUREG-0654/FEMA-REP-1, Rev. 1 (and Supp. 1), an approach consistent with the Commission's ruling in *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-86-13, 24 NRC 22, 30 (1986), that emergency planning requirements do not require that an adequate plan achieve a preset minimum radiation dose savings or a minimum evacuation time for the plume exposure pathway emergency planning zone in the event of a serious accident; rather they attempt to achieve reasonable and feasible dose savings under the circumstances. FEMA's approach is also consistent with the statement accompanying NRC's proposed rule change (10 C.F.R. § 50.47(c)(1), 52 Fed. Reg. 6980 (Mar. 6, 1987)) that offsite emergency response plans in general were not to be judged by any other specific quantitative standard. Contrary to the opinion advanced by the Attorney General (MAG PF 1.18.A), this view was reiterated, not rejected, by the Commission with the publication of the final rule change in 52 Fed. Reg. 42,078 (Nov. 3, 1987). FEMA PF 1.18.6.

1.46. FEMA properly evaluated the provisions of the SPMC for identifying special-population needs against the specific standards set forth in NUREG-0654/FEMA-REP-1, Rev. 1, Supp. 1, FEMA-REP-11, and Guidance Memorandum 24.

1.47. The issue of identifying the special-needs population is addressed in greater detail below in Section 8. There we conclude that FEMA's finding that NHY ORO met and exceeded the applicable standards in its efforts to identify the Massachusetts special-population needs is fully supported by the record.

1.48. The Attorney General's argument that FEMA generally applies some *ad hoc* and vague "best-efforts" standard in its evaluation of the SPMC is not even supported by the only purported example cited by him.

1.49. Next the Attorney General undertakes to demonstrate that FEMA uses a "know it when you see it" standard in evaluating the SPMC. MAG PF 1.18.B-B.4. But he gets off to a faltering start by depending in part upon MAG Exh. 97 (the "Barry" report) for the truth of the matters contained in that document. MAG PF 1.18.B.1. MAG Exhibit 97 was not sponsored by any witness and was admitted for limited purposes not germane to the Attorney

General's proposed finding. Tr. 22,666. Accordingly we disregard the reference to MAG Exhibit 97.

1.50. At the outset we note that the Attorney General enters this area of litigation with considerable baggage. He simply does not like the way FEMA goes about its business. But he has no coherent explanation of how FEMA fails in its presidential-mandated duty to evaluate, with broad discretion, radiological emergency response plans. His principal theme is that FEMA, through its official, Mr. Donovan, based its SPMC evaluation too much on experience and judgment and too little on firm and formal FEMA criteria. MAG PF 1.18.B.1-B.4. The Attorney General's lengthy discourse on this subject is somewhat in the form of a stream-of-thought disgorge of his notions about FEMA's inadequacies. *Id., passim*. There seem to be several subthemes intertwined in the discussion: (1) Mr. Donovan exercised excessive judgment in the *absence* of any FEMA evaluation criteria; (2) Mr. Donovan did not understand and apply whatever FEMA criteria existed, whether the criteria were vague or whether the criteria were clear and objective; (3) Mr. Donovan's judgment was poor and his concepts were too elastic; and (4) FEMA's process for tempering individual arbitrariness and achieving uniformity is deficient. *Id., passim*.

1.51. The Board's overall impression after hearing Mr. Donovan's lengthy testimony and after reviewing the record was that the balance between plan-specific judgment and established FEMA criteria made good sense. We did not see a tension between judgment and preset criteria. The Agency has the experience and expertise, actual and presumed, to determine the extent that its evaluations are guided by judgment compared to fixed criteria. Obviously both judgment and uniform criteria are essential to the success of any complex regulatory undertaking such as FEMA's evaluation of the SPMC and the graded exercise. FEMA's findings and determinations in radiological emergency planning matters are entitled to respect as a matter of fact as well as of law. Moreover, the Attorney General fails his own test. While he criticizes FEMA for having insufficient evaluation criteria, he does not propose or identify any criteria by which FEMA's alleged failure may be measured.

1.52. FEMA responded to the Attorney General's "know it when you see it" attack with a factual explanation of FEMA's relevant established and published guidance system. FEMA PF 1.18.B-B.2, 1-12.

1.53. FEMA has published guidance linked to the planning standards set forth in NUREG-0654/FEMA-REP-1, Rev. 1 and Supp. 1. FEMA's Guidance Memoranda (GMs) describe the purpose for certain planning standards and evaluation criteria and offer methods by which planners may meet the standards addressed by the GMs. The particular methods set forth in the Guidance Memoranda are not mandated by NRC or FEMA, however, and a planning organization may choose to achieve the same purpose by a different approach. FEMA's Guidance Memoranda are similar to regulatory guides. *Long Island*

*Lighting Co. (Shoreham Nuclear Power Station, Unit 1), ALAB-900, 28 NRC 275, 290 (1988).*

1.54. Mr. Donovan explained that FEMA regards its Guidance Memoranda primarily as aids to emergency planners, not necessarily as standards against which to evaluate plans. Nevertheless FEMA expects offsite organizations and plans to meet FEMA guidance criteria or the intent of the guidance. Tr. 18,817-20.

1.55. The FEMA GMs EX-1 and EX-3 (MAG Exh. 92), as amended March 7, 1988 (MAG Exh. 93), also set forth standards for the conduct of offsite emergency preparedness exercises and the criteria for judging the impact of inadequacies in an organization's performance in an exercise.

1.56. The Attorney General argues that FEMA has almost no standardized criteria for judging whether an exercise inadequacy should be a "deficiency" or an "ARCA" (Area Requiring Corrective Action). The difference is very important (especially in an adjudication) because the finding of a "deficiency" prevents a "reasonable assurance" finding. MAG PF 1.18.B.1. Tr. 21,982. Mr. Donovan explained that classification of an exercise inadequacy as a deficiency or an ARCA is initially made by the FEMA region that evaluated the exercise. Tr. 21,982. In cross-examination by the Attorney General he explained the decisionmaking process utilized in classifying the 1988 Seabrook exercise inadequacies. The assessment of the inadequate performance is made in the context of (1) the exercise objective at issue, (2) the plan, (3) the extent-of-play of the exercise, (4) the scenario, and (5) the actual demonstrated performance. Tr. 21,987-88.

1.57. GM EX-1 defines exercise deficiencies and defines their impact as follows:

demonstrated and observed inadequacies that would cause a finding that offsite emergency preparedness was not adequate to provide reasonable assurance that appropriate protective measures can be taken to protect the health and safety of the public living in the vicinity of a nuclear power facility in the event of a radiological emergency. Because of the potential impact of deficiencies on emergency preparedness, they are required to be promptly corrected through appropriate remedial actions including remedial exercises, drills or other actions.

In contrast, in GM EX-1, FEMA defines ARCAs as:

demonstrated and observed inadequacies of State and local government performance, and although their correction is required during the next scheduled biennial exercise, they are not considered, by themselves, to adversely impact public health and safety.

Tr. 21,985-87.

1.58. Mr. Donovan illustrated FEMA's decisionmaking process with two examples of exercise inadequacies that were classified as ARCAs and not

deficiencies: (1) difficulties in communication that occurred at the Rockingham County Sheriff's office (Tr. 21,989-95; Appl. Exh. 43F, at 148); and (2) failure of ambulance personnel to wrap a simulated contaminated person being transported in an ambulance. Tr. 21,998-22,007; Appl. Exh. 43F, at 186-87.

1.59. As to the communications issue, Mr. Donovan explained that, in evaluating the impact of this event, he took into account, among other attenuating factors, that the State of New Hampshire had 500 to 600 players in the exercise and that the vast majority of communications occurred without difficulty as called for by the plan. Tr. 21,991, 21,993. FEMA reached the determination that the particular exercise event did not substantially affect the demonstration of the objective of adequate communication among response organizations and also did not impact the ability of the State of New Hampshire to protect the public health and safety, and therefore was properly classified as an ARCA and not a deficiency. Tr. 21,993-95.

1.60. Mr. Donovan explained FEMA's decisionmaking process in regard to the failure of ambulance personnel to follow proper procedure. Tr. 21,998-22,007. The purpose of covering a contaminated individual prior to transporting him is to confine contamination. The failure to cover the patient in this instance did not affect his health and safety or the public's health and safety, but simply created the possibility that the ambulance could have become contaminated. Since the ambulance would have been monitored upon arrival at the hospital, any contamination could have been discovered and the vehicle decontaminated prior to being put back into service. Tr. 21,999. FEMA thus determined that the public health and safety was not affected by this exercise inadequacy, and that it was properly classified as an ARCA. *Id.*

1.61. The examples used by Mr. Donovan, cited above, do in fact seem to be exemplary and demonstrate sound judgment. We have not identified any instances where FEMA has classified an exercise event as an "ARCA" which should have been graded as a "deficiency." The examples also demonstrate that there can be virtually countless variations of circumstances that FEMA may encounter in an exercise which may require consideration for classification as meeting objectives, an ARCA, or as a deficiency. FEMA cannot insulate its considerations from the exercise of judgment in favor of a mechanical application of criteria.

1.62. The Board discusses the adequacy of the planning for congregate care facilities and the absence of planning by the American Red Cross in Section 9, *infra*. Mr. Donovan had changed his position on this saddening matter where the Red Cross in Massachusetts, following the Governor's lead, declined to participate in planning for Seabrook. The Attorney General cites Mr. Donovan's change of position as evidence of the excessive use of judgment, defective FEMA criteria, and perhaps even bad faith on the part of Mr. Donovan. MAG PF 1.18.B.2. The Board itself observed that the American Red Cross issue is

not a simple one, or one amenable to casual disposition. *See Findings 9.134, et seq., infra.* We agree with FEMA that the evolution of Mr. Donovan's views on this issue is evidence of his thoroughness and critical analysis. FEMA PF 1.18.B.2-B.4. Evidence of those qualities has pervaded his testimony and the FEMA reports he produced.

1.63. The Attorney General accuses FEMA of varying its standards from case to case and, in support, cites Mr. Donovan's testimony to the effect that the June 1988 exercise standards differed from those applied in the February 1986 exercise. There is nothing sinister about this change. It is simply an evolution of FEMA's methodology calling for an evaluation by exercise objective rather than by response organization. Tr. 22,248-50. E.g., MAG Exh. 75. FEMA points out, and we agree, that the new objective-based approach facilitates headquarters review of draft exercise reports and fosters consistent procedures throughout the FEMA Regions — "the very things that the Mass AG purports to find lacking in FEMA's way of doing business." FEMA PF 1.18.B.3.2.

1.64. Continuing with his attack on FEMA's judgment and evaluation methods, the Attorney General alleges that exercise EBS messages Nos. 3 and 4 concerning Amesbury and Salisbury schools were confusing and contradictory and that EBS No. 3 was deserving of a more severe "deficiency" grade rather than an "ARCA." MAG PF 1.18.B.3. FEMA challenges the factual foundation of the Attorney General's position and explains why, in its view, the perceived lack of clarity of EBS No. 3 was properly graded as an ARCA rather than a deficiency. FEMA PF 1.18.B.3.1-3.10. Both the Attorney General and FEMA argue the matter on the wrong level. The issue now under consideration, we must remember, is whether FEMA's decisionmaking and evaluation process is so institutionally defective that FEMA's findings are not entitled to the rebuttable presumption of 10 C.F.R. § 50.47(a)(2). Even if Mr. Donovan were wrong in assigning an ARCA to EBS No. 3 — and we do not find that he was — that fact would not lead us to the conclusion that FEMA's findings across the board are not presumptively valid. The most we might find would be that Mr. Donovan, this time, was wrong; that the FEMA presumption attached to that particular finding had been rebutted.<sup>5</sup> We would then move to a consideration of whether the deficiency revealed a fundamental flaw in the SPMC — a matter still far removed from any question of FEMA's overall competence. We arrive at the same conclusion with respect to Attorney General's proposed finding 1.18.B.4 concerning an alleged failure of the State of New Hampshire to use EBS messages to broadcast protective actions for schoolchildren.

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<sup>5</sup> On the other hand, left to our own analysis, we could have found that the EBS Message No. 3 did not lack clarity. This is an example of the need for individual but expert judgment in perceptions that tend to be inherently subjective. The Attorney General has not explained how FEMA can establish preset criteria on how to judge the clarity of each EBS message.

1.65. The Attorney General charges that Mr. Donovan transformed an objective, easily verifiable FEMA standard into a shifting, subjective assessment with respect to 24-hour staffing of staging areas and reception centers in New Hampshire. He charges that Mr. Donovan applied differing standards in New Hampshire compared to those applied by him in the 1987 exercise at the Trojan Nuclear Plant in Oregon. MAG PF 1.18.C.2. Contrary to the Attorney General's charge, FEMA's treatment of reception center staffing for New Hampshire does not demonstrate that Mr. Donovan relaxed his standards for the State of New Hampshire. At the time of the 1986 exercise, FEMA had identified the lack of 24-hour staffing as a planning inadequacy and obtained the agreement of the State of New Hampshire to amend its plan to provide for 24-hour staffing at these locations. Tr. 22,015-16; Appl. Exh. 43F, at 200. However, because at the time of the exercise the New Hampshire Radiological Emergency Response Plan did not yet call for 24-hour staffing at the reception centers and staging areas, the extent-of-play agreements did not call for New Hampshire to demonstrate 24-hour staffing at those locations. Tr. 22,022. FEMA did, however, require New Hampshire to demonstrate the process it would utilize to effect a shift change of supervisors at these locations and to seek assistance through the New England Compact to request additional personnel. The extent of play called for New Hampshire to demonstrate 24-hour staffing and shift changes at other locations, including the EOC, and the State successfully demonstrated such capabilities. Appl. Exh. 43F, at 198-99. Tr. 22,022-24. Under the circumstances, given New Hampshire's commitment to revise the plan and its successful demonstration of 24-hour staffing and shift changes at other locations, FEMA appropriately found that New Hampshire had satisfactorily demonstrated its ability to maintain staffing on a continuous 24-hour basis. Appl. Exh. 43F, at 198-99. Mr. Donovan's evaluation of New Hampshire at the 1988 Seabrook Exercise and his evaluation of the State of Oregon at the 1987 Trojan exercise are not fundamentally inconsistent, given the differences between the two states' respective emergency plans and the agreed-upon extent of play for each of the two exercises. *See* Tr. 22,015-23.

1.66. MAG PF 1.18.C.1(A)-(B) contains a repetition of much of the Attorney General's position on the issue of monitoring the Massachusetts EPZ population for radiation. We discuss and decide this issue in Section 9, *infra*. As will be seen there, the Attorney General did not prevail. Therefore we certainly cannot conclude that, not only is Donovan wrong, but that he is so very wrong that his judgments, and those of FEMA, are inherently unreliable.

1.67. The monitoring issue is but one example of where the Attorney General has performed a disservice to the Board and to the record of this proceeding. He has unfairly argued the monitoring issue, as well as other issues discussed by him in this section (e.g., identification of special-needs population, EBS Message No. 3, *supra*), at least twice — once on the merits in the respective

portions of the proceeding, and again with the strained notion that FEMA's respective evaluations and findings demonstrate its inherent incompetence. He sought and was granted leave to file additional pages of proposed findings by representing to the Board that he could not present his case within the allotted number, only to misuse those additional pages to repeat his arguments under the pretext of addressing different issues.

1.68. Finally the Board rejects the Attorney General's contention that the weight to be given to Mr. Donovan's testimony and FEMA's findings has been undermined because Mr. Donovan destroyed documentation by exercise evaluators. MAG PF 1.19. We were satisfied with Mr. Donovan's explanation that discarding such notes was his normal practice and that he did not believe that it was inappropriate to do so. *E.g.*, Tr. 21,888-94. We can find no basis for sanctions or for negative evidentiary inferences. Moreover the Attorney General was afforded extensive discovery and cross-examination to compensate for the loss of the documentation.

1.69. The Board finds that FEMA has adequate standards and procedures for evaluating radiological emergency preparedness in its Guidance Memoranda and its process of headquarters review of initial reports and recommended determinations submitted by the regions. Tr. 22,039.

1.70. We also find that there is no basis arising out of FEMA's evaluating process in general or as applied to the Seabrook site not to accord a rebuttable presumption to FEMA's evaluation of radiological emergency preparedness at Seabrook.

1.71. The Board concludes that the FEMA findings and determinations respecting the SPMC and the June 1988 graded exercise, as discussed in this section, and as discussed in particular in the following sections, constitute a rebuttable presumption that all aspects of the Seabrook offsite plans and emergency preparedness are adequate and capable of implementation. See 10 C.F.R. § 50.47(a)(2).

## 2. EVACUATION TIME ESTIMATES

### A. Background

2.1. A total of three contentions, JI-1 through JI-3, raised issues concerning the SPMC evacuation time estimates (ETEs). Joint Intervenor (JI) Contentions on the Seabrook Plan for Massachusetts Communities (SPMC) and the June 1988 Graded Exercise (Draft of July 5, 1989) (hereinafter "Contentions Memo.") at 1-6. In addition, the Attorney General cites at least four additional contentions which he asserts are indirectly related to the SPMC ETEs. These are JI-12, Basis B; JI-13, Basis A; JI-20; and JI-21. MAG PF 2.1.1.

2.2. In this section the Board also addresses the one remaining ETE-related issue over which it retained jurisdiction from the New Hampshire Plan phase of these proceedings. That issue concerns the impact on ETEs (both in the New Hampshire and Massachusetts portions of the EPZ) of "trips by returning commuters within the EPZ to their homes in the EPZ." LBP-88-32 (New Hampshire Radiological Emergency Response Plan Partial Initial Decision), 28 NRC 667, 803-04 (1988). *See also id.* at 787; Memorandum and Order (Returning Commuters Issue) (May 5, 1989) (unpublished).

2.3. IP 2.5 of the SPMC contains a table that is labeled "Estimated Evacuation Times for the Massachusetts Communities." SPMC, IP 2.5, Attach. 4, at 20. (A copy of this table is in the record as Attach. A to Appl. Reb. No. 16, ff. Tr. 26,681.) The table contains ETEs for the same ten evacuation scenarios (each of which is a different season, day, time, and weather combination) used in the NHRERP ETEs. *See* NHRERP, Vol. 6, at 10-2. The SPMC ETE table contains two ETEs for each of the ten scenarios, one for "5 miles" distance and one for "10 miles" distance from Seabrook Station.

2.4. The table contains notations that state that the ETEs listed for "5 miles" "assume the simultaneous evacuation" of the three New Hampshire communities falling within a 2-mile radius of Seabrook Station (Seabrook, Hampton Falls, and Hampton Beach) and the two Massachusetts communities between 2 and 5 miles from the nuclear plant (Amesbury and Salisbury). The table notations also state that the ETEs listed for "10 miles" "assume the simultaneous evacuation" of the six New Hampshire communities within a 5-mile radius (Seabrook, Hampton Falls, Hampton Beach, North Hampton, Kensington, and South Hampton) and all six Massachusetts communities within the 10-mile plume exposure EPZ.

2.5. The SPMC, itself, contains no explanation of how these ETEs were calculated or what assumptions and inputs were used in doing so.

2.6. At the outset, we address one background issue disputed by the Attorney General. He states that since "FEMA offered no testimony on the ETE issues [*citing* Donovan Dir., ff. Tr. 17,943, at 2], . . . no rebuttable presumption was created with respect to these [ETE] issues . . . ." The Board does not agree. FEMA, in fact, made a finding that the ETEs are adequate. Appl. Exh. 43C, at 68-69.

2.7. The Intervenors' basic arguments, set forth in greater detail in the contentions, are that the SPMC is deficient because: (1) there exists no evacuation time study report that describes the derivation of the SPMC ETEs (JI-1); (2) the SPMC ETEs for Massachusetts communities are too unrealistic to form the basis of adequate protective action decisionmaking (JI-2); and (3) the SPMC decisionmakers need to have, but lack the means to make, "real-time" estimates of ETEs for the summertime vehicle population in the Massachusetts beach areas (especially Salisbury Beach).

## B. ETE Study Report

2.8. The Applicants presented a panel of two witnesses on the ETE issues: Edward B. Lieberman (Qualifications, ff. Tr. 17,318), and Anthony M. Callendrello (Qualifications, ff. Tr. 17,318). Appl. Reb. No. 16, ff. Tr. 26,681, *passim*. The Board finds these witnesses to be competent to testify with respect to the subjects they addressed.

2.9. The NRC Staff presented Dr. Thomas Urbanik as the Staff's ETE witness. Urbanik Dir., ff. Tr. 27,150. While Dr. Urbanik is an expert in the field of traffic management, his several years' involvement with the ETEs for Seabrook as well as other nuclear stations is sufficient to make him qualified on the matters on which he testified.

2.10. The Intervenors' primary witness with respect to the ETE issues was Dr. Thomas J. Adler, whose qualifications are summarized in LBP-88-32, *supra*, 28 NRC at 782-83. Dr. Adler is qualified to present the testimony he gave.

2.11. The Intervenors' first ETE-related contention asserts that:

No evacuation time study has been done to assess what the realistic evacuation times would be in the Massachusetts portion of the EPZ in light of the special difficulties, circumstances, and delays in conducting an evacuation in Massachusetts under the SPMC.

Contentions Memo. (JI-1), at 1.

2.12. Under Contention JI-1, the Attorney General argues that the SPMC fails to include a written report of how the Applicants made their ETE calculations for the SPMC. Although the ETEs were generated by the same computer model and methods and by the same firm that did the NHRER ETEs, there is not a complete writeup as to how the ETE study was carried out. Dr. Adler claims that a study is necessary both as a matter of law and to make the plan workable (Adler Dir., ff. Tr. 26,482, at 3-8), and detailed where in Appendix 4 of NUREG-0654 he attributed a basis for his view that the SPMC, itself, must contain such a writeup (Tr. 26,486-88).

2.13. NUREG-0654 sets forth guidelines for a written study, a "report," describing how the ETEs were calculated. See NUREG-0654, Rev. 1, Appendix 4. There is no dispute among the parties that such a report showing the derivation of the specific ETEs contained in the SPMC does not currently exist in a comprehensive document.

2.14. Staff witness Dr. Thomas Urbanik, while finding the ETE analysis to be adequate, indicated that an organized presentation of the ETEs, including assumptions and methodology, should be prepared, so that the SPMC ETEs could readily be used by decisionmakers at the time of an emergency. Urbanik Dir., *supra*, at 9. Dr. Urbanik further stated that with the exception of the need for such an organized presentation, the existing ETEs satisfy the guidance of NUREG-0654, Appendix 4, and all applicable regulatory requirements. *Id.* In

Dr. Urbanik's opinion, no further analytical work is required; and the preparation of this organized presentation of ETEs is essentially an editorial or "ministerial" task. Tr. 27,179-80.

2.15. None of Dr. Adler's references to NUREG-0654 requires the ETE report to be part of the emergency plan itself. Indeed, there is no requirement that the ETE document be part of the SPMC, only guidance that a detailed report accompany an emergency plan under Appendix 4 of NUREG-0654.

2.16. Applicants have committed to publish "a revised evacuation time estimate study . . . either as an amendment to NHRERP Volume 6 or as a separate document . . . [including] all ETE inputs and assumptions including those described in Applicants' Direct Testimony No. 7, ff. Tr. 5622 [and in its Rebuttal Testimony 16, *supra*]." Appl. Reb. No. 16, ff. Tr. 26,681, at 3.

2.17. However, the Attorney General argues that this promise is not enough in itself. He states that the Applicants offer no specific information on when this "update" would be completed and they do not even assert that it would be done prior to full-power operation. MAG PF 2.1.14.H. The Attorney General cites ALAB-732 for the proposition that "[w]hile it is true that plans need not be complete or 'final' prior to the close of the hearings, they must be sufficiently developed for the board to make its 'reasonable assurance' finding." *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1104 (1983). MAG PF 2.1.14.I. Also, the Attorney General argues that, as a matter of law, it is one thing to assess and approve emergency plans that are evolving over time in the natural process of their development and quite another to permit the Applicants to avoid an almost certain adverse ruling from a licensing board in a contested hearing by simply promising to fix a deficiency at some unspecified point "in the future." In the latter instance, he asserts, the Board should retain jurisdiction over the matter to see not only that the promise is kept but, more importantly, that the result achieved is adequate to permit a reasonable assurance finding. He states that there is simply insufficient record evidence upon which to make a "sound predictive finding" that the ETE study will be done in a fashion that provides reasonable assurance that adequate PAR decisionmaking will occur. MAG PF 2.1.14.J.

2.18. It is established Commission law that "there should be reasonable assurance prior to license issuance that there are no barriers to emergency planning implementation or to a satisfactory state of emergency preparedness that cannot feasibly be removed." *Waterford*, ALAB-732, *supra*, 17 NRC at 1104, *citing* 42 Fed. Reg. 61,134, 61,135 (Dec. 15, 1981). Given the hierarchical importance of protective action recommendation decisionmaking in the scheme of radiological emergency planning, there is also no doubt that means to arrive at protective action recommendations should be available to both Massachusetts and New Hampshire decisionmakers during Seabrook's ascension to full-power operation. To this end, we direct the NRC Staff to confirm that Applicants

have provided a published report on the SPMC ETEs either as an amendment to NHRERP Volume 6 or as a separate document, under the requirements of NUREG-0654, Rev. 1, Appendix 4, as a condition to full-power operation.

### C. ETEs for Massachusetts Communities

2.19. Implementing Procedure 2.5, Attachment 4, of the SPMC provides ETEs for Region 8 and Region 13, both of which include the Massachusetts EPZ communities. This table provides ETEs for ten scenarios (the same used for calculating ETEs in the NHRERP) and two keyhole configurations (Regions 8 and 13) of 5 and 10 miles, respectively, from Seabrook Station. The ten scenarios are defined in NHRERP Volume 6, in Table 10-1. Combinations of the factors that define the various scenarios are readily determinable and produce conditions that can influence the ETEs.

2.20. Under Contention JI-1, the Attorney General would have us find fault with the Applicants for not having segregated ETEs for Massachusetts communities from those including New Hampshire communities. MAG PF 2.1.14.L-M. He strenuously argues that the Applicants' current set of SPMC ETEs, a set of ETEs contained in a table labeled "Estimated Evacuation Times for the Massachusetts Communities," are not ETEs for the Massachusetts communities at all, but rather, he says, times listed in the table are the times for evacuation of the *New Hampshire* communities which are contained in Regions 8 and 13 and not the Massachusetts communities in those regions. MAG PF 2.1.14.M. This is the case, he says, because the ETE for any region is defined as the time it takes the last car out to leave the area evacuated, and as it turned out in the IDYNEV runs used to produce the SPMC ETE table, the New Hampshire communities in Regions 8 and 13 produced the last car out of those regions.

2.21. Mr. Lieberman explained that, in the IDYNEV runs that generated the SPMC ETEs, it is generally true that the "critical paths" for evacuation are in New Hampshire. Tr. 26,702, 26,706-07. The Applicants have admitted that the ETEs to be used by Massachusetts decisionmakers in Appendix 4 to IP 2.5, do not "split out evacuation time estimates for the Massachusetts communities versus the region as a whole." Tr. 26,714-15.

2.22. The Attorney General argues for segregated ETEs because, he alleges:

There is ample reason to believe that Massachusetts decisionmakers would want to have [segregated] information, cf. Tr. 26707 (Massachusetts decisionmakers are interested in making the proper decision as to a PAR for Massachusetts communities), and there is no reasonable assurance that they would *not* want to have the ETEs for just the Massachusetts EPZ communities.

MAG PF 2.1.14.M (emphasis in original). The Attorney General also states that the Applicants failed to offer any proof to indicate that Massachusetts officials did not want segregated ETEs presented in the final ETE tables prepared for Massachusetts decisionmakers. He argues that the "burden is theirs" to prove different in the face of "compelling logic to the contrary." MAG PF 2.1.14.N.

2.23. The Attorney General has incorrectly labeled the ETEs for Regions 8 and 13 as ETEs for New Hampshire communities rather than for Massachusetts communities located within the EPZ. In fact, the ETEs presented in the SPMC are for the entire region under study, including both Massachusetts and New Hampshire areas, based upon their proximity to the Seabrook Station. We find this regional approach to be acceptable, given: (1) the reality that traffic flowing through these areas cannot be segregated temporally according to political boundaries (Tr. 26,716); (2) the fact that New Hampshire coastal areas are closer to the plant than are the Massachusetts communities and will be generating sizeable traffic flows before or as soon as an order to evacuate (OTE) is issued in Massachusetts (Tr. 28,232-33, 28,237-38); and (3) that NUREG-0654 calls for integrated emergency planning between contiguous political jurisdictions (NUREG-0654, at 19, 23-24).

2.24. We are unpersuaded by the Attorney General's statement that "there is ample reason to believe that Massachusetts decisionmakers would want to have [ETEs for Massachusetts alone]" because these are the words of the Attorney General himself — not the words of any witness. *See* Tr. 26,707. His citation to Transcript pages 26,706-07 does absolutely nothing to advance his allegation. Moreover, the argument that the Applicants have some burden to prove otherwise simply lacks credence. There remains neither record support for the proposition that Massachusetts emergency planning officials<sup>6</sup> want Massachusetts-specific ETEs, nor any regulatory support that such ETEs are required.

2.25. The Applicants have convinced the Board in both their prefiled testimony and in cross-examination that they have adequately presented scenarios containing revised ETEs upon which Massachusetts officials can appropriately make protective action recommendations. It is not possible or prudent to attempt to analyze in advance every situation that could possibly occur during an emergency evacuation. Appl. Reb. No. 16, *supra*, at 48-49; Urbanik Dir., ff. Tr. 27,150, at 7-8. The Applicants have provided an understanding of the sensitivity of the ETEs to a variety of conditions, consistent with the guidance

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<sup>6</sup>Throughout the course of this litigation, the Attorney General has avoided calling to the stand any emergency planning experts working for the Massachusetts Civil Defense Agency who could attest to allegations made with respect to the adequacy of the SPMC. He has chosen, instead, to use expert witnesses working outside of the Commonwealth's structure. The Applicants find a fair inference from this approach to be "that the technically competent employees of MCDA would testify contrary to the position taken by the Governor." Applicants' Response to Proposed Findings and Rulings of Other Parties — Reply to TON PF 4.1.11, at 35.

of NUREG-0654, Appendix 4, and there is no need for any further enumeration of potential evacuation scenarios. Urbanik Dir., ff. Tr. 27,150, at 7-8.

2.26. In particular, the Board finds that the number of ETEs generated, and the regions and scenarios for which they are generated, are sufficient and correctly limited to a reasonable number so as to be usable by a decisionmaker fairly quickly and not be overly cumbersome. Tr. 26,707-08, 26,714-15; Urbanik Dir., *supra*, at 7-8. It is unrealistic to postulate an evacuation where Massachusetts communities would be evacuated and where New Hampshire communities closer to Seabrook would not. Individual ETEs for each of the Massachusetts communities would not enhance what must prove to be a coordinated effort to protect the citizens of the whole of the EPZ.

#### D. Unrealistic ETEs

2.27. The second ETE-related contention (JI-2) asserts that the ETEs contained in the SPMC ETE table are “too unrealistic to form the basis of adequate protective action decision-making.” Contentions Memo. (JI-2), at 2-3. MAG PF 2.1.14.P. The Attorney General argues that many of the inputs and assumptions used by the Applicants to produce the Region 8 and Region 13 ETEs reported are not accurate, and that *collectively*, the combined effect of these inaccuracies is such as to preclude a finding that there is reasonable assurance that the ETEs meet the NRC’s requisite standard of realism. MAG PF 2.1.14.Q, *citing* LBP-88-32, *supra*, 28 NRC at 777-78.

##### (I) Margin of Error

2.28. The Attorney General lays the foundation for his “collective inaccuracies” argument by citing a statement by Mr. Callendrello to support the proposition that a difference in an ETE as small as 1.5 hours could affect the choice of a protective action recommendation. MAG PF 2.1.14.S, *citing* Tr. 26,934. He also quotes Dr. Urbanik to support a second proposition that ETEs should “generally be accurate within 10%.” MAG PF 2.1.14.S, *citing* Tr. 7549-50. The Attorney General argues that on the basis of these statements, the reasonable assurance standard requires that ETEs be *more* accurate than within 1.5 hours, and summarizes his argument by urging the Board to find that, to provide reasonable assurance that a proper PAR will be selected, the SPMC ETEs must be found to be accurate to “within about 1 hour.” MAG PF 2.1.14.U.

2.29. We first note that the Attorney General’s citations are misleading. When the Attorney General asked Mr. Callendrello whether it makes a difference if (for the purposes of PAR decisionmaking) an ETE is an hour and a half or 2 hours off for many scenarios, Mr. Callendrello answered:

In some scenarios it could affect the choice of protective action recommendations. I think those are very few in number.

....

. . . I think there are very few scenarios that that difference in evacuation times would affect the outcome in choice of a protective action recommendation.

Tr. 26,933-34. Dr. Urbanik's statement is similarly distorted. His statement was made in reference to ETE modeling, not PAR decisionmaking. Moreover, he later clarified the 10% margin of error statement as being "in the neighborhood of 10%" (Tr. 7460) and went on to describe a standard for evaluating ETE accuracy (*see* Tr. 7460-61, 7462-63) which is more in line with our findings in the NHRERP Partial Initial Decision (*see* LBP-88-32, *supra*, 28 NRC at 776-77), establishing the appropriate standards for measuring ETE accuracy.

## (2) *Beach Population Figures*

### (a) *Vehicle Distribution*

2.30. The Attorney General alleges that the SPMC ETEs are premised on an underestimate of the maximum number of vehicles that would originate in the Massachusetts beach areas.<sup>7</sup> MAG PF 2.1.15.B.

2.31. Dr. Adler's prefiled testimony criticized the original ETEs found in IP 2.5, Attachment 4, because they were based on beach population estimates derived from the Applicants' 1987 vehicle counts (done by Avis Airmap) which totaled only 29,293, almost 2,000 fewer vehicles than were found to be the representative peak in the NHRERP Partial Initial Decision (31,000). *See* LBP-88-32, *supra*, 28 NRC at 801.

2.32. After the Intervenors submitted Dr. Adler's testimony, the Applicants filed rebuttal testimony which presented a revised set of ETEs. Appl. Reb. No. 16, ff. Tr. 26,681, at 3 and Attach. D. The total number of beach vehicles accounted for in these ETEs was 30,733. *Id.* at 15. Applicants arrived at this number by taking the number from their Avis count (29,293) and adding to it the vehicles (observed in the Avis photos) which were traveling on the roads in the beach areas at the time the photos were taken (14:40). *Id.* at 14-15. The Attorney General subsequently shifted the focus of his criticisms onto this revised set of ETEs.

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<sup>7</sup>The Attorney General's assertion does not challenge the finding we made in our NHRERP decision that 31,000 beach area vehicles is an appropriate number to use in an ETE study for those occasions when the beach areas are experiencing reasonably expectable peak occupancy. *See* LBP-88-32, *supra*, 28 NRC at 801. That figure — 31,000 vehicles — was a combined total for the EPZ beach areas in both New Hampshire and Massachusetts. However, in that decision, we did not make a finding of how many of the 31,000 vehicles should be allocated to New Hampshire or Massachusetts beaches.

2.33. The Attorney General first argues that Applicants have not abided by our findings in LBP-88-32, which called for the use of 31,000 vehicles as the vehicle count for the EPZ beaches on a representative peak summer weekend day (the Applicants are using 267 vehicles less in their calculations). Although the Attorney General says this discrepancy "is a small point," he would have us order the Applicants to use the 31,000 figure in any revisions to the ETEs and urges us not to ignore this matter.<sup>8</sup> MAG PF 2.1.15.E.

2.34. In a more credible argument, Dr. Adler criticizes the SPMC ETEs because, he states, they were calculated using a *distribution* of beach vehicles which underrepresents the vehicle population at Salisbury Beach according to aerial photographs taken on other occasions. MAG PF 2.1.15.C, *citing* Adler Dir., ff. Tr. 26,482, at 16. The Applicants have stated that the distribution of beach vehicles used in these ETEs is that which they captured on their Avis photos from June 18, 1987. Appl. Reb. No. 16, *supra*, at 13-15. Therefore, the Attorney General argues, Dr. Adler's criticism of the use of the Avis distribution is just as relevant to these revised ETEs as it was to his criticisms of the ETEs in IP 2.5, *citing* Adler Dir., *supra*, at 16-17. MAG PF 2.1.15.F.

2.35. The Attorney General builds his distribution argument in a series of complex proposed findings stating the following: First, the Applicants used 9470 beach vehicles (30% of the total beach vehicle count) in the Scenario 1 and 2 ETE runs to represent the vehicles in Salisbury Beach and Plum Island, respectively — 6272 vehicles in Salisbury Beach (20% of the total) and 3198 vehicles on Plum Island (10% of the total). MAG PF 2.1.15.G. Second, the Attorney General's panel (Befort, High, and Adler) testified that aerial photos proved 30% of the total beach vehicles to be situated in Salisbury Beach on a representative peak summer day, *citing* Befort, High, and Adler, ff. Tr. 6849, at 17; Adler Dir., *supra*, at 16. Moreover, he states that Salisbury Beach parking capacity is 32% of the EPZ beach total and that KLD's parked vehicle count based on 1985 overflights showed 32% of the total counted vehicles to be in Salisbury Beach, *citing* Adler Dir., *supra*, at 16. MAG PF 2.1.15.I. Third, Dr. High testified that having reviewed the aerial photo evidence available, it was his opinion that on days that best represent reasonably expectable peak occupancy (*see* LBP-88-32, *supra*, 28 NRC at 801), 40% of the total number of vehicles in the EPZ's beach areas would be in Massachusetts (at Salisbury Beach or on Plum Island). MAG PF 2.1.15.J, *citing* High Dir., ff. Tr. 27,974, at 5-6; Tr. 27,994-28,003. And finally, he argues that Dr. High's expert testimony fully supports Dr. Adler's conclusion that 30% of the 31,000 beach area vehicles should have been assigned to Salisbury Beach in conducting the Scenario 1 and

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<sup>8</sup> We also view this as a "small point," find it close enough to the 31,000 figure, and will not address this issue further.

2 ETE analyses and 10% should be allocated to the remaining Massachusetts EPZ beaches (on Plum Island). MAG PF 2.1.15.L.

2.36. The Attorney General also argues that when Mr. Lieberman did his sensitivity run (found in Attachment D to Appl. Reb. No. 16, *supra*), he "added" vehicles to Salisbury Beach, but he did not subtract an equal number from the New Hampshire beaches. MAG PF 2.1.15.N, *citing* Tr. 26,825. He concludes that before the Board can have any confidence that the SPMC ETEs are realistic, the ETEs must be redone such that 30% of the 31,000 total beach vehicles are allocated to Salisbury Beach. MAG PF 2.1.15.P.

2.37. We do not find the Attorney General's analysis to be helpful in the underlying decision we must make — whether the Applicants' ETEs are adequate for reasonable protective action decisionmaking for the EPZ as a whole. A 10% variation in the vehicle count for one beach community — when the total vehicle count for the EPZ remains static — is of little consequence to this task. The total beach vehicle count remains the same in the Applicants' ETE calculations for the SPMC — slightly less than 31,000 vehicles — regardless of where they are distributed in the EPZ beach communities. While a shift of 10% of those vehicles to Salisbury Beach may lengthen the ETE for Salisbury Beach, it must by necessity decrease an ETE for an EPZ beach area outside of Salisbury Beach. Furthermore, the Applicants conducted a sensitivity run that utilized a population figure 20% above the original ETE assumption for Salisbury Beach. They demonstrated that while the ETE in Massachusetts increased somewhat, it remained below the ETE for the EPZ. The insensitivity of ETE is due to the fact that the critical paths that control the ETE for Regions 8 and 13 are all in New Hampshire and are unaffected by changes in the Salisbury Beach population. Appl. Reb. No. 16, *supra*, at 13-14.

2.38. Dr. High's estimate that 40% of the beach vehicles are in the Massachusetts portion of the EPZ resulted from selective use of available data (*see* Tr. 28,001-02), and we find his testimony to be of little value.

2.39. While the Attorney General asserts that other aerial photographs, other than those relied upon by the Applicants, showed a higher percentage of vehicles in Salisbury Beach, it is undisputed that the distribution of beach vehicles varies from day to day and from hour to hour. *See* Tr. 26,824, 27,996-28,000, 28,004. Furthermore, the Attorney General's assertion that 30% of beach area vehicles should be assumed to be located in Salisbury Beach is inconsistent with lower percentages of vehicle distribution which were observed in his own aerial photographs (*see* Tr. 27,996-28,004), a point he does not make in his sponsored testimony.

2.40. The Board finds no error in the Applicants' use of their aerial photographs (used by this Board in its NHRERP decision to estimate the total beach population) to estimate beach vehicle distribution.

2.41. For the purposes of a *coordinated* planning effort, the beach population figures used by KLD to establish the revised ETEs are adequate for the purpose of allowing reasonable and prudent protective action decisionmaking for the Massachusetts and New Hampshire EPZ beach areas. Daily and slightly different distributions of vehicles in the beach communities do not affect the ETE for the EPZ.

(b) *Permanent Residents*

2.42. The Attorney General focuses his next argument on the permanent resident population figures used by the Applicants in their IDYNEV runs. He argues that we should find the Applicants' IDYNEV data inputs to have underestimated the permanent resident population for the Massachusetts communities in the EPZ. MAG PF 2.1.15.Q.

2.43. The Attorney General asserts and the Applicants admit that the permanent resident population estimates contained in the SPMC, § 3, Table 3.6.1, are derived from numbers from Volume 6 of the NHRERP. Appl. Reb. No. 16, *supra*, at 12. These same permanent resident population data were used by Mr. Lieberman in early 1989 to produce the Applicants' most recent set of ETEs for the SPMC (the set attached as Attachment D to Appl. Reb. No. 16). *Id.* at 12-13; Tr. 26,799-801.

2.44. The Attorney General alleges three problems with Applicants' population data. First, Mr. Callendrello admitted that at the time Mr. Lieberman was doing the IDYNEV runs that generated the Applicants' most recent set of ETEs for the SPMC (those contained in Attachment D to Appl. Reb. No. 16, *supra*), he (Mr. Callendrello) had in his possession updated (1987) population data (MAG Exh. 121) for the Massachusetts EPZ communities but did not ask Mr. Lieberman to use this updated data. See Tr. 26,800. The Attorney General asserts that from 1986 to 1987 the population increased in five of the six Massachusetts communities and that for two towns, Newbury and Newburyport, the increases were 7% and 11%, respectively, comparing SPMC, Table 3.6-1 (1986 population data) with MAG Exh. 121 (1987 data).<sup>9</sup> MAG PF 2.1.15.S.

2.45. It is not disputed that Mr. Lieberman used Volume 6 population figures for calculating the SPMC ETEs even though Mr. Callendrello had obtained more current data from various town clerks. Tr. 26,799-800. However, he did not use the Volume 6 population figures frozen in time. Mr. Lieberman extrapolated forward to account for population growth and used those figures in the ETEs for the SPMC. *Id.* We found his methods to be adequate when we ruled on the adequacy of the ETEs in the New Hampshire portion of this

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<sup>9</sup> We note the lack of closure in the Attorney General's argument. He has avoided demonstrating the effects, if any, the changes in population figures between 1986 and 1987 may have had on the ETEs for the SPMC.

proceeding and we have no need to revisit the issue here. We therefore have no reason to believe that Mr. Lieberman's calculations depart in accuracy from the population increases the Attorney General cites.

2.46. The most important point with respect to permanent population figures is ignored by the Attorney General — Mr. Callendrello's statement that more current population figures will be incorporated in the plan during the next annual review of the SPMC. Tr. 26,800-01. Mr. Callendrello stated that as of June 21, 1989, no annual review for 1989 had yet been done. Tr. 26,801. We expect that review to take place before the year is out. The Attorney General's argument therefore becomes moot if more recent population figures are taken into consideration when the Applicants next assess the need to revise ETEs in their annual review of the plan.

2.47. The Attorney General's second population allegation focuses on the manner in which the Applicants intend to obtain the population data they will use to update ETEs in the future. The Applicants propose not to use town clerk data, but will use data to be obtained from the Massachusetts Institute for Social and Economic Research ("MISER"), which is under contract with the Commonwealth of Massachusetts to provide "projections" of population within the state on a town-by-town basis. MAG PF 2.1.15.T, *citing* Tr. 26,802. The Attorney General implies in his argument that the Applicants would not be using the best available data since town clerk data would be available. He asserts that the use of "projections" in the ETE process is precluded by the doctrine of *res judicata*, due to a finding in LBP-88-32, which, he argues, had implicitly held that the use of town clerk data was superior to population "projections," *citing* Tr. 24,395-97. That finding rejected the methodology used by Intervenors' witness Luloff to project population figures for the NHRERP ETEs. The Attorney General argues that we must reject the Applicants' plans to use MISER projections on the basis of that finding. MAG PF 2.1.15.T.

2.48. The argument simply fails to be germane to the task before the Board. Moreover, we do not find anything in Contention JI-2, Basis B or E, or in Contention JI-21, or any other contention filed with the Board that claims the SPMC is defective due to the Applicants' future reliance on MISER projections, or any population projections for that matter.

2.49. The *res judicata* argument the Attorney General raises is irrelevant. The Board rejected Dr. Luloff's projection methodology, not projection methodology as a whole. The record is void of any evidence that Dr. Luloff's and MISER's projection methodologies are even slightly similar, or that MISER population figures would be less accurate than those produced by town clerks.

2.50. At present, the Applicants' plan is to wait until the annual update to revise the ETEs in light of changes in the permanent resident population. See Appl. Reb. No. 16, *supra*, at 13. The Applicants state that after examining the "latest population figures" they will make a "determination . . . whether to

revise the ETEs." *Id.* Here the Attorney General is concerned that no guidance is given regarding *how* this determination is to be made. He alleges that these data will be looked at in isolation and a judgment made whether the population changes *by themselves* will cause any significant changes in ETEs. If not, the Attorney General asserts, the population inputs in IDYNEV's input stream will apparently be left as is. He returns to his underlying argument and alleges that the question at an annual update ought to be whether the ETE changes caused by the *combined* effects of all the data changes have any significant impact on any of the ETEs in the table. He states that electing not to change any particular input because that change *alone* is unlikely to impact the ETEs significantly may well result in not making a whole series of input changes which *collectively* do significantly impact the ETEs. MAG PF 2.1.15.U.

2.51. This argument suffers from the same infirmities as its predecessor. It simply has nothing to do with the SPMC ETEs which are currently in litigation, and there is no contention giving rise to the issue.

### (3) *Vehicle Flow*

#### (a) *Late Staffing*

2.52. The Attorney General next attacks the assumptions on which the vehicles flowing into Salisbury Beach from Seabrook Beach were modeled in the Applicants' latest set of ETEs (those in Attachment D to Appl. Reb. No. 16, *supra*). In calculating their latest set of ETEs, the turn movements at Traffic Control Points (TCPs) were explicitly modeled using the Traffic Assignment and Distribution ("TRAD") model of the IDYNEV system. Appl. Reb. No. 16, *supra*, at 31. The modeling was done in such a way as to reflect the late staffing of the traffic control posts by the Traffic Guides. *See id.* at 36-43. As a result, at TCP B-SA-09 (SPMC Appendix J, at J-92; Appendix A hereto), the key intersection of Route 286 and Route 1A through which Seabrook Beach traffic passes before flowing into Massachusetts, the southbound vehicles traveling on Route 1A out of Seabrook Beach are modeled in two stages: (1) *before* Traffic Guides arrive, and (2) *after* Traffic Guides arrive. *See Tr. 26,915.* When Traffic Guides were absent, 43% of the vehicles were modeled to travel straight through the intersection into Salisbury, and 57% were modeled to turn right onto Route 286. *Id.* When Traffic Guides were present, the TRAD model sent 19% through and 81% right. *Id.* The Attorney General alleges that one critical assumption was not explained by the Applicants — how long the "without guide" stage lasted at this intersection before Traffic Guides were assumed to arrive.

2.53. We know that in calculating the most recent ETEs the staffing times assumed for the Massachusetts TCPs were those achieved in the June 1988 Graded Exercise. *See Tr. 26,965.* Those staffing times are set forth in MAG

Exh. 57. At TCP B-SA-09 (Appendix A hereto), the ORO guide arrived at 14:42, which meant that (subtracting the 25-minute additional driving time to Haverhill, which would not occur in a real emergency) it took this guide (176-25) 151 minutes, i.e., 2.5 hours, to reach this post. The Attorney General correctly points out, however, that this ORO guide (labeled "Salisbury Town Guide" on the TCP diagram for B-SA-09, *see* Appendix A hereto) is only one of two Traffic Guides assigned to this TCP. The other (labeled "Seabrook Town Guide") is the one who primarily regulates the flow of Seabrook Beach traffic into Salisbury Beach. *See* NHRERP, Vol. 6, at I-13 (where this same TCP appears but is labeled A-SE-06).

2.54. As we learned in the NHRERP proceeding, confirmed by Mr. Callendrello (Tr. 27,015-16), the Seabrook town police are participating in planning and will be staffing the TCPs in Seabrook. The Attorney General argues that because the local police are staffing this key point at TCP B-SA-09 which regulates the flow of New Hampshire vehicles into Massachusetts, the "with guide" phase for this TCP may actually occur well before the ORO guide arrives. Mr. Callendrello noted that this position is the very first point the Seabrook police would staff (Tr. 27,016) so there is every reason to believe that it will be staffed promptly — perhaps within minutes — in the event of an emergency at Seabrook Station.

2.55. The Attorney General argues that if Mr. Lieberman has computer modeled the "with" staffing phase to begin at a point that coincides with the arrival of the ORO Traffic Guide, instead of the Town Guide (Seabrook town police), he may have modeled the "without guide" turn percentages for over 2 hours too long. Thus, the Attorney General argues, that on the record before us, the Board cannot make the finding proposed by the Applicants that they have "explained, in detail, [all] the assumptions which had been utilized in modeling the vehicles that will travel southbound on Route 1A from Seabrook Beach into Salisbury Beach." *See* Appl. PF 2.1.16.

2.56. We have testimony from the Applicants that the effects of the "without" staffing phase of the TRAD model (which allows more evacuees to enter Salisbury Beach from Seabrook Beach) is that the absence of Traffic Guides acts to shift vehicles from the critical paths in New Hampshire to other paths that exhibit lower ETEs, but that this, in itself, does not have more than an insignificant effect on the ETE for the Massachusetts communities in the scenarios modeled. *See* Appl. Reb. No. 16, *supra*, at 46. We fail to see the merit in the Attorney General's argument in light of the fact that there is no relative difference between the ETEs when the TCPs are staffed either early in

the evacuation or in a delayed sequence.<sup>10</sup> Moreover, without explicitly doing so, he raises the issue of uncertainty with respect to what actions the Seabrook town police will take when they arrive at the intersection.

2.57. The Attorney General recognizes that the Seabrook town police are cooperating with the Applicants in emergency planning. Moreover, there is simply no allegation by him that the town police would fail to follow the staffing directions found in the SPMC Traffic Management Plan regardless of when they physically locate themselves at the intersection. The description of the Traffic Guide's duty (the "Seabrook Town Guide" being staffed by the town police) is:

Facilitate traffic movement from Route 1A south to westbound Route 286. If Route 286 becomes congested send traffic south on Route 1A. When Route 286 congestion clears up revert to guiding traffic onto westbound Route 286. Movement onto Route 286 is preferred: However, keep traffic moving out of Seabrook Beach even if Route 286 is congested.

SPMC Appendix J, at J-92. It takes little stretch of the imagination to recognize that congestion on Route 286 would be at its peak during the first 2 hours of the evacuation. Since the immediate function of the town police Traffic Guide at TCP B-SA-09 is the easing of traffic congestion, and not the strict rerouting of traffic flow, the Attorney General has not demonstrated a meaningful inconsistency between what the Traffic Guide is expected to do at this intersection, according to the SPMC, when he arrives (even though it could be within minutes of the OTE) and the "before staffing" modeling of the intersection when 43% of the southbound traffic traveled straight through the intersection for 2 hours.

#### (b) Turn Percentages

2.58. The Attorney General next focuses his attention on the vehicle turn percentages yielded by the TRAD model at TCP intersections. The Applicants stated that the TRAD model "yields" the turn percentages it does because the model optimizes the routings, using equilibrium principles, to produce the lowest possible ETEs. Appl. Reb. No. 16, *supra*, at 39 (Step 6) and 41 (Step 11); Tr. 26,730-31, 26,970. Applicants' witness Lieberman stated that the underlying assumption for using this optimization approach "is that people will

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<sup>10</sup> The Attorney General's second TCP concern is similar and focuses on the model input that controls the total number of vehicles in Salisbury Beach. He asserts that this total is affected by the assumption made about the number of vehicles flowing into Seabrook Beach from Hampton Beach, *citing* Appl. Reb. No. 16, ff. Tr. 26,681, at 46 (item 4). MAG PF 2.1.16.E. The Attorney General asserts that since Seabrook town police would also quickly man TCP A-SE-05 at the south end of the Hampton Harbor Bridge and turn back cars traveling southward on Route 1A, fewer cars than were assumed by the model would be traveling south along Route 1A into the Seabrook and Salisbury beaches in the before-guide stage. However, the record shows that immediate staffing of TCP A-SE-05 by Seabrook Police would not have the effect of increasing the ETE, and the Attorney General has admitted as much. Tr. 27,017.

try to minimize their travel time from origin to destination" because they have a "primary objective of leaving the area as rapidly as possible." Tr. 26,731.

2.59. The Attorney General argues that at the intersection of Route 286 and Route 1A (and at other locations) the optimum routings (reflected in the turn percentages) yielded by the TRAD model, which result in the lowest possible ETE for any volume of vehicles, are not *realistic* routings "in light of the Board's previous rulings on driver behavior." MAG PF 2.1.16.G. He points out that in the NHRERP proceeding it was the Intervenors, not the Applicants, who were arguing that evacuating drivers, upon arriving at an intersection, would always seek to take the route that allowed them to distance themselves quickest from Seabrook Station.<sup>11</sup> *Id.*, citing Tr. 5681, 5760-63, 6221, 6259-63. The Attorney General alleges that the Board rejected this position in the NHRERP proceedings and agreed, instead, with the Applicants' witness that *many factors* will influence driver routing decisions other than putting distance quickly between oneself and Seabrook Station. See Tr. 6260-63; LBP-88-32, *supra*, 28 NRC at 746-47.

2.60. More succinctly, the Attorney General now argues that since we rejected Dr. Luloff's premise that evacuees would abandon specified evacuation routes for *any escape route that seemed open*, we should therefore reject the TRAD equilibrium assumptions since Mr. Lieberman has linked those assumptions with the overriding motivation of evacuees to leave the area at risk as quickly as possible. MAG PF 2.1.16.H. He then leaps somehow, though not explained, to the conclusion that the turn percentages yielded for the TCP at Route 286 and Route 1A, or any other intersection, will not bear any semblance to reality. *Id.* He further asserts, rather cryptically, that since the Applicants' EBS messages used in the 1988 Exercises told evacuees to go to their respective reception centers for monitoring, the evacuees would not be motivated to use the routes that help them leave the area at risk as quickly as possible. MAG PF 2.1.16.G. The Attorney General then concludes his argument by stating that the record shows that:

[T]here is too much uncertainty . . . . [The Board] therefore cannot find reasonable assurance, that the vehicles which will travel southbound on Route 1A from Seabrook Beach into Salisbury Beach have been properly modeled.

#### MAG PF 2.1.16.I.

2.61. The answer to the Attorney General's concern is, as we interpret his rather confusing argument, easily discerned. Mr. Lieberman addressed this issue in cross-examination. Once he had explained that the TRAD equilibrium

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<sup>11</sup> However, there, the argument was that because so many intersections presented open, available roads that drivers would *perceive* to be better routes to distance themselves quickly from Seabrook, 100% adherence to the designated evacuation routes should not be assumed in calculating the ETEs. Here we are focusing on the evacuees' desire to distance themselves from the Seabrook Station following planned evacuation routes.

conditions "do, in fact, represent . . . the underlying assumption . . . that people will try to minimize their travel time from origin to destination" (Tr. 26,731), he was asked whether the TRAD assumption fails to take into consideration an intention of the evacuees to travel to a particular reception center. He answered:

The basis is that, consistent with their primary objective of leaving the area as rapidly as possible assumes that they will select their destination points on the periphery of the network and their respective paths to these destination points to satisfy that objective of leaving the area as quickly as possible.

*Id.* Stated differently, distancing oneself from danger as quickly as possible is not inconsistent with *following planned evacuation routes* designed as the best routes for evacuation, which may just carry with them the opportunity to reach a reception center of choice. Furthermore, the Attorney General's attempt to focus on Dr. Miletí's comments carries little weight here, since those comments were in reference to the issue of evacuees disregarding the planned evacuation routes in favor of *any route available*.<sup>12</sup> The Attorney General has simply failed to explain his position clearly enough for us to reach any other conclusion.

#### (4) *Confusing EBS Messages*

2.62. Intervenors' Contention JI-2, Basis C, asserts that the SPMC ETEs fail to account for the delays that will result from the confusion caused by hearing different emergency messages from different sources. The Attorney General addresses this allegation in MAG PF 2.1.17.A with a solitary citation which, we are left to infer, should somehow establish for the Board that confusing EBS messages will exist at the time of an emergency at Seabrook Station. That cite is simply: "See Carter Dir., ff. Tr. 27,546." MAG PF 2.1.17.B.

2.63. The Attorney General's witness, Dr. T. Michael Carter, testified about alleged differences between the New Hampshire and Massachusetts emergency messages during the graded exercise, and of other perceived problems with the individual messages themselves. See Carter Dir., ff. Tr. 27,546, *passim*. The Attorney General asks the Board to conclude that some measure of confusion will likely be generated among evacuees upon hearing emergency messages from the ORO, the State of New Hampshire, and perhaps other sources. MAG PF 2.1.17.B.

2.64. Our finding with regard to the adequacy of the EBS messages has been set forth in Section 7, *infra*. Since we have found the Applicants'

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<sup>12</sup> We find the same reasoning to be applicable to the Attorney General's arguments regarding turn percentages at B-AM-06. His assertion that all drivers will take I-95 because it presents the most attractive route for leaving the Seabrook EPZ, and because EBS messages have directed evacuees seeking monitoring to go to the Beverly Reception Center, disregards other considerations. See Finding 3.59, *infra*.

coordinated notification system to be adequate, we therefore need not address the issue here.

2.65. However, we do note that the Applicants have conducted sensitivity runs to address the issue of conflicting EBS messages in the abstract. Even if arguable limits of confusion cause the evacuee *mobilization process* to be somewhat slower than estimated in the ETE analyses (*see* NHRERP, Vol. 6, § 4), the Applicants have conducted sensitivity runs using the IDYNEV model with the original NHRERP inputs to evaluate whether ETEs would be affected. Appl. Reb. No. 16, *supra*, at 32. The results were that while there are some limited differences in the internal distribution of evacuation time, there is no overall impact on the ETE. *Id.*; Appl. PF 2.1.17. Furthermore, we find that limiting the mobilization delay in the Applicants' sensitivity runs to 40 minutes adequately encompasses what reasonable delay may be caused by individual interpretations of EBS messages on the part of the general public. The Attorney General fails to offer any evidence as to why this time allowance would be unreasonable.

#### (5) *ETE Planning Basis*

2.66. The Attorney General next challenges the relevance of the planning basis used to compute the SPMC ETEs. *See Contentions Memo.* at 3 (JI-2 Basis G). He asserts that while it may be reasonable to use a rapidly developing accident as a planning basis in calculating ETEs, the specific planning basis used here for that rapidly developing accident consists of an extremely unlikely set of circumstances that results in ETEs that are not sufficiently "realistic," in light of significant differences in beach closing and alerting plans between the NHRERP and the SPMC. *Id.*

2.67. The NHRERP advises New Hampshire beach closing at the Alert level in the summer months if one condition is met — the plant is in a degrading condition. Tr. 26,918; LBP-88-32, *supra*, 28 NRC at 753-54. The SPMC advises beach closure at the Site Area Emergency (SAE) level. Tr. 26,919; SPMC 3.6.1.E and IP 2.5, 5.2.1.

2.68. The Attorney General first points out that in order for Massachusetts and New Hampshire decisionmakers to simultaneously reach the decision to call for a beach closing for their respective beaches, one needs not only a near-simultaneous Alert and Site Area Emergency, but, in addition, the ORO decisionmakers must also find yet another more limited set of conditions to exist (that the plant is in a degrading condition) before they satisfy themselves that a beach closing is warranted and decide to recommend it. MAG PF 2.1.18.H.

2.69. Next the Attorney General argues that even without considering these additional conditions that will need to exist for New Hampshire officials to close the beaches, the odds of the Alert level coinciding exactly with the SAE "are

extremely slim by comparison to all those other rapidly developing accident scenarios where the Alert is reached somewhat (10, 20, 45 minutes or more) before the SAE is declared." *Id.* He further asserts that when one factors in the additional limiting conditions that are needed to prompt ORO decisionmakers to close the beaches at the simultaneous Alert/SAE, the odds of having a simultaneous two-state beach closing become even longer. *Id.* Moreover, in that rare circumstance where New Hampshire and Massachusetts officials decided simultaneously to close their respective beaches at a simultaneous Alert/SAE, it is extremely unlikely that New Hampshire officials would wait for the SPMC VANS sirens to be dispatched, driven into place, and lifted before New Hampshire made a voice-mode beach closing announcement from its fixed sirens in the beach areas. *Id.*

2.70. For the reasons outlined above, the Attorney General argues, the ETEs fail to meet the *Zimmer* realism test for ETEs, *citing Cincinnati Gas & Electric Co.* (William H. Zimmer Nuclear Power Station, Unit 1), ALAB-727, 17 NRC 760, 770 (1983), and our finding in LBP-88-32, *supra*, 28 NRC at 777 (an ETE "should reflect realistic conditions so that it is of use to decisionmakers"). He concludes his argument by asking the Board to adopt the following standard:

As guidance for those engaged in future ETE efforts . . . a planning basis which posits the Massachusetts beach closing occurring as soon as 20 minutes after the New Hampshire beach closing is the soonest that we would find to be reasonably foreseeable, based on the NHRERP and SPMC as they now exist.

#### MAG PF 2.1.18.I.

2.71. The Applicants' testimony states that while the NHRERP and the SPMC provide for consideration of beach closings at the Alert and the Site Area Emergency levels, respectively, the ETE *planning basis scenario* (not the ETE itself) begins at the Site Area Emergency. The "Trip Generation Time Distribution for the beach areas has its origin point (*i.e.*, time zero) at the time of the announcement of the Site Area Emergency (assumed to be concurrent with the Alert level)." NHRERP, Vol. 6, at 4-17. Under this scenario, both the NHRERP and the SPMC would provide for consideration of beach closures at the initiation of the accident. Appl. Reb. No. 16, ff. Tr. 26,681, at 34.

2.72. The Applicants have chosen to present a planning scenario where the Site Area Emergency follows the Alert level almost immediately, if not concurrently. From that point, further accident escalation to a General Emergency occurs 15 minutes later. NHRERP, Vol. 6, at 4-1. The Attorney General's suggestion that a planning basis must be made precise (within 20 minutes of being exact) is both unrealistic and impractical. We simply do not read *Zimmer* to call for that much exacting accuracy in ETE estimates in the face of an almost unlimited range of accident and evacuation scenarios. Fast-breaking accidents

are bounded by uncertainty. The point is that the Applicants have accommodated the Attorney General's persistence in arguing from the extreme end of the spectrum of accident scenarios by modeling an *extremely* fast-breaking accident (the further in advance of an order to evacuate that the beach closings take place, the less effect transient beach traffic will have on the ETE), and now he says that is not enough.<sup>13</sup> Moreover, we are also unpersuaded by the Attorney General's argument because he has not provided any evidence of what effect, if any, a planning basis with 20 minutes (minimum) difference in discretionary beach closings would have on the SPMC ETEs or PARs.

2.73. The Attorney General also attacks the ETE planning basis because it assumes a simultaneous order to evacuate occurring in Massachusetts and New Hampshire at a point 25 minutes after the beach closings. He postulates that if the Applicants elect to use a planning basis that has a Massachusetts beach closing occurring 20 minutes after the New Hampshire beach closing, it does not appear reasonable to assume that Massachusetts can change the EBS message so quickly as to effectuate an order to evacuate a mere 5 minutes later. If an order to evacuate is to follow a beach closing in the planning basis, he argues, they should be separated by a sufficient period of time to select and run a separate EBS message. MAG PF 2.1.19.A.

2.74. Allegations that the ETE planning basis should account for hypothetical delays associated with the involvement of Massachusetts officials in the PAR development process are similarly without basis. The ETEs contained in the SPMC are referenced to the order to evacuate and do not include the times between notification or an order for "beach closure" and the order to evacuate; this was done because beach closure may precede an order to evacuate by hours and possibly days in a given situation. Thus, any small incremental time increase required for Massachusetts officials to make a PAR decision would delay the order to evacuate. It would not affect ETEs. Appl. Reb. No. 16, *supra*, at 35. See also Urbanik Dir., *supra*, at 5; Tr. 27,151-53. Furthermore, the record demonstrates that Massachusetts emergency planning officials had formerly accepted the planning basis the Attorney General now questions. Tr. 27,119-21.

#### **(6) Traffic Guide Efficiency**

2.75. The Attorney General next mounts a challenge to the adequacy of the Applicants' ETEs by asserting that: (1) because the cycle lengths assumed by the IDYNEV runs (i.e., intervals of competing traffic flow at specific locations)

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<sup>13</sup> We note that the Attorney General has consistently, throughout the whole course of this litigation, framed his arguments in terms of a fast-breaking accident at the extreme end of the spectrum of accident scenarios. In such an instance there indeed may be very little time for PAR decisionmaking. In those instances, there is sound reasoning for a PAR decisionmaking process unburdened by considerations bordering on minutia.

are not provided to the ORO Traffic Guides — there is no reasonable assurance that the Traffic Guides will not implement cycle lengths shorter than those assumed by IDYNEV and thereby reduce the efficiency of the traffic flow below that which was assumed in the ETE study (MAG PF 2.1.20.B); and (2) because apart from achieving an appropriate cycle length, the ORO's nonprofessional Traffic Guides are unlikely to be able to direct traffic as efficiently as the ETE model assumes (i.e., with the same degree of efficiency as achieved by the New Hampshire state and local police). MAG PF 2.1.20.C, *citing* Adler Dir., *supra*, at 14-15.

2.76. Our findings with regard to the adequacy of the training of the ORO Traffic Guides have been set forth in Section 5, *infra*, and need not be addressed here. Also, we note a failure of closure in the Attorney General's allegation. We have no record evidence establishing that Traffic Guides will be incapable of directing competing traffic flows within the interval range modeled in Mr. Lieberman's IDYNEV runs. Moreover, Dr. Adler's testimony to the effect that the ORO training is not sufficient is not the testimony of an expert in that field (*see* Tr. 26,302-05), and the Attorney General's heavy reliance on his testimony in his proposed findings is therefore misplaced.

#### (7) *Through-Traffic Assumptions*

2.77. The Attorney General next asserts that since the SPMC does not call for the staffing of Access Control Points for I-95 until 2 hours after the order to evacuate, the IDYNEV model has underestimated the amount of "through traffic" (traffic originating outside of the EPZ, traveling through the EPZ, and then exiting the EPZ) which must be factored into the ETEs. MAG PF 2.1.20.K.

2.78. The Applicants calculated their latest set of ETEs (those contained in Appl. Reb. No. 16, Appendix D) using 4400 vehicles per hour (each way) on I-95 for the first hour and 25 minutes following the order to evacuate. Appl. Reb. No. 16, *supra*, at 27; Tr. 26,960. The Attorney General contends, however, that this is not an adequate input change to model the realistic effects of the full extent of the additional "through traffic" that will likely occur. He argues, first, that loading 4400 vehicles per hour onto I-95 for only the first 1 hour and 25 minutes after the order to evacuate (and zero vehicles thereafter) does not model the "through traffic" long enough, since the current plan is not to staff the ACPs (to discourage movement into the EPZ) until approximately 2 hours after the order to evacuate.

2.79. The Applicants respond to this argument contending that a sensitivity run they conducted added another hour of entering traffic from both the north and the south along I-95, at a level of 2000 vehicles per hour, and demonstrated no impact on the ETEs. Appl. Reb. No. 16, *supra*, at 27. Mr. Lieberman explained

that the 2000 figure represents the remainder of the returning commuters with very little true "through traffic" included. Tr. 26,867-69.

2.80. The Attorney General, however, argues that this additional figure is too low given the amount of traffic that has been counted on I-95 on Fridays, Saturdays, and Sundays during the month of July. MAG PF 2.1.20.K, *citing* Adler Dir., ff. Tr. 26,482, at 19. He buttresses his argument by asserting that many of these through motorists would not be listening to their radios and would not know that they shouldn't enter the EPZ. *Id.*

2.81. Mr. Lieberman suggests, however, that the ETEs are not going to go up due to "through traffic" on I-95 unless the "through traffic" volumes plus the evacuating volumes exceed the capacity of I-95. Appl. Reb. No. 16, *supra*, at 27.

2.82. The Attorney General counters this statement by asserting that Dr. Adler found, in doing the sensitivity test he conducted, that ETEs increased because "traffic flow onto I-95 at key on-ramps was impeded" somewhat. Adler Dir., *supra*, at 20.

2.83. The Board finds that the Applicants' modeling of through-vehicles is both reasonable and realistic. First, the 4400-per-hour (each direction) figure used in the IDYNEV model was very close to the rate that Dr. Adler cited in his testimony (*id.* at 19) and is more than the 4000-vehicle-per-hour figure used by Dr. Adler in his own sensitivity runs (*id.* at 20). Second, there is nothing in the record to suggest that more than 2000 vehicles from each direction should have been modeled after 1 hour and 25 minutes had elapsed after the issuance of the order to evacuate. The Applicants focused on a weekday scenario assuming that the greatest influx of vehicles into the EPZ after an order to evacuate would be returning commuters. The majority of commuters will have begun their return home within the first hours of the evacuation during a weekday. The Attorney General relies on traffic figures from a weekend scenario. Third, it is reasonable to assume that noncommuter vehicles with radios will heed the advice not to enter the EPZ. There is no evidence in the record that noncommuter/nonradio vehicles would amount to a significant traffic volume trying to enter the EPZ. And fourth, we do not find convincing the Attorney General's citation to Dr. Adler's sensitivity runs which, he asserts, showed that even a flow of 4000 vehicles per hour will cause congestion at key on-ramps to I-95 and lengthen the ETEs by 1 hour. We have no confidence that Dr. Adler's sensitivity runs are truly comparative analyses of the effects of through traffic. See Findings 3.51-3.56, *infra*.

## E. Real-Time Monitoring System

2.84. The Attorney General next resurrects an argument from the New Hampshire hearings to the effect that the SPMC ETEs are insufficient to provide

decisionmakers with adequate information to ascertain appropriate PARs for the Massachusetts EPZ communities. MAG PF 2.1.22–23.J. He first complains that the SPMC’s two evacuation regions that contain Massachusetts communities are inadequate to ensure proper PAR selection. His argument is generally along the lines of a former argument that the Massachusetts communities should have segregated ETEs. *See* Tr. 26,713–14. We have rejected this approach (*supra* Findings 2.23–2.26) in favor of a regionally coordinated approach to PAR decisionmaking. The Applicants’ panel has offered an adequate explanation as to the use of the two-region approach. *See* Tr. 26,693–95, 26,697–98, 26,700, 26,707–10. The Attorney General fails to cite to any evidence to make his case that more regions and scenarios are needed for proper PAR decisionmaking.

2.85. The Attorney General’s core argument is that the SPMC ETEs are not sufficiently accurate unless some form of “real-time” ETE methodology is employed to monitor the size of the beach population, and to account for the substantial fluctuations in the beach population that occur from hour to hour and day to day. He asserts that without some way of measuring the exact beach population at a given time, the use of the SPMC ETE scenarios becomes too mechanistic. He points to differences in population at beaches on sunny/warm as compared to nonsunny/cool summer weekends and the difference between beach populations at 4:00 a.m. and at 2:00 p.m. on a sunny/warm Fourth of July. MAG PF 2.1.23.D. He argues that immediately current beach information would be more useful to PAR decisionmakers than having to match a scenario to current weather or time conditions (i.e., matching the scenarios to the estimated conditions). The Attorney General points to a statement by Mr. Callendrello, that as a PAR decisionmaker for the ORO, he would use the Scenario 1 ETE if an accident were to occur at 4 a.m. on the Fourth of July weekend. *Id.*, citing Tr. 27,080–81.

2.86. Dr. Adler testified that there is a full range of possible designs for such a “real-time” system, and he described some of the alternatives available in his testimony. Adler Dir., *supra*, at 26–29. One uses traffic counters arranged in a cordon (on the roads feeding the beach area) to monitor the “net vehicle accumulations” in the key beach areas. *See id.* at 26–27. For estimating the size of the fluctuating beach population, Dr. Adler has also suggested the use of an “indicator” system which could be statistically correlated with beach vehicle populations. *Id.* at 27–28.

2.87. The Applicants respond that a real-time computer-based system to collect traffic data may not be feasible, citing several problems with the implementation of such a system. Appl. Reb. No. 16, *supra*, at 53–58. They further argue that a real-time system may not be a significant improvement over the procedures that are currently used in the SPMC. *Id.* at 58–60.

2.88. The Board gave the Attorney General guidance as to the bounds of the litigation of Joint Intervenor Contention 3, which frames the Attorney

General's real-time system argument. In our Memorandum and Order admitting contentions, we stated that we found no regulatory requirement for a real-time monitoring system, but we said the Attorney General was "free to attack the adequacy of the SPMC and reliability of the ETEs" on the basis of the system. Memorandum and Order — Part I (Ruling on Contentions on the SPMC) (July 22, 1988) (unpublished), at 65-67. We also stated that with respect to the proposed real-time computer-based data-collection ETE-calculation system, the Attorney General had the burden of proceeding with evidence that such a system has material benefit and is practical. *Id.*

2.89. Here, the Attorney General has failed to demonstrate by substantial evidence on the record that the real-time monitoring system is both materially beneficial and practical. Dr. Adler's recitation of recommended ways to implement the system is of little use to the Board. He could not cite to a location where a similar system is being used in an area the size of the EPZ or in a situation of emergency planning for a nuclear station. Tr. 26,502-03. His belief that a system could be physically designed for the EPZ does not amount to proof that the system would be practical in its application. The Attorney General did not even attempt to offer further evidence of a similar application of such technology. We have uncontested statements by Mr. Lieberman that traffic control systems do not use input/output for data collection because the aggregation of errors make such data unreliable. See Tr. 27,085-90.

2.90. Staff witness Dr. Thomas Urbanik testified that, in his judgment, no further ETEs are necessary (Urbanik Dir., *supra*, at 2-3, 9; Tr. 27,167, 27,170, 27,180), and that there is no need for "real-time" ETEs (Urbanik Dir., *supra*, at 8). Appl. PF 2.1.33. He further states that "the sensitivity of the Seabrook EPZ [is known] in a way that's unseen any place else in the world." Tr. 27,170; Appl. PF 2.1.34.

2.91. The Attorney General counters that the Board should disregard Dr. Urbanik's opinions because the subject matter relates to the ingredients for adequate PAR decisionmaking at Seabrook and not to any traffic engineering concept directly in his field of expertise. MAG PF 2.1.33.A. He further argues that Dr. Urbanik's comparison of the scrutiny that has been given to the ETEs for Seabrook compared to that given to ETEs elsewhere is simply not relevant, stating "Intervenors may simply not have pursued this issue as vigorously at other sites." MAG PF 2.1.34.A.

2.92. We agree with Dr. Urbanik. In the collective experience of this Board, we know of no other ETEs that have received as much detailed scrutiny as those of the Seabrook EPZ. We find Dr. Urbanik's testimony to be useful and relevant to the issues of ETEs. We noted in the NHRERP Partial Initial Decision that "Dr. Urbanik has been involved in development of Seabrook's ETEs for a good many years" and that his opinions on ETE matters were "based on sound experience." LBP-88-32, *supra*, 28 NRC at 798. Indeed the subject matter of

this part of the Attorney General's litigation is clearly focused on ETEs, not protective action decisionmaking, and Dr. Urbanik is clearly qualified to express his views.

2.93. However, the most important element to our finding is that the Attorney General's real-time argument fails to demonstrate how or why the SPMC ETEs are deficient. He attempts to show that the scenarios developed for the SPMC are inadequate since they do not fit every conceivable combination of circumstances that may be present on any given day — weather, time, fluctuations in beach population — but he fails to demonstrate how the real-time system would produce a materially significant change in the ETE calculations found in the SPMC, either with or without any data generated by such a system. Furthermore, the Attorney General's citation to Mr. Callendrello's statement to support the proposition that ORO decisionmakers would rigidly stick with scenarios in disregard of current conditions is clearly fallacious and misleading. *See* Tr. 27,075-81, 27,129, 27,164-65. PAR decisionmakers are free to disregard the ETE scenarios if better information is available to them. We find that the scenarios, in combination with the common sense of trained PAR decisionmakers, are adequate for reasonable PAR decisionmaking. *Id.*

2.94. The Board finds that the number of ETEs generated, and the regions and scenarios for which they are generated, are sufficient and correctly limited to a reasonable number so as to be usable by a decisionmaker fairly quickly and not be overly burdensome.<sup>14</sup> Tr. 26,707-08, 26,714-15; Urbanik Dir., *supra*, at 7-8.

## F. ETEs for Special Populations

2.95. The Applicants have explored the need for, and usefulness of, ETEs for special populations (Appl. Reb. No. 16, *supra*, at 61-67) but have elected not to include in the SPMC any ETEs for the transit-dependent population or any of the special facilities on an individual basis. Appl. PF 2.1.26-28. Intervenors claim that this violates NUREG-0654, Appendix 4, which they contend requires that specific ETEs for the transit-dependent population and the special facilities be made. MAG PF 2.1.26.A, *citing* Adler Dir., ff. Tr. 26,482, at 21-22.

2.96. The Applicants' witness Anthony Callendrello testified that, at present, protective action recommendations for special populations are not made on a facility-by-facility basis, but on an Emergency Response Protective Area (ERPA) basis. Tr. 27,094. He stated that the Applicants had analyzed the provision of transportation to special populations and have satisfied themselves that they have the ability to evacuate those populations "within the envelope of

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<sup>14</sup> We note that if Seabrook is licensed, the Commonwealth of Massachusetts is without limitation on its ability to implement a real-time monitoring system for its own purposes when and if that technology is developed.

times associated with the general population." Tr. 27,096. When questioned by the Attorney General as to whether it would have been more prudent to have ETEs for individual special facilities, Mr. Callendrello replied: "No, because we would make the protective action recommendation for the ERPA, for the population within the entire ERPA." Tr. 27,097.

2.97. The Applicants argue that the only way that ETEs for each special-population group and special facility would be of any use is if comparisons of dose savings afforded by evacuation and sheltering were calculated for each and every facility and population group in the area implementing the PAR. This approach would require not only ETEs, but sheltering dose reduction factors for each special facility and population group within the area of interest. The Board finds this to be an impractical, unreasonable, and time-consuming approach to making a PAR, and is currently rendered impractical by noncooperating facilities. Tr. 21,552-55; Appl. Reb. No. 16, *supra*, at 62.

2.98. The Applicants further contend that even if this information were available, recommending PARs on a group-by-group or facility-by-facility basis is not likely to provide any additional dose savings for the special populations. The only situations where making a PAR on a facility-by-facility basis could even have the potential for increased dose savings is if one assumes that the special-facility ETEs are substantially longer than those for the general population, evacuation is recommended for the general population, and the dose reduction factors for special-facility buildings are better than those for the general population. However, even in a situation where these three hypothetical assumptions are all true, evacuation would still remain the preferred PAR. This is because the only other alternative would be to shelter, and this is the action the special populations would be taking prior to the time when transportation arrives to assist with evacuation. Thus, the special-facility population would already be receiving the dose savings from sheltering.

2.99. The Applicants state further that, during the later stages of the evacuation, when the transportation arrives, this population group would then evacuate. This trip out of the EPZ under this hypothetical situation would be at normal travel speeds due to postevacuation uncongested conditions. Thus, the trip could take as little as 15 minutes or less to reach the EPZ boundary. Appl. Reb. No. 16, *supra*, at 62-63.

2.100. However, because bus mobilization will take time, the SPMC will provide for special consideration of these groups. The Applicants have committed to revise the SPMC to incorporate a priority list for allocating evacuation vehicles to all special populations. This list will indicate which population category should receive resources first and the sequence in which facilities within each category will be serviced. Specifically, schools and day-care facilities would be assigned vehicles first, followed by the transit-dependent general population routes, curbside pickup (homebound) routes, special facilities, and then

hospitals. When there are multiple facilities within a category, the facilities that are closest to Seabrook would be serviced first followed by those that are farther away. This assignment priority ensures the most efficient use of transportation resources. Thus, the SPMC takes all appropriate steps for maximizing dose reduction for EPZ special populations. Appl. Reb. No. 16, *supra*, at 63-64.

2.101. For fast-breaking scenarios (such as are considered in the ETE), the Applicants will use an expedited bus mobilization procedure. For this scenario the ORO will utilize the Northern Essex Community College as a forward staging area. This procedure results in buses being mobilized in a time frame comparable to that assumed in Volume 6 of NHRERP. Appl. Reb. No. 16, *supra*, at 65-66; Tr. 27,099.

2.102. The Attorney General argues that even if the foregoing is possible, it still does not address the fact that there are situations when making a PAR for a given facility could well save doses for those in that facility. MAG PF 2.1.28.A. He asserts that since Mr. Callendrello has indicated that "a difference of one hour could affect a PAR decision to shelter or evacuate" (*id.*), in a very long ETE scenario, a particular nursing home with a poor dose reduction factor could evacuate sooner than the general population. *Id.*

2.103. However, the Attorney General fails to tell the Board how, in any evacuation scenario, a given facility could be evacuated faster than the general population, a population that we must assume is also evacuating at the same time. Furthermore, the Attorney General goes on to criticize Mr. Callendrello's "hypothetical assumptions," but he is only able to do so by postulating his own hypothetical assumptions to make his argument. *Id.*

2.104. The Applicants have given ample consideration to the issue of ETEs for transit-dependent persons and special-facility buildings within the guidelines of NUREG-0654, Appendix 4. The Attorney General's arguments to the contrary are semantical, and have no regulatory basis. See MAG PF 2.1.26.A. We also give no weight to the Attorney General's argument that we cannot find reasonable assurance that the Applicants' expedited bus mobilization procedure is adequate because it is doubtful that Northern Essex Community College ("this state-owned facility") has in fact been made available by the Commonwealth of Massachusetts as a forward staging area. Contrary to this assertion, in an emergency, Massachusetts will use its best efforts to evacuate its citizens. 10 C.F.R. § 50.47(c)(1)(iii)(B). It is simply incomprehensible that the Commonwealth would deny the Applicants the use of the Community College under emergency conditions, in the absence of an emergency plan of its own.

## G. Returning Commuters

2.105. We turn now to the issue over which we retained jurisdiction in the NHRERP Partial Initial Decision — the effects on ETEs of returning commuters.

We did not retain jurisdiction over the entire commuter issue. Our focus was on those commuters whose trips home originated near the center of the EPZ and terminated at home at some point farther out in the EPZ. LBP-88-32, *supra*, 28 NRC at 787-89. Our decision to focus on the narrow issue of commuters beginning and ending their commute within the EPZ was prompted directly by the Massachusetts Attorney General's proposed findings in the NHRERP portion of the hearing. *See id.*; Tr. 21,001, 21,011-12. We retained jurisdiction to seek further advice from the parties on this issue.

2.106. In response to the Board's invitation, the Applicants submitted arguments based upon an affidavit of its expert, Mr. Lieberman of KLD Associates.<sup>15</sup> The Massachusetts Attorney General countered with its response founded on the affidavit of its expert, Dr. Adler.<sup>16</sup> Neither of the affidavits was based on a remodeled IDYNEV run — both were extrapolations of existing information.

2.107. Mr. Lieberman drew the conclusion that within the narrow area of the Board's concerns, it was unnecessary to apply the IDYNEV model to represent commuter trips, and even were the model applied, there would be no "meaningful effect" on the ETEs. Lieberman Affidavit at 15. Dr. Adler challenged virtually every assumption made by Mr. Lieberman, point by point. Adler Affidavit at 3-6.

2.108. On May 5, 1989, the Board issued an unpublished Memorandum and Order stating that the parties had presented factual disputes that needed resolution before the Board could rule on the returning commuter issue. In that Memorandum, we noted that Dr. Adler's affidavit had enlarged the commuter issue beyond the scope over which the Board had retained jurisdiction. Memorandum and Order at 6-7. For the first time, the Attorney General was shifting the focus of his arguments away from summer weekend scenarios to summer and nonsummer weekday scenarios and enlarging the scope of his concern to the whole of the EPZ, not just the beaches. We felt that this "undisciplined" response to the Board's request for advice was essentially an effort to reopen the evidentiary record and to file new proposed findings without any effort to demonstrate good cause for that course of action. *Id.* at 7. However, without more, we invited the parties to provide us with further comments on the matter when we resumed the evidentiary hearing on May 15. *Id.* at 8-10.

2.109. In the course of discussion that followed on May 15, the Board learned for the first time that the Attorney General had not read the Board's findings in LBP-88-32 to limit the returning commuter issue, over which the

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<sup>15</sup> Applicants' Memorandum Regarding Interaction of Commuter Traffic Flow and Evacuation Traffic Flow Within the Seabrook EPZ (January 25, 1989).

<sup>16</sup> Affidavit of Thomas J. Adler Regarding Interaction of Commuter Flow and Evacuation Traffic Flow Within the Seabrook EPZ (March 26, 1989).

Board retained jurisdiction, to those commuters beginning their trips near the center of the EPZ and ending their trips somewhere else in the EPZ — commuters flowing with the evacuating traffic to reach their homes (once they had reached their homes they had been accounted for in the IDYNEV runs). *See* Tr. 21,012-13. The Attorney General's newly expressed concern (6 months after the issuance of the NHRERP Partial Initial Decision) explains why the Board found Dr. Adler's affidavit so broad in scope.

2.110. As the discussion continued, the Applicants announced their objection to doing a full-scale modeling of *all* returning commuters. Tr. 20,990-92. The Attorney General responded that neither he nor Dr. Adler was advocating that a full-scale modeling of all returning commuters be conducted. Tr. 20,997. Instead, the Attorney General stated that what Dr. Adler had suggested was that data available from the survey conducted in 1987 by Social Data Analysts (described by Dr. Stephen Cole in his NHRERP testimony, ff. Tr. 7849) could be used to conduct a more limited effort to model representationally the effects of returning commuters, and that effort, if fairly done, would produce a set of ETEs that would be much more accurate than those currently available. Tr. 20,997.

2.111. Judge McCollom then inquired of the Applicants whether it might be possible to do a sensitivity study using IDYNEV that would model less than all returning commuters (and would therefore not require all the changes to the model necessary to do a full-scale returning-commuters modeling effort), but which would indicate whether the impact is negligible. Tr. 21,004. Mr. Lieberman responded that it was possible for him to do this, focusing just on the critical intersections, so long as the employment data available were adequate. Tr. 21,006. But he did not know if the Attorney General's employment data would be appropriate for use in the sensitivity study. *Id.*

2.112. Contrary to the statement made by the Attorney General in MAG PF 2.1.36.C, Applicants stated that they (1) would review the Cole employment data, and (2) intended to do (IDYNEV) sensitivity runs to test the effects of returning commuters. *See* Tr. 21,017, 21,021.

2.113. In response to the Board's suggestion that a sensitivity run be made to determine the effects of returning commuters using IDYNEV, the Applicants filed their Supplement to Applicants' Rebuttal Testimony No. 16 (Interaction of Commuter Traffic Flow and Evacuation Traffic Flow Within the Seabrook EPZ), which was presented by Mr. Lieberman and Mr. Callendrello. Appl. Supp. Reb. No. 16, ff. Tr. 28,135. It reported the results of a sensitivity study using the IDYNEV model to test the impact of returning commuters on certain critical paths in the EPZ.

2.114. Applicants' Supplemental Rebuttal Testimony No. 16 indicates generally how their sensitivity test was done. *Id.* at 28-35. Their goal was to perform a sensitivity study using the IDYNEV model "which would explicitly represent commuter traffic traveling from work to home along critical evacua-

tion paths during the early stages of the evacuation." *Id.* at 28. In designing this sensitivity study, Mr. Lieberman sought to focus on the impact of returning commuters on beach area evacuees. To do this sensitivity study, the simulated roadway network in IDYNEV was extended in Massachusetts and redesigned in both New Hampshire and Massachusetts to represent the commuter paths of travel. *Id.*

2.115. The Applicants addressed the Attorney General's concern that the returning commuter issue should not be limited to those "internal" commuters whose trips originate and end in the EPZ. In Massachusetts, Mr. Lieberman's sensitivity study included "external" commuters whose trips originate outside the EPZ, as well as internal commuters. Tr. 28,140. In New Hampshire, the study looked at internal commuter trips for the Hampton/Seabrook areas. *Id.*

2.116. Mr. Lieberman also addressed another concern expressed by the Attorney General regarding counter- and cross-flow traffic. At critical intersections, the sensitivity study examined the effects of commuter traffic flowing with, counter to, and across evacuating traffic. Tr. 28,141. The intersections were modeled both before and after Traffic Guides arrive to best simulate the effects of traffic flow occurring in an emergency. Appl. Supp. Reb. No. 16, *supra*, at 33-34.

2.117. The returning commuter trip table used for this sensitivity run is based on the results of the 1985 KLD telephone survey (*see* NHRERP, Vol. 6, at E-13) and on the projected 1986 employment data presented in Table 5-3 of Volume 6 of the NHRERP. Appl. Supp. Reb. No. 16, *supra*, at 29-30; Tr. 28,162. Returning commuters were added to the IDYNEV road network for 2 hours, and after that no additional commuters were added. Tr. 28,146.

2.118. Because Applicants state that the 15% capacity reduction factor<sup>17</sup> in their "regular" ETE runs took into account whatever impedance was caused by returning commuters, they reduced the size of this factor by 5%, to 10% in this sensitivity test, which sought to explicitly model returning commuters. Appl. Supp. Reb. No. 16, *supra*, at 33; Tr. 28,148. The resulting 10% reduction factor was applied throughout the evacuation process in this sensitivity test and not just for the 2 hours or so when the commuters were to be modeled. Tr. 28,152. Another change made from Mr. Lieberman's former ETE runs was that he altered the two-way road capacities such that they reflected a 30/70 directional split of traffic averaged over the first 2 hours and a 4/96 split thereafter. Appl. Supp. Reb. No. 16, *supra*, at 33; Tr. 28,156-57. (In his regular runs he had used a 10/90 split.) Other key inputs to the Applicants' former ETE runs were left unchanged in this sensitivity test.

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<sup>17</sup>The capacity reduction factor serves to reduce the capacity of the roadway to allow for obstructions, two-way "frictional" flow, and other impediments that are not explicitly modeled in the IDYNEV runs. *See* Appl. Reb. No. 16, ff. Tr. 26,681, at 9-11.

2.119. Having done the preparatory work described above, Mr. Lieberman ran the IDYNEV model and examined the resultant ETE for Region 13/Scenario 3. He reports the results in two stages: First, he ran the model after making the changes necessary to explicitly model the commuters along the key beach evacuation pathways in Massachusetts, but before he had done the work to include consideration of commuters in Hampton, New Hampshire. The ETE for Region 13/Scenario 3 was 6:05 (compared to an ETE of 6:00 in the "regular" ETEs). Appl. Supp. Reb. No. 16, *supra*, at 35. Next, he did the work to explicitly represent commuters within the Town of Hampton, New Hampshire, and then ran the model again. The ETE for Region 13/Scenario 3 was still 6:05. From these results, Mr. Lieberman concluded that "the extensive effort and resources expended to treat commuter traffic explicitly cannot be justified on the basis of material improvements in ETE accuracy." *Id.* at 36.

2.120. For the reasons set forth below, we find that Mr. Lieberman's ETE sensitivity runs have adequately addressed the issue of returning commuters and their effect on the ETEs for the SPMC. We note with approval that the extensive effort on Mr. Lieberman's part has also supplemented our findings with regard to returning commuter issues addressed in the NHRERP Partial Initial Decision over which we did not retain jurisdiction, and accept the enhanced analysis.<sup>18</sup> See ALAB-917, 29 NRC 465 (1989).

2.121. The Attorney General submitted rebuttal testimony offering Dr. Adler's critique of the Applicants' new sensitivity study. Adler Reb., ff. Tr. 28,198. The Attorney General argues in his proposed findings that factual disputes still exist and makes a detailed analysis of the parameters used by Mr. Lieberman in his sensitivity runs in an attempt to prove his point. MAG PF 2.1.36.D-36.H. Dr. Adler asserts that, as a result of several important incorrect assumptions and inaccurate data inputs, Mr. Lieberman's sensitivity analysis has significantly underestimated what the impact of the returning commuters would otherwise be if accurate assumptions and inputs were used.

2.122. Preliminarily, we note that Dr. Adler's critique was made after reviewing not only the Applicants' prefilled supplemental ETE testimony, but after reviewing additional technical materials. Specifically, he was provided with printed and computer-readable copies of output from the IDYNEV sensitivity run described in the Applicants' testimony, and he was also provided with a supplementary "link-node" map that serves as an index to the outputs. Adler Reb., *supra*, at 1. However, Dr. Adler's critique was not based on any

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<sup>18</sup> In the original NHRERP ETEs, commuters working in the beach area were already counted in the beach evacuation traffic. External commuters had been accounted for in the 15% capacity reduction factor used in the IDYNEV modeling effort. Therefore, the only expressed concern for the Board was those commuters who left their jobs within the EPZ and who arrived home within the EPZ prior to their entering the evacuation stream as evacuees, where they were then accounted for. However this treatment of the issue may have caused concern on the part of the Attorney General, the issue has been resolved by the scope of Mr. Lieberman's sensitivity run.

computer run conducted by Dr. Adler. It is based on extrapolation of data from Mr. Lieberman's computer runs and not on a computer analysis of his own.

2.123. We also note that Dr. Adler's critique of this sensitivity study is *not* that Mr. Lieberman failed to model *all* returning commuters throughout the *entire* EPZ. In his testimony, Dr. Adler agreed with Mr. Lieberman's general approach to the modeling of the sensitivity run. He agreed that, in practice, the most important effects of commuter traffic flows in the Seabrook EPZ will be along a limited number of evacuation routes. Adler Reb., *supra*, at 2. Dr. Adler stated that while it would be desirable conceptually to include explicit representation of all commuter traffic flows, Mr. Lieberman's chosen focus on a limited number of constrained paths "is a practical and cost-effective alternative which, if properly applied, can accurately represent the effects on ETEs." *Id.* The problem, here, according to Dr. Adler, is that the available information about these effects was not properly applied.

2.124. Dr. Adler testified that his examination of the output from this sensitivity study revealed four critical errors in the input — errors that, if corrected, would significantly increase the ETEs produced by the run.

2.125. Dr. Adler begins his critique of the Applicants' modeling of returning commuters (*see* Adler Reb., *supra*, at 4) by focusing on the Route 1/Route 110/Mudnock Road intersection in Salisbury Center (TCP B-SA-06, a/k/a Salisbury Square). Appendix B hereto. His basic assertion is that this intersection was modeled improperly during the "before guides" stage, which is when almost all the commuter traffic will occur. In his opinion, evacuating vehicles will lose a great deal more time at this intersection (before the guides arrive) than has been assumed in the design of this sensitivity run.

2.126. His major point is that since there are no Traffic Guides at this intersection for the first 2 hours, traffic will have to respond to the automatic traffic system that will be operating, and to a stop sign on Route 1A. *See* Adler Reb., *supra*, at 3. He first argues that capacity for this evacuation route could be reduced by as much as the total of the north plus south Route 1 commuter traffic. He then asserts that time will be lost when each car on Route 1A stops at the stop sign. Then he says that these effects will more than double the extent of the capacity reduction calculated by the Applicants. *Id.*

2.127. MAG PF 2.1.36.K explicitly states that Dr. Adler explained in detail how this intersection "should have been modeled." However, there is nothing in Dr. Adler's testimony to that effect, just his criticisms of the Applicants' modeling. *See* Adler Reb., *supra*, at 3. We have no way of knowing from the transcript what assumptions he is using to reach his conclusion that Mr. Lieberman's modeling more than doubled the extent of the capacity reduction calculated by the Applicants. Furthermore, nowhere does Dr. Adler allege that Mr. Lieberman failed to model the intersection to take into consideration the use of the auto-

matic traffic control during the "before guide" stage, and we have testimony that tends to support a contrary conclusion. *See Appl. Supp. Reb. No. 16, supra*, at 33-34.

2.128. Dr. Adler's next criticism states that just west of this same intersection on Route 110 (a point on the critical path for Salisbury Beach evacuees), the road is modeled as having *two lanes* westbound for evacuees and one lane eastbound for returning commuters when, he asserts, it has only a two-lane total cross-section at this point. *Id.* MAG PF 2.1.36.L further asserts that the road is modeled in the "*before guide*" (quotes in original) stage as having two lanes westbound and one lane eastbound for returning commuters. He asserts that Route 110 is only two lanes wide "just to the west of the intersection," *citing* Adler Reb., *supra*, at 3. The Attorney General then quotes Mr. Lieberman as admitting in the New Hampshire hearings that in the absence of Traffic Guides, the normal traffic pattern would occur here — one lane of traffic westbound, *citing* Tr. 6232. He further argues that Mr. Lieberman acknowledged that, absent road guides, Route 110 would function as a two-way road with one lane servicing each direction, *citing* Appl. Reb. No. 16, *supra*, at 38.

2.129. The Attorney General's argument is misleading. He tries to lead us to believe that Mr. Lieberman had modeled three lanes of traffic flowing on a roadway with the capacity for only two lanes in the "*before guide*" stage. However, this is not the case, as we note below.

2.130. Route 110, *west of Salisbury Square*, is a three-lane road. *See* Tr. 6232. The traffic diagram for TCP B-SA-06 in the SPMC (Appendix J, at J-89) (Appendix B hereto) notes a three-lane road beginning a short distance west of the intersection (*see Appendix B*). At the point where Route 110 *physically enters* the intersection, the road is designed to accommodate two lanes of traffic — one lane in each direction.<sup>19</sup> This is also shown by the Applicants' diagram for that intersection. *See* SPMC, Appendix J, at J-89. These two facts are not inconsistent with Dr. Adler's statement that "Route 110 *west of the intersection* is modeled as having [three lanes] when, in fact, it has only a two-lane total cross-section *just to the west of the intersection*." Adler Reb., *supra*, at 4. Dr. Adler does not assert that there are two lanes of westward traffic flow *leaving the intersection* in the "*before guide*" stage. If he had, then the Board would have had trouble reconciling directional flow at the point where Route 110 physically intersects with the intersection.

2.131. Mr. Lieberman's statements that, during the "*before guide*" stage of the evacuation, only one lane of traffic moves westbound (*see* Tr. 6232; Appl. Reb. No. 16, *supra*, at 38) reinforce the Board's opinion that Mr. Lieberman did, in fact, model TCP B-SA-06 correctly. Mr. Lieberman's statements

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<sup>19</sup> At the request of the parties, the Board conducted a site inspection of the critical pathways in the EPZ during a 3-day period from August 15 to 17, 1989.

to the effect that normal traffic patterns would prevail before staffing of the intersection by Traffic Control Guides (one lane flowing in each direction), are consistent with the directional capacity of the road where Route 110 physically meets the intersection — one lane flowing westward toward the three-lane Route 110. They do nothing to aid the Attorney General's argument that Mr. Lieberman has modeled three lanes where Mr. Lieberman has admitted only two are actually present.

2.132. We note with disapproval the Attorney General's misquote of Dr. Adler's testimony. Dr. Adler's remarks about Mr. Lieberman's modeling of two lanes of westward movement at this intersection,<sup>20</sup> in the context of the two-lane cross-section just to the west of the intersection, does not reference "before guides" as the Attorney General asserts in his proposed findings. To illustrate our point, we turn to Dr. Adler's testimony:

Although I was unable to replicate all of the inputs to IDYNEV, I was able to verify that the general methodology used to represent returning commuters is an appropriate one. However, there are four specific inputs which I believe should be corrected. First, the Rt. 1/Rt. 1A/Rt. 110/Mudnock Rd. intersection is modeled during the early stages of the evacuation when the intersection is unstaffed as allowing direct movements without stop control on Rt. 1A westbound. This problem was discussed earlier in this testimony. Second, at this same intersection, Rt. 110 west of the intersection is modeled as having two lanes westbound (for evacuees) and one lane eastbound (for returning commuters) when, in fact, it has only a two-lane total cross-section just to the west of the intersection. Third, the capacity reduction factor was decreased from 15% to 10% on all links. Even if one . . . .

Adler Reb., *supra*, at 4-5. Dr. Adler did not frame his second concern in the context of the intersection at the "before guide" stage.

2.133. The third input error asserted by Dr. Adler concerns the capacity reduction factor, which Applicants admit was reduced from 15% to 10% on all links, including expressway ramps and mainline expressways. *Id.* at 5-6. Dr. Adler disagrees that Mr. Lieberman should have reduced the capacity reduction factor at all for these runs because, he asserts, the full 15% reduction factor is needed to cover other obstructions. Furthermore, he states: (1) the capacities become overestimated for expressway ramps and mainline expressways, each of which experience no counter- or cross-flow of commuters and for which the 15% capacity reduction was intended to represent an expected actual deterioration of flow under congested conditions; and (2) this increase in road-

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<sup>20</sup> We note that after the intersection is staffed by Traffic Guides, the inbound (easterly) flow of traffic on Route 110 is prohibited from entering the intersection and is turned around. This departure from the normal SPMC practice of discouraging, rather than prohibiting, traffic flow is to allow for two lanes outbound (westerly) traffic to leave the intersection. Thus, Dr. Adler's concerns may have been based on a misunderstanding of the fact that there would be no inbound traffic after staffing takes place.

way capacity confounds the comparison of ETEs with and without commuters, in effect masking a 5% ETE increase in the returning commuters' run. *Id.* at 5.

2.134. Mr. Lieberman counters by stating that his initial ETE runs had used data showing that the impedance by commuter traffic ranged from 0.8% up to 6.3%. Tr. 28,149. His 15% capacity reduction factor included this impedance to adjust for the lack of explicit modeling of returning commuters. Tr. 28,152. His adjustment, which lowered the capacity reduction factor by 5% in the sensitivity runs, is not inconsistent with his explicit modeling of the returning commuters. If he had not made the adjustment, the impact of returning commuters would have been overstated. Mr. Lieberman has not masked a 5% increase in the ETE as the Attorney General asserts, he has compensated for an increase in vehicle counts in a model that had already accounted for those vehicles in a different manner. Furthermore, no matter how Dr. Adler frames his criticisms of the use of a 10% capacity reduction factor, he diminishes the importance of this point with his own statement to the effect that maintaining the capacity reduction factor at 15% would only increase the ETE by an estimated 20 minutes. Tr. 28,214. Such an increase would not affect PAR decisionmaking.

2.135. Dr. Adler next focuses his criticism on the handling of Hampton commuters. He believes that the sensitivity run used only one-third the number of Hampton commuters identified in the more recent survey done for the Attorney General by Social Data Analysts. He noted that in the Applicants' Town of Hampton analysis (*see Appl. Supp. Reb. No. 16, supra*, at 19-20), the Applicants used 641 inter-town internal commuters as a base for their calculations, a number derived from KLD's 1985 survey data. Adler Reb., *supra*, at 3. In Dr. Adler's opinion, if the more recent data of Social Data Analysts had been utilized, the computed effects on lost capacity would have risen to over 15%. *Id.* at 4.

2.136. Mr. Lieberman has adequately analyzed the differences between the Attorney General's employment data and that obtained by KLD. *See Appl. Supp. Reb. No. 16, ff.* Tr. 28,135, at 37-39, and Attach. G. He found that in the Attorney General's data, the higher number of internal commuters would tend to raise the ETE, the lower number of external commuters would tend to lower the ETE, and the higher number of home-based employees would tend to lower the ETE, since the number of evacuating nonresidents would be lower. *Id.* at 39. We accept his conclusion on the basis of his comparative analysis that the differences in these two data bases would have no material effect on the ETEs.

2.137. Dr. Adler had an additional criticism about the scope of the modeling effort in the Applicants' sensitivity study. In his opinion, Portsmouth commuters, who he asserts comprise the largest single concentration in the EPZ, should also be modeled. Adler Reb., *supra*, at 4. In Dr. Adler's opinion, commuters returning to Portsmouth traveling along Route 1 will be essentially using up a large portion of the capacity of Route 1 which could otherwise be used by

*beach evacuees.* Tr. 28,251. He asserts that this will result in lengthening the "spillback" effects experienced on Route 1 at its intersection with Route 101C. He states that evacuating *beach traffic* on both Route 1 and Route 101C is already congested. He argues that the delays caused by the Routes 1/101C intersection are suspect enough to warrant modeling the returning commuters in and around Portsmouth. Adler Reb., *supra*, at 4. Furthermore, Dr. Adler also stated his opinion that in conducting the sensitivity run for Hampton, Mr. Lieberman sent too few westbound commuters home along Route 51, a route that is often the critical path for *beach evacuees*.

2.138. First, as to Dr. Adler's statement that the *Portsmouth* commuters "comprise the largest single concentration in the EPZ" (*id.*), the Attorney General's own employment data reveal that 8247 Portsmouth residents work in EPZ communities. Appl. Supp. Reb. No. 16, ff. Tr. 28,135, Attach. F. We assume from the available transcript testimony that these would be the individuals who Dr. Adler asserts will be using up a large portion of the capacity of Route 1 which could otherwise be used by beach evacuees. Tr. 28,251. However, a close look at the Attorney General's data reveals that 6920 (84%) of the Portsmouth commuters work in Portsmouth and presumably would not be competing with evacuees from the beaches along Routes 1 and 101C. Appl. Supp. Reb. No. 16, *supra*, Attach. F. Without further support in the record, we are unable to find any reason to suspect that the Portsmouth commuters who work in other EPZ towns (16%) were not already included within the commuters modeled by Mr. Lieberman in his sensitivity run.

2.139. The Board is also unsure from which evacuation scenario Dr. Adler is making his criticism. The question of what impact returning commuters have upon ETEs is only of concern in connection with the prospect of beach evacuation involving large transient populations; for all other scenarios, returning commuters may be assumed to have no significant impact upon the ETEs. Urbanik Affidavit, ff. Tr. 27,197, at 1-2; Tr. 27,202-03. NRC Staff PF 2.1.36.1. Dr. Adler's concern here is the *beach traffic* along Routes 1 and 101C. However, beach traffic would be of biggest concern on *weekends* when commuter traffic would be negligible. Moreover, commuters leaving the *beach area* traveling to Portsmouth would be traveling with the evacuation stream, and we have already found that those commuters were modeled in the original IDYNEV ETE runs.

2.140. We find the same analysis answers the Attorney General's concerns regarding the flow of commuter traffic from Hampton Beach.<sup>21</sup>

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<sup>21</sup> We take note of the shifting nature of the Intervenors' ETE arguments. Allegations concerning the assumptions used in the ETE calculations have flipped from worst-case to moderate emergency scenarios, from commuters on weekdays to peak transient populations on weekends, and from a lack of staffing to too much staffing (sometimes within the same argument). The Attorney General's focus on the ETE issue, from the beginning, has consistently centered on the transient beach populations, but he has obfuscated the issue by shifting his concerns elsewhere when it has been most convenient.

2.141. MAG PF 2.1.36.T through 2.1.36.Y re-argue points that we have already addressed in this section of our decision. The Attorney General first asserts that the 5-minute increase in the overall ETE for the EPZ "describes only part of the picture." MAG PF 2.1.36.T. He contends that when a comparison is made between the beach area ETEs made prior to and then subsequent to Mr. Lieberman's sensitivity runs, the presence of returning commuters "significantly reduces the rates at which the *beach areas* can be evacuated during the first 3 to 4 hours of an evacuation" (emphasis supplied). Adler Reb., *supra*, at 6; MAG PF 2.1.36.T. He states that the sensitivity runs showed the ETEs for Salisbury, Seabrook, and Hampton (south of Route 51) Beaches to have increased 24%, 21%, and 15%, respectively. *Id.* This point, the Attorney General contends, underscores the need for a more explicit modeling of all commuter traffic "to adequately reflect the effects of returning commuters." MAG PF 2.1.36.U. He then blends this argument into an argument for the modeling of a full set of ETEs for the segregated Massachusetts communities. MAG PF 2.1.36.V.

2.142. Dr. Adler testified that the modeling of commuter trips is possible as a modest extension of the ETE work done to date. Adler Dir., *supra*, at 1, 9-10. Yet he said in another context, that such modeling was "very difficult." Tr. 17,010; *see also* Tr. 26,509-11. Subsequently, he stated: "[t]o model all origins and all destinations of all commuters . . . isn't feasible." Tr. 28,208.

2.143. NRC Staff witness Dr. Urbanik testified that such modeling was extremely difficult and, in his judgment, unnecessary for Seabrook as of this time. Urbanik Affidavit, ff. Tr. 27,197, *passim*. Dr. Urbanik explained that proper modeling of returning commuters would require an extensive revision and expansion of the matrix of origin and destination points, as well as a substantial expansion of the number and direction of routes included in the roadway network; would require knowledge of the actual or likely routes that would be used by returning commuters; and would necessitate modeling of the interaction between returning commuters and evacuees at critical intersections, which is beyond the capability of any existing models. Moreover, Dr. Urbanik argues that this unprecedented and complicated effort is of no practical utility, since there is no reason to believe that returning commuters could have a significant impact on the ETEs for Seabrook. Urbanik Affidavit, ff. Tr. 27,197, at 2-4; Tr. 27,195-96, 27,198-201, 27,204; Urbanik Dir., *supra*, at 7. *See also* Tr. 17,089.

2.144. Dr. Adler stated that consideration of commuters could only increase ETEs (Tr. 26,511-12), but he also revealed that he has no sound analytical basis for saying that consideration of commuters will, in fact, result in ETE increases that have any significance to PAR decisionmakers. Tr. 26,512, 26,514-18. It seems that what Dr. Adler wants is to have all ETEs presented not only for the regions that will govern PARs, but also for various areas within the entire region,

and, in particular, for the Massachusetts portion of the region being evacuated (*see* Tr. 28,219, 28,252-53), although in the Board's opinion, he is vague as to what use such information would have in a real emergency and admitted he wasn't sure it would be useful at all. Tr. 28,231-36, 28,240-41.

2.145. Applicants presented a well-reasoned analysis of the entire commuter modeling concept, which included sensitivity runs, and which concluded that an expenditure of the necessary extensive effort and resources to treat commuter traffic explicitly cannot be justified on the basis of material improvements in ETE accuracy. Appl. Supp. Reb. No. 16, *supra, passim*. The Applicants' sensitivity runs produced changes in the ETEs of no more than a few percentage points. *Id.* at 35-36, 39.

2.146. The Applicants' ETEs assumed that all "returning commuters" were employed at the time an order to evacuate was issued, without regard to the fact that their work hours and days of employment are staggered — which would tend to decrease the actual number of commuters at any given time from that modeled, with a correspondingly lesser impact on the ETEs. Tr. 28,227-28, 28,166-69. This element of conservatism further weights the evidence in the Applicants' favor.

2.147. The Board finds that with the additional demonstration and sensitivity studies now provided by the Applicants, returning commuters have been adequately accounted for in the Seabrook and New Hampshire ETEs. No further analysis or revision of the ETEs to account for returning commuters is required.

## H. Collective Inaccuracies

2.148. Throughout the Massachusetts Attorney General's proposed findings, he has argued, and indeed proposes as a finding of law at the conclusion of his arguments, that the Board should adopt the following proposition:

In judging the adequacy and accuracy of a proposed set of ETEs which are being challenged, one must not simply dismiss each alleged defect, one by one, on the grounds that the individual defect in and of itself would have no significant impact on the overall ETE for the entire EPZ. Instead, the Board should attempt to identify all potential defects which reasonably may exist and then aggregate their potential collective ETE impacts to assess whether any of the ETEs in the ETE table, including those for individual ERPAs and non-summer scenarios, may be significantly inaccurate.

MAG PF 2.1[*sic*].1.A.

2.149. We reach the following two conclusions with respect to this novel argument:

2.150. A finding in favor of the Attorney General would first require a showing that the defects he alleges in the model assumptions have been

demonstrated by substantive evidence on the record. The Attorney General has failed to make the required demonstration on the record that any defects exist.<sup>22</sup>

2.151. Assuming, *arguendo*, that the Board agreed that minor inaccuracies had been demonstrated, the Attorney General fails to explain how this Board, or any other adjudicative body, is to "aggregate their potential collective ETE impacts to assess whether any of the ETEs in the ETE table . . . may be significantly inaccurate." We view this as an evidentiary matter, the burden of which would more correctly belong to the Attorney General himself.

2.152. We find the assumptions the Applicants have used in their ETE calculations to adequately represent consideration of the relevant conditions that could prevail within the Seabrook locality. We find the SPMC ETEs to be adequate for the purposes of making reasonable protective action decisions in accordance with Commission law. See *Cincinnati Gas & Electric Co.* (William H. Zimmer Nuclear Power Station, Unit 1), ALAB-727, 17 NRC 760 (1983); *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-845, 24 NRC 220 (1986); *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-836, 23 NRC 479, 491 (1986); *Long Island Lighting Co.* (Shoreham Nuclear Power Station), CLI-86-13, 24 NRC 22, 30 (1986); LBP-88-32, *supra*, 28 NRC at 776-77.

## I. Rulings of Law

2.153. An ETE should not reflect a worst-case scenario; rather, it should reflect realistic conditions so that it is of use to the decisionmakers. For an ETE to be too conservative in its assumptions is as detrimental as it would be for all assumptions to be made in a highly unconservative manner. *Limerick*, ALAB-845, *supra*, 24 NRC at 246; *Limerick*, ALAB-836, *supra*, 23 NRC at 491; *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), LBP-85-25, 22 NRC 101, 106 (1985).

## J. Conclusion

2.154. The Board finds and rules that, subject to the commitments and conditions set forth in this section, the Applicants have provided an adequate analysis of the time required to evacuate various sectors and distances within

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<sup>22</sup> We recognize the difficulties the Attorney General's litigation position has placed upon his ability to come forward with substantive evidence on the ETE issue. One clear way would have been for the Commonwealth of Massachusetts to use the IDYNEV model — making the assumptions it chose as the most correct — to come up with ETE calculations they could accept as being the most accurate. However, this could have precluded litigation of the Applicants' ETE computations, since the Board, and most likely the Applicants, could have accepted the Commonwealth's actions as planning efforts and the most appropriate for use in the SPMC.

the plume exposure pathway EPZ for transient and permanent populations as required by 10 C.F.R. Part 50, Appendix E, § IV.

2.155. The Applicants' republication of the ETEs in an organized manner, reflecting the revisions arising from this litigation, shall be presented to the NRC Staff for verification within 60 days of the date of the service of this decision. *See Limerick*, ALAB-836, *supra*, 23 NRC at 494-95; *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-808, 21 NRC 1595, 1600 (1985); *Waterford*, ALAB-732, *supra*, 17 NRC at 1103-07.

### 3. SPMC TRAFFIC MANAGEMENT PLAN

#### A. Background

3.1. Two contentions were litigated which address the issue of traffic management. These are Contention JI-4, which raised overall questions as to the adequacy of the personnel, traffic control strategies, and the clarity of the traffic control diagrams in the SPMC; and Contention JI-5, which raised issues as to the handling of surveillance and removal of road blockages. Contentions Memo. at 6-10. In addition, JI-7A raised questions as to the traffic control strategy for Plum Island. *Id.* at 11.

3.2. The development of a traffic management plan is not a regulatory requirement. However, under the guidance of NUREG-0654, Appendix 4, license applicants are permitted to develop a special traffic management plan to effectively utilize the available capacity of the roads in an EPZ. NUREG-0654, Appendix 4, at 4-5. In addition, applicants are instructed to provide "specific recommendations for actions that could be taken to significantly improve evacuation times." *Id.* at 4-10. As explained by NRC Staff witness Dr. Thomas Urbanik, who was a principal author of Appendix 4, the purpose of traffic management planning in conjunction with radiological emergency planning and preparedness is (1) to provide a means to identify and plan for those actions which could be taken to significantly reduce evacuation times in the event of a radiological emergency, thereby providing the lowest reasonably feasible evacuation times; and (2) to make the most effective use of available traffic management resources. Urbanik Dir., ff. Tr. 26,337, at 4. *See also* Tr. 26,456.

3.3. The Attorney General argues that FEMA only evaluated Access Control Points (ACPs) (*citing* Appl. Exh. 43C, at 66-67) and claims this to be a "hollow" finding "which carries no force or weight in resolving a contention challenging whether a traffic management plan . . . is well designed to maximize dose reduction" and be orderly. *Id.* He further argues that since FEMA witness Donovan offered no testimony on the issue of traffic management

(citing Donovan Dir., ff. Tr. 17,943, at 2), there is no rebuttable presumption with respect to the traffic management contentions. MAG PF 3.1.3.A.

3.4. FEMA has made findings that staffing of the SPMC is adequate. Appl. Exh. 43C, at 13. FEMA has also found that the plans for Access Control Points (ACPs) and Traffic Control Points (TCPs) are adequate. *Id.* at 66-67.

3.5. Although Mr. Donovan did not offer testimony with regard to the Applicants' traffic management plan, he did defer to the testimony of Dr. Thomas Urbanik on the issue. Donovan Dir., ff. Tr. 17,943, at 2. In any event, the presentation of testimony at a hearing is not essential to the presumptive validity of FEMA findings. FEMA does not make its findings for litigation purposes. The rebuttable presumption is created by Commission regulation. 10 C.F.R. § 50.47(a)(2).

## B. Intervenors' Case

3.6. Turning first to JI-4, the basic contention is that the SPMC is so poorly designed and so inadequately staffed that there is no reasonable assurance that an evacuation will proceed as efficiently as possible and, therefore, there is no reasonable assurance that adequate protective measures can and will be taken. Specific issues are raised in the bases as to the sufficiency of numbers of Traffic Guides, capacity-enhancing measures, and other traffic control strategies; problems that may occur in the event that a certain "Gillis Bridge"<sup>23</sup> is closed to traffic to permit passage of boats; and alleged inadequacies of particular traffic control diagrams. *Id.*

3.7. The Attorney General's lead witness with respect to this contention was Dr. Thomas J. Adler. Adler Dir., ff. Tr. 16,952, *passim*.

3.8. Although he ultimately commends the SPMC's general strategy, philosophy, and "realism" (Tr. 17,144-45) and does not take issue with the majority of the TCPs (Tr. 17,072, 17,141-42, 17,144-45), Dr. Adler criticizes the design and planned operation of certain of the TCPs and ACPs in his evaluation of the traffic management plan. Adler Dir., *supra*, at 4-9. In addition, Dr. Adler recommends the use of reflectorized barricades, as opposed to nonreflectorized traffic cones, at certain "key" TCPs and ACPs. *Id.* at 9. He also criticizes certain procedures, instructions, and diagrams for ambiguity. *Id.* at 10-11. Finally,

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<sup>23</sup> As to the allegations with respect to Gillis Bridge, this issue is not presented in the Intervenors' proposed findings. However, for the sake of completeness, we find that it would not remain impassable for a long period of time during an evacuation and even if it did, so few vehicles are expected to have to use it that, even assuming the bridge was impassable for 50 minutes to an hour, the overall evacuation time would not be extended. Appl. Reb. No. 9, ff. Tr. 17,333, at 54-55. See also Urbanik Dir., ff. Tr. 26,337, at 12. In addition, if the bridge were lost due to mechanical failure or some other reason, there is sufficient flexibility in the SPMC to reroute the necessary traffic so that the evacuation time would not be materially extended. Appl. Reb. No. 9, *supra*, at 55-56. The Attorney General admitted on the record that Gillis Bridge problems were minor and easily solved. Tr. 17,135-36.

Dr. Adler claims that the SPMC traffic management plan's provision of Traffic Guides at three critical intersections (TCPs D-HA-02, B-SA-06, and B-AM-06) results in longer evacuation times than would result if those intersections were left unstaffed. *Id.* at 5-6 and Figures 1 and 2.

3.9. Several of Dr. Adler's criticisms are made on the basis of criteria set out in the *Manual on Uniform Traffic Control Devices* (MUTCD) which Dr. Adler asserts to be the proper standard by which to judge such posts in a radiological emergency plan. Adler Dir., *supra*, at 3-4. The Attorney General cites Mr. Lieberman's use of the MUTCD standards in Volume 6 of the NHRERP as proof of his point that it is the appropriate guide for traffic control design. MAG PF 3.1.5, *citing* NHRERP, Vol. 6, at 8-3, 8-13, 9-14, 9-16, 9-17 to 9-20.

3.10. The MUTCD sets out criteria for traffic control devices in general, not traffic management plans of the nature here involved. Tr. 16,962. While the principles set forth in MUTCD may be of general relevance to proper traffic management design, compliance with the MUTCD is not a regulatory requirement, but more in the nature of advice. *See* Urbanik Dir., ff. Tr. 26,337, at 3-4, 16; Tr. 26,448-49, 26,465. The citations the Attorney General uses to support his assertion show that Mr. Lieberman was applying the MUTCD criteria to traffic control devices, not overall traffic management in a radiological emergency. *See also* Tr. 17,579.

3.11. Dr. Adler made no attempt to analyze the traffic management plan against the guidance of NUREG-0654 (Tr. 16,966-67), even though NUREG-0654 does set out general traffic management plan criteria (*see* Urbanik Dir., ff. Tr. 26,337, at 3-4).

3.12. The Attorney General and the Town of Salisbury presented the testimony of Acting Police Chief Frank Beevers. Beevers Dir., ff. Tr. 17,217, *passim*. Chief Beevers has over 30 years of experience as a police officer in the Town.

3.13. Chief Beevers admits to no expertise as a traffic engineer (Tr. 17,231), or competence to draft or review traffic management plans (Tr. 17,232, 17,254-56). Chief Beevers has never participated in an evacuation of all or part of the Town (Tr. 17,258) nor was he able to express an opinion as to whether the number of personnel provided by the SPMC traffic management plan would be adequate (Tr. 17,257-58).

3.14. Chief Beevers is not an expert in the area of traffic management. However, we recognize that he is familiar with the traffic conditions and patterns in the Town of Salisbury and is competent to testify on those issues.

3.15. Chief Beevers' testimony is a description of the congested conditions normally encountered in the Town of Salisbury on a sunny summer weekend afternoon, principally the conditions found on a segment of Route 1A from Salisbury Beach to Salisbury Square. Beevers Dir., ff. Tr. 17,217, at 5-7. He

explains that in certain situations, such as a sudden summer rainstorm on a Sunday afternoon, Route 1A becomes "gridlocked."<sup>24</sup> He concludes from these examples that an evacuation on a busy summer weekend day would require the use of over fifty trained police officers to handle traffic (many spaced every 100 yards along major evacuation routes), and states that the small number of Traffic Guides assigned the task in the SPMC cannot do the job adequately. Beevers Dir., *supra*, at 5-18; TOS PF 3.1.2, 3.1.6. In addition, Chief Beevers urges the use of barricades rather than cones, which he asserts will be knocked over by evacuating vehicles. *Id.* at 17; TOS PF 3.1.8. His other criticisms briefly touch on the Applicants' ability to remove traffic impediments (Tr. 17,292) and delays caused by evacuees physically assaulting the Traffic Guides (Tr. 17,285-86; TOS PF 3.1.10-3.1.11).

3.16. The Town of Amesbury presented the testimony of its police chief, Michael A. Cronin. Cronin Dir., ff. Tr. 16,267, *passim*. Chief Cronin has been head of the police department in Amesbury for 8 years. He admits to no experience in town-wide evacuations (Tr. 16,278, 16,372), his experience being confined to the evacuation of houses in neighborhoods such as for gas leaks (Tr. 16,279).

3.17. Chief Cronin is familiar with the layout of the streets and traffic conditions in the Town. The Board finds that Chief Cronin is competent to testify on these subjects.

3.18. In his testimony Chief Cronin makes the following allegations relative to the issues arising under JI-4: he and his officers did not cooperate in the drafting of the SPMC as it affects Amesbury; the drafters of the SPMC did not properly take into account the heavy influx of transients that occurs during certain summer and holiday periods in the Town<sup>25</sup> (TOA PF 3.1.11, 3.1.19); the diagrams of certain specific Town TCPs contain errors and in general lack sufficient clarity (TOA PF 3.1.3, 3.1.6, 3.1.7, 3.1.8, 3.1.18); the designs of TCPs in the SPMC, in general, are not good (TOA PF 3.1.4, 3.1.8); there is a need for Traffic Guides (and presumably TCP diagrams) at an additional 20 intersections in Amesbury (TOA PF 3.1.2, 3.1.4, 3.1.5, 3.1.11); it is wrong to use traffic cones, as opposed to prepositioned concrete barriers (which he says would also be useless without prepositioned trained public safety officers to put them in place with an advance warning of an imminent radiological emergency) (TOA PF 3.1.5, 3.1.14, 3.1.15). Cronin Dir., *supra*, at 3-12.

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<sup>24</sup> We are unsure whether the Chief's argument takes into consideration how much of the traffic congestion on a busy summer weekend is caused by traffic accessing to and egressing from the many commercial establishments and shopping centers located along Route 1A near Salisbury Square.

<sup>25</sup> Chief Cronin expressed concern that the SPMC did not properly take into account the heavy influx of transients that occurs during certain summer and holiday periods in Amesbury. Based on the Applicants' analysis that special events would affect neither ETEs nor PARs for the EPZ, we conclude that the Town of Amesbury's special events do not warrant consideration in the ETEs. Appl. Reb. No. 16, ff. Tr. 26,681, at 16-18, 21-23.

3.19. Under cross-examination, Chief Cronin, who initially claimed that his testimony was entirely of his own input (Tr. 16,275-76) later demonstrated to the Board that, in some respects, his testimony was not based upon his personal knowledge, but, rather, on what counsel had told him (Tr. 16,396-97; *see also* Tr. 16,375-78). Chief Cronin also stated that if all of his suggestions with respect to the plan were adopted, the result might be a safer evacuation, but there would be no significant increase or decrease in evacuation time. Tr. 16,403.

3.20. The Town of West Newbury sponsored testimony of its Superintendent of Streets, Albert Knowles, and Sandra Raymond, a member of its Board of Selectmen. TOWN Dir., ff. Tr. 16,621, *passim*. Neither of these individuals has any direct experience or training in emergency planning. Tr. 16,623-24.

3.21. We find, however, that Mr. Knowles is familiar with the road structure and traffic patterns in West Newbury and is competent to testify on these matters.

3.22. With respect to the issues arising under JI-4, the Town's witnesses made the following allegations: certain specified TCP diagrams are confusing or inadequate (TOWN PF 3.1.16.WN.a); certain TCPs are poorly designed for the purpose intended (*id.*); TCPs are needed at additional intersections and at facility entrances (TOWN PF 3.1.16.WN.b); additional Traffic Guides and traffic cones are needed (TOWN PF 3.1.28.WN.a); traffic control devices are inadequate for their purposes (TOWN PF 3.1.41); and traffic allegedly will be blocked by disabled or improperly parked vehicles due to a lack of parking spaces for Traffic Guides<sup>26</sup> or the existence of certain narrow roads (TOWN PF 3.1.16.WN.c). TOWN Dir., *supra*, at 3-12. Further assertions are made with regard to evacuees seeking information from Traffic Guides, thereby impeding them from directing traffic (TOWN PF 3.1.37) and the need for vehicles with flashing lights at TCPs (TOWN PF 3.1.36).

3.23. West Newbury also argues in its proposed findings, as does the Attorney General (*see* MAG PF 3.1.24), that the plan improperly places its emphasis on the ETE for the EPZ at the expense of maximum dose savings for certain individuals. TOWN PF 3.1.16.WN.b, 3.1.33, 3.1.38.

3.24. The Town of Newbury, wherein part of the area known as Plum Island is located, sponsored testimony by its Police Chief Roger Merry and the Chairman of its Board of Selectmen, Angelo Machiros. TON Dir., ff. Tr. 17,801, *passim*. Chief Merry has been a policeman in Newbury since 1976 and is familiar with the road conditions in the town under different weather conditions. *Id.* at 2-6. Mr. Machiros has been a selectman for 9 years and is familiar with

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<sup>26</sup>We find West Newbury's concern that "there are no plans providing for parking for emergency response personnel along roads in West Newbury that have no provisions for off-street parking," to be without merit. There is no need for such plans. If an emergency is declared, Traffic Guides will park their vehicles in any location out of the path of traffic. Appl. Reb. No. 9, *supra*, at 28.

traffic patterns in the town. Neither is an expert in evacuation planning but both are competent to testify concerning road and traffic patterns in the Town.

3.25. With respect to Town of Newbury issues arising under JI-4, the following allegations are made: there are large traffic jams on sunny summer days on Plum Island, and six to ten Traffic Guides assisted by a police cruiser with flashing lights would be necessary to control the situation on the Plum Island Turnpike in the event of an evacuation (as opposed to the one Traffic Guide called for in the SPMC) and, therefore, the SPMC would result in an evacuation of Plum Island that was no more rapid or efficient than an uncontrolled evacuation (TON PF 3.1.18(f)); there are errors in the diagrams of certain specified TCPs; an additional thirteen TCPs are needed (in addition to those now called for in the Town by the SPMC) because evacuees will utilize both lanes of the roadway while evacuating (TON PF 3.1.26(a)-(d)); Traffic Guides will not be able to establish TCPs due to congested traffic flow (TON PF 3.1.49); and town resources are inadequate to help the Applicants' plan provide reasonable assurance of adequate protection (TON PF 3.1.42). TON Dir., ff. Tr. 17,801, at 4-17. Newbury's testimony also indicated that the only road leading off of Plum Island (the Plum Island Turnpike) is sometimes impassable due to flooding and its associated impediments. *Id.* at 3; Tr. 17,899; TON PF 3.1.18(c), 3.1.82.

3.26. The Town of Newbury also argues, as do other Intervenors cited above, that the Applicants' traffic management plan places too much emphasis on the ETE for the EPZ instead of maximizing dose reductions for certain individuals. TON PF 3.1.24, 3.1.26, 3.1.33.

3.27. Under cross-examination, Chief Merry was unable to say whether his suggested changes to the SPMC TCPs or the inclusion of additional TCPs would result in lowering evacuation time or that his plan was any better than the SPMC. Tr. 17,860, 17,863, 17,876-77. His criticisms with respect to the SPMC TCPs also stemmed, in part, from a misunderstanding on his part that the plan assumed the blockage, rather than the "discouragement," of certain traffic movements. Tr. 17,865-66. In addition, it became apparent that his opinion that TCPs could not be established was not grounded in any belief that cars would be moving too fast for a Traffic Guide to obtain control, but rather his belief that drivers simply would not obey the Traffic Guides. Tr. 17,869-72. Moreover, the witness testified that Plum Island is successfully cleared during normal congested traffic conditions without the use of any Traffic Guides whatsoever — despite the Town's claim that many Traffic Guides should be required (TON Dir., ff. Tr. 17,801, at 4); and traffic congestion from the Island following an earthquake was successfully handled with minimal traffic control. Tr. 16,511-15, 16,521.

3.28. The City of Newburyport submitted the testimony of its City Marshall, Francis E. O'Connor. O'Connor Dir., ff. Tr. 16,458. As with the other

Intervenor police witnesses, Marshall O'Connor is competent to testify with respect to road and traffic conditions in his City.

3.29. In his testimony, Marshall O'Connor made the following allegations: Newburyport's police department did not participate in the drafting of the SPMC; the use of concrete barriers prepositioned in the field would be a preferable traffic control device to cones (CON PF 3.1.10); various TCP diagrams are of poor design (CON PF 3.1.5, 3.1.6, 3.1.8); additional Traffic Guides are needed at various designated TCPs and there should be a Traffic Guide at all intersections involving a major thoroughfare in the City (CON PF 3.1.2-9, 3.1.12-14); and he points to a certain conglomeration of schools and a hospital that would be difficult for buses to reach in congested traffic (CON PF 3.1.6, 3.1.15). In his testimony, he concludes that an evacuation carried out pursuant to the SPMC would be no more (and possibly less) efficient than an uncontrolled evacuation. O'Connor Dir., ff. Tr. 16,458, at 4-19. He also admitted that the plan approach that he was advocating would require hundreds of officers, which he agreed would not be practical. Tr. 16,520.

3.30. In his cross-examination testimony, Marshall O'Connor could not account for the identical wording between his testimony and that of Chief Cronin and stated that if it were identical in any respect, it was coincidence<sup>27</sup> (Tr. 16,473).

### C. Applicants' Case

3.31. In response to the allegations raised by the foregoing witnesses, the Applicants submitted testimony by a panel of witnesses consisting of Stephen M. Baldacci, the Emergency Planning Technical Issues Coordinator of NHY (Qualifications, ff. Tr. 17,318); Anthony M. Callendrello, Manager of Emergency Preparedness Licensing of NHY (Qualifications, ff. Tr. 17,318); Edward B. Lieberman, President, KLD Associates (Qualifications, ff. Tr. 17,318); and Dr. Dennis S. Mileti, Professor of Sociology and Director of the Hazards Assessment Laboratory, Colorado State University (Qualifications, ff. Tr. 17,318). Appl. Reb. No. 9, ff. Tr. 17,333, at 1-46.

3.32. The Board finds these witnesses to be competent to testify on matters related to emergency planning and the subjects they addressed.

3.33. The Applicants' Traffic Management Plan is found in Appendix J of the SPMC. Appl. Exh. 42, Appendix J.

3.34. The primary objective of traffic management is to support emergency evacuation operations to ensure an adequate and efficient evacuation from the area of concern. To support this objective it is necessary to recommend evacu-

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<sup>27</sup>The Applicants point out that the Marshall did define at least one common term in the prefilled testimony, "breakdown," differently than Chief Cronin (*compare* Tr. 16,373-74 with Tr. 16,503).

ation routes and implementable traffic control strategies to utilize efficiently the available roadway network capacity. In some instances, control strategies that enhance existing roadway capacity can significantly expedite evacuation traffic movements. Since such treatments are frequently resource-intensive, they are limited to those locations that offer the greatest potential benefits. Thus, a well-designed traffic management plan identifies the most effective control strategies, quantifies the resulting benefits, and balances these benefits with the available resources to define the most effective and implementable plan responsive to the stated objective. Appl. Reb. No. 9, *supra*, at 1.

3.35. The SPMC traffic management plan was the result of an extensive recursive and iterative process which the Applicants' witnesses summarized succinctly for the record. *Id.* at 2-5. Refinement of the traffic control plan continued until no material improvement in the ETEs was obtained. *Id.* at 4-5. *See also* Urbanik Dir., ff. Tr. 26,337, at 6-7.

3.36. TCPs in the SPMC are designed to perform a number of functions: (1) facilitate evacuating traffic movements that serve to expedite travel out of the EPZ along the planned evacuation routes; (2) discourage traffic movements that permit evacuating vehicles to travel in a direction that takes them significantly closer to the power station; and (3) resolve potential conflicts between traffic streams at intersections by assigning right-of-way so as to promote safe operations and to keep traffic moving. Appl. Reb. No. 9, *supra*, at 6.

3.37. The number of Traffic Guides assigned to each TCP and ACP was determined based upon the complexity of the point's traffic strategy, the location's general configuration, and the type of equipment assigned for use. Police Chiefs in the Massachusetts EPZ communities were requested to provide input on the traffic routing, TCP and ACP strategies, and how many personnel and what equipment would be required to implement the desired strategies. Detailed inputs to the design of the traffic control plan were received from five Police Chiefs (all except that of the Town of Amesbury) during interviews Mr. Lieberman conducted with them during the drafting stages of the SPMC and through subsequent correspondence.<sup>28</sup> *Id.* at 6-7. *See also* Appl. Exh. 50; Tr. 17,451, 17,464-66.

3.38. The number of Traffic Guides at each TCP was minimized to the number required to implement its control strategy in an efficient manner, in order to avoid confusion and conflict between guides. Tr. 17,443; *see also* Tr. 17,153-54.

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<sup>28</sup> However, Intervenors argue that the input the Police Chiefs have given Mr. Lieberman may have accompanied a presumption that traffic management would be handled by police, not the ORO (Tr. 17,449-50; TOWN PF 3.1.27) and that the statements that were made were made on the basis of then currently available resources of the Towns (see TOS PF 3.1.9; TOWN PF 3.1.27). The record is incomplete as to the exact understanding of the Police Chiefs who offered their advice to Mr. Lieberman because none of these individuals were presented as witnesses.

3.39. The TCPs from a draft of a Radiological Emergency Response Plan (RERP) for the Commonwealth of Massachusetts, which the Commonwealth has stated the State Police would look to for guidance in the event of a real emergency, have also been utilized in formulating the SPMC.<sup>29</sup> Appl. Reb. No. 9, *supra*, at 8. *See also* Tr. 17,671.

3.40. The Intervenors' chief criticisms of the traffic management plan fall into three categories: (1) inadequate routing plans, (2) inadequate staffing, and (3) inadequate equipment and procedures. Each issue area will be addressed separately, below.

#### D. The Adequacy of the TCP Routing Plans

3.41. The Attorney General grounds his argument — that the Applicants' traffic management plan is defective because it contains "inadequate routing plans" — on an analysis of two key SPMC TCPs: B-SA-06 and B-AM-06, diagrams of which are attached hereto as Appendices B and C. He makes his argument, in the main, by focusing on the control policy utilized for the intersection of Routes 1, 1A, and 110 (Salisbury Square), which is illustrated on the diagram for TCP B-SA-06. Appl. Reb. No. 9, *supra*, Attach. A; SPMC Appendix J, at J-89; Appendix B, attached hereto).

3.42. The Attorney General asserts that the traffic routing plan for B-SA-06 is grossly inadequate because it discourages all Salisbury Beach evacuees from using Route 1 south at Salisbury Square as one of their evacuation routes, thereby lengthening ETEs for this segment of the *Massachusetts* EPZ population. His argument is framed by the sunny summertime scenario when the beaches are crowded and there is traffic congestion at Salisbury Square, *citing* Beevers Dir., *supra*, at 4-10. MAG PF 2.1.29.B-29.C.

3.43. The NHRERP and the SPMC route Salisbury Beach evacuees west along Route 1A (Beach Road), a two-lane road running west from the beach into Salisbury Center, which is located about 2 miles west of the beach. Beevers, *supra*, at 5. Normally, when westbound traffic on Route 1A reaches Salisbury Center, a stop sign there directs the Route 1A traffic to stop at the intersection with Route 1. Route 1 is the main north-south highway in the EPZ, apart from I-95, and connects Portsmouth, New Hampshire, in the northern part of the EPZ to Newbury, Massachusetts, and beyond in the southern part of the EPZ. *See* Link-Node map, NHRERP, Vol. 6, Fig. 1-3, ff. 1-12. The existing traffic

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<sup>29</sup> The Attorney General, on the other hand, asserts in his proposed finding that this draft "was rejected by the Commonwealth as inadequate" (MAG PF 3.1.32) but he fails to offer any citation or expert testimony to back up his claim. We find no substantive proof in the record that the *Massachusetts* State Police would not look to the Massachusetts RERP for guidance in a radiological emergency as that guidance pertains to ACPs and TCPs, only that they may have difficulty in doing so. *See* Tr. 17,671.

controls allow free movement along Route 1 north and south at Salisbury Center, where it intersects with Route 1A.

3.44. In the event of an evacuation of the Salisbury Beach area due to a radiological emergency at Seabrook Station, the SPMC traffic routing plan (when the TCP is staffed by Traffic Guides) attempts to "discourage" the evacuees on Route 1A from turning left onto Route 1 southbound, utilizing both traffic cones and Traffic Guides for this task. *See* Traffic Control Post No. B-SA-06, SPMC, Appendix J, at J-89; Appendix B, attached hereto. Only "light" traffic from Mudnock Road is routed onto Route 1 southbound at this point. *Id.* Salisbury Beach evacuees are routed across Route 1 onto Route 110 (Elm Street) westbound. *Id.*

3.45. Dr. Adler attacks the SPMC for its failure to utilize Route 1 south as an evacuation route for the Salisbury Beach evacuees. He testified that the proposed routing increases the ETEs for *Salisbury Beach* evacuees (by 2 hours) over that which would occur if no Traffic Guides or other unusual control measures were present. *See* Adler Dir., *supra*, at 4-6; Tr. 16,991, 17,012, 17,121-22. His view is that a more rapid evacuation of Salisbury Beach can be accomplished using the available capacity of *both* Route 110 westbound and Route 1 southbound. The Attorney General, and Dr. Adler, contend that if a goal of the traffic management plan is to evacuate those in Salisbury Beach from the area as rapidly as possible, then *some portion* of the Salisbury Beach traffic should be encouraged to go south on Route 1, at Salisbury Center. *See* Tr. 17,123.

3.46. The original control policy developed for this intersection was to facilitate both westbound travel along Route 110 toward I-95 and I-495, and southbound travel along Route 1. Appl. Reb. No. 9, *supra*, at 7. At the intersection, one lane of vehicles was sent on each of these roads. Tr. 17,624-25. The current police chief of the Town of Newbury and the former police chief of the City of Newburyport, however, objected to this policy. Appl. Reb. No. 9, *supra*, at 7-8; Tr. 16,968-69. They believed that Route 1 would be congested with evacuating traffic from Salisbury Beach to the extent that evacuees from Newbury and Newburyport would be unduly delayed as a result. Tr. 17,619. To respond to these concerns, the traffic control policy at Salisbury Center was revised by the Applicants and it took its present form, whereby all traffic is routed over two lanes along westbound Route 110 toward I-95 and I-495. This revised policy was reviewed with former Salisbury Police Chief Olivera, who approved it and stated that the town police could implement it. Appl. Reb. No. 9, *supra*, at 8. *See also* Tr. 16,968-69, 17,454.

3.47. The routing change of TCP B-SA-06, as were all changes suggested by police chiefs, was made only after Mr. Lieberman satisfied himself that the effect of the change requested would not be counterproductive to the ETE and that the control strategy adopted was effective. Tr. 17,453-55, 17,460-61.

3.48. The Attorney General argues that the current traffic control strategy cannot be found to be adequate because Mr. Lieberman never ran the IDYNEV model to see if the traffic control strategy recommended by Dr. Adler would produce a lower ETE for Salisbury Beach. MAG PF 3.1.31, *citing* Tr. 17,620-25. Mr. Lieberman used IDYNEV only to compare his original strategy (one lane through onto Route 110 and one lane left onto Route 1A) with his revised strategy (two lanes through onto Route 110); he never examined this third option (two lanes through onto Route 110 and one lane left onto Route 1). *See* Tr. 17,620-23. As to the comparison of the other two options, however, Mr. Lieberman found no change in the ETE for the areas affected. Tr. 17,620, 17,453-55, 17,460-61. Mr. Lieberman also stated that "having two lanes through and one left" makes "no sense" because it would not evacuate Salisbury Beach any faster and might slow it down. Tr. 17,622-23. We note that in the summertime, on good beach days as Chief Beevers points out, Route 1A traffic normally flows at level of service (LOS) E or F.<sup>30</sup> *See* Beevers Dir., *supra*, at 4, 6-7.

3.49. The Attorney General argues that under these conditions, it is simply "counterintuitive" to believe that if some of this flow from Route 1A were diverted, or simply allowed to turn onto Route 1 southbound, the upstream vehicles on Route 1A could not easily "fill the gap" downstream on Route 110, as some additional volume of traffic per hour evacuates southbound on Route 1. MAG PF 3.1.31.A. He further asserts that "there is no evidence to support the notion that the benefits in dose savings for Salisbury Beach evacuees through using Route 1 south is offset by an increase in ETEs for those in Newburyport and Newbury." MAG PF 3.1.31.D.

3.50. Mr. Lieberman addressed each of the Attorney General's criticisms with regard to the traffic design for B-SA-06. He explained that if you could develop additional capacity ("throughput") on Route 1A, i.e., two lanes westbound, occupying both lanes of travel, *prior to entering the intersection where traffic is split into two lanes*, then the Attorney General's concept

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<sup>30</sup> Level-of-service E represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform, value. Freedom to maneuver within the traffic stream is extremely difficult, and it is generally accomplished by forcing a vehicle or pedestrian to "give way" to accommodate such maneuvers. Comfort and convenience levels are extremely poor, and driver or pedestrian frustration is generally high. Operations at this level are usually unstable, because small increases in flow or minor perturbations within the traffic stream will cause breakdown.

Level-of-service F is used to define forced or breakdown flow. This condition exists whenever the amount of traffic approaching a point exceeds the amount that can traverse the point. Queues form behind such locations. Operations within the queue are characterized by stop-and-go waves, and they are extremely unstable. Vehicles may progress at reasonable speeds for several hundred feet or more, then be required to stop in a cyclic fashion. Level-of-service F is used to describe the operating conditions with the queue, as well as the point of the breakdown. It should be noted, however, that in many cases operating conditions of vehicles or pedestrians discharged from the queue may be quite good. Nevertheless, it is the point at which arrival flow exceeds discharge flow that causes the queue to form, and level-of-service F is an appropriate designation for such points. NHRER, Vol. 6, at 10-19.

might be valid. *See* Tr. 17,621-24. However, without that increased capacity, Mr. Lieberman explained that the addition of Route 1 (to the evacuation scheme at the intersection) does not increase throughput, and the addition of more traffic cones and Traffic Guides only tends to make movements more complicated, and runs the potential for decreasing the movement. *Id.*

3.51. The Applicants and NRC Staff urge the Board to afford little evidentiary weight to Dr. Adler's sensitivity run testimony, because they contend that the computer runs that he developed for Salisbury Beach were based on incorrect assumptions. Dr. Adler's computer runs included independent assumptions regarding population estimates, on-ramp capacities, vehicle occupancy rates, and in-transit vehicles. Tr. 16,947-51. He assumed that certain TCPs, which are "priority one" TCPs, would not be staffed while others, which are to be manned much later in the relevant manning sequences, are staffed. Tr. 16,999-17,001, 17,139-41; *see also* Appl. Reb. No. 9, *supra*, at 40-43. In addition, his analysis assumed that traffic would not elect to continue west on Route 110 at the Route 110/I-95 intersection, but would instead remain in a long queue at that location. Tr. 16,981-82. He also admitted that he loaded excess in-transit vehicles near the Salisbury Beach area in his sensitivity runs.<sup>31</sup> Tr. 16,956-57.

3.52. When challenged on cross-examination,<sup>32</sup> Dr. Adler acknowledged that it would have been scientifically more appropriate to have modeled the comparative case on the basis that if the key TCPs he was addressing were unmanned, those that called for later manning should also be assumed to be unmanned. Tr. 17,008-10, 17,015. Ultimately, Dr. Adler conceded that his computer runs included assumptions that increased the ETEs, and that they did not reflect a comparison between the SPMC and an uncontrolled evacuation. Tr. 17,038-40, 17,066, 17,099-104.

3.53. In a rather confusing defense of Dr. Adler's testimony, the Attorney General argues that the important fact to keep in mind, and which Applicants' arguments ignore, is that Dr. Adler's analyses were made on the basis of a *sensitivity test*; his computer runs were not conducted to produce a full set of ETEs for the entire EPZ (*citing* Tr. 17,058-59). MAG PF 3.1.31.E. He further asserts that Dr. Adler's computer runs were focusing on how the ETEs for *Salisbury Beach*<sup>33</sup> evacuees would change with and without the presence of the

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<sup>31</sup> We find it interesting that the Attorney General argued with respect to ETEs that Mr. Lieberman's adding of in-transit vehicles to his model without taking others away at some other location in the EPZ tended to distort the reliability of Mr. Lieberman's sensitivity run. *See* MAG PF 2.1.15.N.

<sup>32</sup> Applicants and Staff point out, and we agree, that Dr. Adler was less than forthright in his cross-examination testimony on the issue of his sensitivity runs. *See* Tr. 16,992-99, 17,004-05, 17,007-08, 17,010-14, 17,065.

<sup>33</sup> We have addressed the merits of the Attorney General's concerns over segregated ETEs for the Massachusetts communities in Findings 2.23-2.26, *supra*. We do not find that there would be a situation where Salisbury Beach would be evacuated independently of the New Hampshire communities located closer to the plant. The Applicants' regional evacuation concept is a valid concept, and Salisbury Beach is included in the ETEs for regional evacuations in the SPMC.

SPMC traffic controls. Tr. 17,127-28, 17,058-59. In Dr. Adler's opinion, in order to do a reasonably comparative sensitivity test to assess the impact of having no guides present along this pathway, he needed only to change certain inputs to the model to eliminate the "special" control strategies at these two key locations in Massachusetts. He argues that making additional inputs to the model to "take away" guides at other points was unnecessary for a number of reasons. First, he said it would not have substantially affected the roadway capacity used by Salisbury Beach evacuees. Tr. 16,992. He found that (1) there was clearly no need in this sensitivity test to alter TCPs in Merrimac, Massachusetts, or other towns not likely to be visited at all by Salisbury Beach evacuees, and (2) even in those towns through which the Salisbury Beach evacuees would pass, the model was already routing the evacuees in the same manner they would likely route themselves if no guides were present. *See* Tr. 16,992-94, 17,001-05, 17,127. Second, the Attorney General argues that full comparative modeling would have involved a substantial amount of work in coding the model. In Dr. Adler's opinion, that recoding would not have made much difference in the outcome for the Salisbury Beach evacuees. Tr. 17,009-10, 17,128. Dr. Adler pointed out that a full and complete coding effort would be very difficult to do, just as it is very difficult to model all returning commuters. Tr. 17,010. Opportunistically building on this argument, the Attorney General asserts that he is making the same reasonable argument here that the Applicants (joined by Dr. Adler) have made in support of their limited effort to model returning commuters: the full effort is unreasonably demanding in light of the good results that can be obtained by focusing on the "critical pathways." MAG PF 3.1.31.E.

3.54. Notwithstanding the Attorney General's prolonged arguments to the contrary (*see* MAG PF 3.1.31.E-31.H), he would have the Board find the credibility of Dr. Adler's testimony regarding his sensitivity runs to be a "squabble . . . immaterial to the real issue . . . [whether] the plan maximizes dose reduction and achieves adequate protection." MAG PF 3.1.31.B.

3.55. Dr. Adler's sensitivity runs were not modeled using the staffing priorities the Applicants' traffic management plan anticipates. *See* Tr. 17,001-15. He also made other assumptions independent of the Applicants' assumptions. *See* Tr. 16,956-57.

3.56. Dr. Adler's sensitivity runs are simply not a comparative study of an alternate routing of TCP B-SA-06, or any other TCP. We have no way of knowing what the results of his runs might have been had they been done in accordance with the SPMC assumptions, and, therefore, no way of giving any weight to his testimony on this issue. The issue is more than a mere "squabble" as the Attorney General states. If Dr. Adler's sensitivity runs are defective, so is the Attorney General's conclusion that the suggested rerouting would better

maximize dose savings. He avoids the fact that his conclusion is totally grounded on Dr. Adler's data.

3.57. Furthermore, the Attorney General's comparison between Dr. Adler's sensitivity run and the Applicants' returning-commuter sensitivity run is a comparison of "apples-to-oranges." Mr. Lieberman's sensitivity run with respect to returning commuters in Massachusetts modeled the whole of the EPZ so the effects of his input could be ascertained for all of the Massachusetts EPZ communities. Dr. Adler's sensitivity runs isolated a small portion of the EPZ, changed some data inputs, and left others intact, and resulted in data skewed for that isolated portion without regard to other EPZ communities. We find that Mr. Lieberman has met the Attorney General's criticisms and has adequately demonstrated the modeling of B-SA-06.

3.58. The Board does not share Dr. Adler's concern with respect to the TCP at the intersection of I-95 and Route 110 in the Town of Amesbury identified as TCP B-AM-06 (Appendix C, attached hereto). *See* MAG PF 3.1.31.G. Dr. Adler asserts that the SPMC plan to instruct all Salisbury evacuees to go to the Beverly reception center is likely to result in a traffic flow through the I-95/Route 110 intersection that will not permit the available capacity of the downstream I-495 on-ramp to be fully utilized during the later stages of an evacuation. *Id.* We do not agree with his assertion because his concern does not account for the fact that there is an option for traffic to proceed west on Route 110 and exit to I-495 and also because it appears to be based in part on a misunderstanding of the actual configuration of Route 110 at the interchange. Appl. Reb. No. 9, *supra*, at 36-38. *See also* Tr. 16,976, 16,979, 16,983, 16,989-90. His analysis assumed that, at the Route 110/I-95 interchange, no traffic would elect the option of continuing west on Route 110 to I-495 on the assumption that they all will have been instructed to proceed to the Beverly reception center, and that they will all comply with that instruction by traveling down I-95, the first route they come to. Tr. 16,981-82.

3.59. The Attorney General's assertions are weak because there is no evidence that all evacuees, and particularly day trippers without access to route maps and other preemergency information, will be instructed as to which specific routes to utilize in going to the Beverly reception center. Furthermore, it is unlikely that all of them will even go to the Beverly reception center. The Board finds that IDYNEV's assignment of a portion of the evacuating traffic to proceed west on Route 110 is reasonable.

#### E. The Adequacy of TCP Numbers and Staffing

3.60. The second major issue contended by the Intervenors involves the staffing of the TCPs. Their staffing-related allegations involve four issues: (1) there are too few TCPs and Traffic Guides; (2) it is "grossly imprudent" to use

nonprofessional, civilian Traffic Guides lacking real experience with congested-flow traffic; (3) the ORO Traffic Guides cannot be in place promptly enough; and (4) there are inadequate plans for replacing the first-shift Traffic Guides. MAG PF 3.1.31.I and related Intervenor proposed findings, *supra*.

3.61. First, the Attorney General raises an argument repeated several times in his proposed findings (*see* MAG PF 3.1.24, 3.1.31.J, 3.1.33) that the focus of the Board's concern with regard to the traffic management plan should not be on the ETE for the entire emergency planning zone, because that concern:

totally ignores the real dose savings that can be achieved for a given town if traffic control personnel are placed appropriately to ensure that each local evacuation is not unduly delayed at anticipated local congestion points.

He argues that since several Massachusetts communities have less than level-of-service E or F congestion on their evacuation routes, any local traffic congestion that is relieved by Traffic Guides will minimize local delays and maximize dose reduction. MAG PF 3.1.31.J. The Town of Newbury points out that the Applicants acknowledge that additional TCPs could be added which would facilitate movement of traffic away from Seabrook Station (Tr. 17,355, 17,376), and argues, therefore, that the SPMC is inadequate because it fails to facilitate movement away from the facility as quickly as possible. TON PF 3.1.24, 3.1.33. The argument is further defined by TOWN PF 3.1.16.WN.b:

[T]he primary purpose of traffic management as part of the SPMC is to achieve maximum reasonable dose saving — to maximize dose reduction — and to achieve adequate protection for the public. Tr. 17,538. While lowering the overall ETE is a major component and goal of a traffic management plan, it is not the only objective. Alleviating congestion within an area in the event of a release of radiation so as to assist the public in moving further away from Seabrook Station — even though still within the EPZ — will further the goal of maximizing dose reduction, since the closer to the plant, the greater the risk. [*Citing*] Tr. 17,529.

The Town of Newbury further argues that there is no evidence that it would be unreasonable or impractical to provide the additional TCPs the Applicants acknowledge would assist in facilitating traffic movement. TON PF 3.1.33.

3.62. The Intervenors have correctly stated the underlying purpose of a traffic management plan — to maximize dose reduction. Emergency planners are charged with the responsibility of identifying and planning for those actions that could be taken to significantly reduce evacuation times in the event of a radiological emergency, thereby providing the lowest reasonably feasible evacuation times. *See generally* Urbanik Dir., ff. Tr. 26,337, at 4-6. Here the Intervenors have alluded to a problem that does not directly challenge the Applicants' ETE for the EPZ. It challenges the Applicants' ability to move

evacuees who are nearest to Seabrook Station away from Seabrook Station more quickly, even though they may reach a bottleneck somewhere else in the EPZ.

3.63. The Board has reached the following conclusions with respect to these allegations. First, the Intervenors' argument inherently postulates several conditions: (1) a fast-breaking accident where a radiological release is occurring or is imminent and an evacuation has been ordered; (2) a summer scenario when the beach areas are the most crowded; (3) a total ORO response without help from local authorities and police to alleviate local congestion; (4) a time at the beginning of the evacuation when critical pathways are at capacity and congestion is still evident on roads near the plant but could be relieved; and (5) that the Traffic Guides can be at the local congestion points early in the evacuation to be effective at removing the congestion.<sup>34</sup>

3.64. Empirical results from the 1988 FEMA-Evaluated Exercise indicate that Traffic Guides begin arriving at the Staging Area within approximately 45 minutes from notification of a Site Area Emergency (discretionary beach closure in Massachusetts) and all Guides will report within approximately 2 hours. Within approximately 1 hour, twenty-seven Traffic Guides would be available at the Staging Area. This is the number required to staff the most important ACPs and TCPs which have the most potential for affecting evacuation time. Appl. Reb. No. 9, *supra*, at 24. Briefing of the Traffic Guides takes approximately 30 minutes. *Id.* at 25. In order to maximize the effectiveness of the response, Traffic Guides are assigned TCPs and ACPs in priority order (i.e., "manning sequence") which expedites the establishment of the more important control points. *Id.*

3.65. Upon completion of the Staging Area activities, each Traffic Guide is immediately dispatched to his/her control point with instructions to establish the point upon notification of the evacuation recommendation. *Id.* The approximate travel times from the Staging Area to the TCPs range from 15 to 75 minutes. The average travel time to the most important TCPs is approximately 40 minutes. *Id.* at 26. On the basis of the foregoing, the first Traffic Guides will be in place at the most important TCPs within 1.5 hours from the declaration of a Site Area Emergency, and the remaining Traffic Guides will be in place at the most important TCPs within approximately 2.75 hours. *Id.* Summation of the individual activity times revealed that all of the TCPs can be fully staffed within approximately 3.75 hours. *Id.*

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<sup>34</sup> As we have stated above, the Intervenors' argument postulates benefits only for an uncounted number of individuals — those evacuees who are nearest the plant on roads that are not at capacity. Once these same evacuees reach critical pathways that are at capacity (which in the case of an EPZ-wide evacuation could be only a matter of minutes) the benefits cease to exist.

3.66. The most important questions become: How fast could the Applicants staff the local congestion points and what would the total benefits of that staffing be in terms of dose savings?

3.67. We begin our analysis under the premise that we find no regulatory basis to require the Applicants to have Traffic Guides in place at the inception of an evacuation. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-85-12, 21 NRC 644, 724 (1985). The most important of the TCPs — those locations where Traffic Guides' actions to enhance roadway capacity or facilitate movements on heavily trafficked roads may influence evacuation time — are staffed first. The Applicants have shown that the staffing of these points can be accomplished progressively over a period of time ranging from 1.5 to 2.75 hours. The remaining TCPs, the category of "additional" TCPs anticipated by the Intervenors' argument (those roads nearest the Station that are not at capacity and that would not affect the ETE) would be staffed within 3.75 hours.

3.68. The definition of an ETE is the time it takes for the last person to exit the EPZ. The ETE for the Massachusetts beach areas on a peak summer weekend during a total EPZ evacuation could range from approximately 7 to 10 hours. This means in a worst case, on a sunny summer weekend afternoon when the beaches are crowded, the last person out of Salisbury Beach (most likely an evacuee from Seabrook, New Hampshire, evacuating through Salisbury) could cross the 10-mile EPZ boundary approximately 10 hours later. Simplistically, he would average approximately 1 mile per hour in his evacuation journey. At 3 hours from the order to evacuate, it would be quite probable that he would be approximately 3 miles from Salisbury Beach and into heavily congested traffic near Salisbury Square on Route 110. By the time additional TCPs nearest the plant could be manned under the prioritized staffing sequence demonstrated in the Seabrook exercise (approximately 3 hours), there is a great possibility that any congestion on noncapacity roads nearest the plant would no longer exist. The benefit received from staffing those roads under the conditions presented by the Intervenors would be lost. There would be no dose savings as the Intervenors contend. Furthermore, in an actual emergency, congestion on the roadways near the plant would be relieved by the prompt response of local police. *E.g., Finding 3.84, infra.*

3.69. Further allegations have been made, as noted earlier, to the effect that additional TCPs are necessary at schools and other facilities. The Board finds that, while traffic control at these locations might assist the ingress and egress of vehicles to these facilities, such assistance would not influence the ETE. While the absence of such traffic control might delay, somewhat, vehicles evacuating from these facilities, other evacuating vehicles in the traffic stream would benefit accordingly, and there would not be a significant effect on the ETE. Applicants have shown that these actions would not provide any systemic

benefits. Appl. Reb. No. 9, *supra*, at 11-12. See also Urbanik Dir., ff. Tr. 26,337, at 13-16.

3.70. The Board finds that while additional TCPs might be helpful in providing reassurance to evacuees and in assisting traffic movements, they would have a minimal impact on reducing overall evacuation times. The Applicants and NRC Staff have presented convincing testimony on this issue. Placement of additional TCPs at noncapacity constrained locations would not further expedite evacuation traffic flow because traffic demand is less than capacity at these locations. Even if there were minimal benefit, expedited flow encounters a more restrictive bottleneck downstream; in such an event, gains that are realized locally would be canceled at the more restrictive locations. Because the existing plan accounts for the restrictive locations that have ultimate control of the traffic flow, the placement of additional TCPs elsewhere would not reduce the ETE. Appl. Reb. No. 9, *supra*, at 9-10; Urbanik Dir., ff. Tr. 26,337, at 5-6, 9, 13-16. See also Tr. 17,112-13.

3.71. Dr. Urbanik testified that the SPMC provides more TCPs than are actually required. Urbanik Dir., ff. Tr. 26,337, at 18; Tr. 26,452-53, 26,463-64.

3.72. The Board also does not share the Attorney General's concerns with regard to the late arrival of ORO Traffic Guides. He argues that there has been no showing by the Applicants that ORO Traffic Guides could not be hired from locations close to the staging area so they could reach congested areas more quickly. Moreover, he asserts, there has been no showing by the Applicants that an earlier mobilization of the Traffic Guides (at the Alert level) would be infeasible. MAG PF 3.1.31.L. He also joins the other Intervenors in asserting that Traffic Guides will be unable to establish control of intersections if they are congested. *Id.*

3.73. The Applicants have explained in detail the theory and methodology utilized for prioritizing the staffing of TCPs and ACPs, so as to provide staffing first at those points in descending order of importance. Appl. Reb. No. 9, *supra*, at 23-27; Urbanik Dir., ff. Tr. 26,337, at 8-9. The Board finds that the SPMC procedures allow for staffing of TCPs and ACPs prior to the onset of congestion (other than for beach closure) for all but very fast-breaking accidents. Appl. Reb. No. 9, *supra*, at 23-27.

3.74. It is possible under fast-breaking accidents that some evacuation routes may experience congestion prior to the time when Traffic Guides arrive at the TCPs. Under these conditions the Traffic Guides would have to establish the TCP's traffic control strategy in a congested-traffic environment. While activating a TCP may potentially be more difficult under congested conditions than when traffic volume is light, it is not expected that the existence of congestion would preclude activation.

3.75. It is quite common for police to establish control during congested conditions, such as at the scene of an accident. Evacuating traffic would be

moving slowly under congested conditions. Motorists would cooperate with the Traffic Guides' efforts to establish control. In general, motorists would welcome the implementation of traffic control strategies that increase capacity or otherwise expedite evacuation movements. Appl. Reb. No. 9, *supra*, at 32-33; Tr. 26,443.

3.76. No contention or basis filed by the Intervenors raises the issue of local recruiting of Traffic Guides or a regulatory requirement to do so.

3.77. Complaints are also made as to the setup of certain TCPs in the Town of Amesbury. The Town's Police Chief rejected a request to provide input and did not participate in the development of the Town's traffic plan. Accordingly, the TCPs and Traffic Guide requirements for Amesbury were determined by KLD Associates. The resulting SPMC traffic plan designed for Amesbury specifies nine TCPs staffed by seventeen Traffic Guides. The June 13, 1986 Amesbury Comprehensive Emergency Management Plan (Appl. Exh. 44) developed by Amesbury's Civil Defense Director and state officials, but neither adopted nor endorsed by the Town (TOA PF 3.1.10), specifies only two TCPs for evacuation of the entire town. Appl. Reb. No. 9, *supra*, at 10 and Attach. B; Appl. Exh. 44, Annex M; Tr. 16,750-54. However, we find this plan to be of little assistance in evaluating the adequacy of the SPMC, except to note that both of the TCPs shown in the Amesbury plan are included in the SPMC. Appl. Reb. No. 9, *supra*, at 10-11; *see also* Tr. 16,818.

3.78. The Board finds that the SPMC provides an adequate number of traffic control personnel. Urbanik Dir., ff. Tr. 26,337, at 9; Tr. 26,449-50, 26,456.

3.79. The issue of the training and competence of the ORO Traffic Guides has been addressed in Section 5, *infra*, and has been found to be adequate. We need not further address the issue here.

3.80. It has been suggested that Traffic Guides will be tied up by people seeking information, and thus will not be able to do their primary job of facilitating traffic movement. However, with a view to this problem, the Traffic Guides are instructed not to have any long conversations with drivers, but rather to tell them to tune their radios to the EBS stations for information. Tr. 17,439. In addition, Applicants' witnesses testified in some detail concerning the procedures for manning TCPs, and, in particular, the procedures for handling inquiries of various kinds from the public so as not to be distracted from their main tasks. Appl. Reb. No. 9, *supra*, at 28-31.

3.81. MAG PF 3.1.31.M attacks the lack of relief staffing for the ORO Traffic Guides — that they are expected to work 12-hour shifts without being relieved. Dr. Adler testified that a Traffic Guide has an attention span of 4 hours. Tr. 17,026. The Attorney General asserts that they will walk off the job to take breaks and relieve themselves. MAG PF 3.1.31.M, *citing* Adler Dir., *supra*, at 7-8.

3.82. We first note that the posture of the Attorney General's contention relies on a prolonged evacuation — by inference it necessarily postulates an EPZ-wide evacuation on a crowded summer weekend. It also postulates that there will be no time between the manning of the traffic control point (sometime after the declaration of a Site Area Emergency when the Traffic Guide arrives at this TCP) and the actual setup of the traffic control strategy for the TCP (at the order to evacuate). This is the only scenario that would have the Traffic Guide on his feet for any time close to 12 hours.

3.83. On cross-examination, the Applicants questioned Dr. Adler as to whether he had considered that the Traffic Guides would be helped with their tasks by local and State Police at sometime during the evacuation. Dr. Adler stated that he did not know if they would. Tr. 17,026-28.

3.84. We find that under the best-efforts response, local officials and police, as well as the State Police, will be available to aid those ORO Traffic Guides on the critical pathways during the evacuation.<sup>35</sup> We have no reason to believe that the ORO Traffic Guides at these locations will go totally unaided in their tasks for a full 12-hour period.<sup>36</sup>

3.85. Furthermore, the Attorney General's concern is really a staffing resource concern. As this Board has concluded on a similar issue:

[T]he staffing problem arises from a postulated rapidly developing accident at the very end of the spectrum of accidents within the NUREG-0654 planning bases, but with the additional postulation that the accident occurs on a peak summer day. That particular accident sequence need not be isolated from all others for emergency traffic management purposes. . . . [S]taffing shortages revealed by this litigation would arise during a hypothetical evacuation of the entire EPZ. In an actual emergency, however, evacuation would be implemented on a municipality-by-municipality basis. . . . An evacuation of only a portion of the EPZ, even in a fast-breaking accident, will ameliorate or eliminate the problem of limited [staffing] mobilization.

LBP-88-32, *supra*, 28 NRC at 795.

3.86. The Attorney General's concerns regarding problems instituting ACPs on interstates also disregards the probability that local officials and police, and State Police, will be available to assist with traffic and access control activities.

3.87. Specifically, in addition to TCPs, police will likely assist in establishing and activating ACPs and in screening vehicles, when ORO guides are

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<sup>35</sup> The Commission assumes that in an actual emergency, state and local governments would make a "best-effort" response, relying on the utility plan. *Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1)*, CLI-86-13, 24 NRC 22, 29, 31 (1986); 10 C.F.R. § 50.47(c)(1)(iii)(B); *Massachusetts v. U.S.*, 856 F.2d 378, 383 (1st Cir. 1988).

<sup>36</sup> The Town of Newbury has admitted that at least twenty-five individuals could be available to respond to help with traffic control in that Town alone. TON PF 3.142.

instructed to do so approximately 2 hours after the order to evacuate. In the process, use of the police cruisers' emergency flashing lights at ACPs could provide additional capacity for alerting approaching motorists. Moreover, all State Police cruisers are equipped with microphones and loudspeakers which can be used to inform and guide motorists approaching the EPZ. The location of the State Police Barracks in the Town of Newbury (off Scotland Road adjoining the interchange with I-95) would facilitate an expeditious response by State Police. Appl. Reb. No. 9, *supra*, at 21-22.

#### F. The Adequacy of Resources

3.88. As noted earlier, criticisms have been leveled at the SPMC because of the decision to employ traffic cones instead of barricades at TCPs and ACPs. See Adler Dir., *supra*, at 9; TOA PF 3.1.14; TOS PF 3.1.8. No apparent benefit is afforded by the use of wooden barricades as opposed to cones. See Tr. 16,529-30, 17,093-94, 17,266. Marshall O'Connor, while adhering to his position that the use of traffic cones was totally unacceptable (Tr. 16,486, 16,492) because of their easy movability (Tr. 16,523) admitted that his next choice, wooden "horses," also were easily moved (Tr. 16,529-30). He also indicated that it would be impractical to use concrete barriers, as his direct testimony had strongly recommended. O'Connor Dir., ff. Tr. 16,458, at 4-5; Tr. 16,520. Chief Cronin also admitted that the use of concrete barriers is cumbersome and creates its own set of problems. Cronin Dir., *supra*, at 13; Tr. 16,367-68, 16,401-02.

3.89. We find that traffic cones, suitably reflectorized — as indicated by the Applicants in Appl. Reb. No. 9, *supra*, at 17 and 20 — provide a highly visible means for alerting and channeling traffic, and will be an appropriate and adequate traffic control device for short-term control of emergency evacuation operations. Appl. Reb. No. 9, *supra*, at 17-20. Dr. Urbanik testified that in most cases cones are preferable to barricades because of the need for rapid deployment, flexibility in planning, and ease of implementation, and because they are consistent with the SPMC goal of discouraging (but not prohibiting) vehicular passage at TCPs. Urbanik Dir., ff. Tr. 26,337, at 10; Tr. 26,425-26. See also Tr. 26,418. The SPMC selection of such traffic control devices is consistent with the MUTCD. Urbanik Dir., ff. Tr. 26,337, at 10, 17.

3.90. Applicants have determined that a total of 615 traffic cones (including the amount necessary to replace barricades) is required to perform traffic and access control functions. Appl. Exh. 42, Appendix J, at J-13. The ORO maintains a total of 800 traffic cones at the staging area for use at ACPs and TCPs. An additional fifty cones are available at the Emergency Worker Facility (EWF). Appl. Reb. No. 9, *supra*, at 22. For longer-term control, it is reasonable to expect that the State Department of Public Works (DPW) would be able to provide additional traffic control devices (e.g., barricades, arrow boards, advi-

sory and warning signs) for ACPs as specified in NHRERP, Volume 6, and the MUTCD. If these devices are not in the State DPW inventory, they can be requisitioned from other sources. Appl. Reb. No. 9, *supra*, at 20-21. However, upon revision of the TCP and ACP diagrams as discussed in Findings 3.91 and 3.92, *infra*, the Applicants must verify that the number of traffic cones that they maintain continues to be sufficient.

3.91. Applicants have addressed various complaints with respect to the TCP and ACP diagrams, both of a particularized and a general nature. Appl. Reb. No. 9, *supra*, at 13-16. Additional diagram revisions were suggested by Dr. Urbanik. Urbanik Dir., ff. Tr. 26,337, at 10-11. Such particularized errors are not fundamental flaws in a Radiological Emergency Response Plan as that term has been defined in NRC jurisprudence (*see Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-903, 28 NRC 499, 505 (1988)); and, in any event, Applicants have committed that any errors or material improvements in the TCP and ACP diagrams identified by the Intervenors or through subsequent field surveys as part of the annual update process will be corrected and incorporated into the diagrams. Specifically, all priority 1 and 2 TCPs and ACPs will indicate a minimum of three cones (instead of two) for all "discouraged" directions of travel. In addition, the diagrams will be refined so that all elements are drawn to a reasonable scale, and so that clarity of exposition is improved. Appl. Reb. No. 9, *supra*, at 17. We find that the needed revisions can be easily made and do not constitute a deficiency in the plan. Urbanik Dir., ff. Tr. 26,337, at 11, 18-19.

3.92. The Applicants have provided additional details on the proposed diagram upgrades. Tr. 16,343-44, 16,349-50, 16,355-56, 17,439-42, 17,606-07, 17,715, 27,050; Appl. Reb. No. 9, *supra*, at 15-17. The Board requires these changes to be incorporated in the next revision of the SPMC.

3.93. The Traffic Guide procedures and TCP/ACP diagrams that are used by the Traffic Guides to implement the SPMC Traffic Management Plan have been demonstrated effectively. The Traffic Guides participating in the 1988 FEMA-Evaluated Exercise met the objective of demonstrating the organizational ability and resources necessary to control evacuation traffic flow and to control access to evacuated and sheltered areas. Appl. Exh. 43F, at 226. Specifically, Traffic Guides at thirty-four ACPs/TCPs in the Massachusetts portion of the plume EPZ were interviewed by FEMA in the field and found to be well equipped and prepared for their mission.

3.94. Additionally, Traffic Guides from sixteen ACPs/TCPs were interviewed at the Staging Area and the same finding was determined. During this evaluation the Traffic Guides were asked to explain how their post was to be set up and how they would implement the traffic control strategy. To do this the Traffic Guides had to utilize the TCP diagrams. NYH Field Controller records indicate that all of the Traffic Guides who were evaluated answered these ques-

tions satisfactorily. Thus, the SPMC TCP diagrams and procedures are clear and sufficiently understandable so as to be implementable. Appl. Reb. No. 9, *supra*, at 31-32; Urbanik Dir., ff. Tr. 26,337, at 10.

#### G. The Adequacy of Access Control Points

3.95. Traffic Guides will be instructed to activate ACPs approximately 2 hours after the order to evacuate, providing that traffic volume has declined to the extent that the activity of screening motorists will not result in the formation of long queues of inbound vehicles. This provision is based on the analysis presented in NHRERP, Volume 6, which indicates that virtually all commuters will have returned home within 2 hours following the evacuation recommendation. The delayed staffing of ACPs avoids delays for returning commuters, and is appropriate. Urbanik Dir., ff. Tr. 27,150, at 7; Tr. 26,433. Furthermore, other travelers, who will most likely be informed of the emergency by this time through EBS and other media messages, will avoid the area due to the potential risks. Appl. Reb. No. 9, *supra*, at 33-34.

3.96. Upon ACP activation, the Traffic Guides will screen vehicle occupants in accordance with their procedure. As discussed previously, it is expected that State Police will participate in this activity. If traffic volume remains high after the elapsed 2-hour period following the order to evacuate, such that the screening process creates long queues (approximately twenty or more vehicles), the Traffic Guides will temporarily stop the screening activities until the queue dissipates. Once the queues dissipate, the screening process will resume. Appl. Reb. No. 9, *supra*, at 34.

3.97. The Applicants are to ensure that the access control procedures in both the New Hampshire and Maine Traffic Management Plans are consistent with the current access control procedures. Tr. 26,869-71.

3.98. Dr. Adler's argument, that the function of ACP screening procedures is infeasible, does not appear to be supported by the statistics that he, himself, presented. It is reasonable to expect that most of the initial inbound vehicles will be commuters, since most discretionary travel into the area will be discouraged by the emergency conditions. In fact, Applicants' studies of the time distribution of commuters arriving home (Appl. Exh. 5, Vol. 6, at 4-16, Distribution B) indicate that 95% of all commuters will have arrived home within 2 hours of the order to evacuate. Appl. Reb. No. 9, *supra*, at 34-35.

3.99. Subsequent to 2 hours after the order to evacuate, few commuters remain to arrive, and there will be still fewer travelers who are unaware of the emergency and who will arrive at the ACP location. At this time of low traffic volume (see Tr. 17,018), it is reasonable for the ACP to be activated and for screening to commence. Such screening at the anticipated low traffic volume levels will not cause large delays to those subsequently arriving vehicles whose

occupants have a valid emergency response function, and whose entrance to the EPZ will be facilitated. Appl. Reb. No. 9, *supra*, at 35.

3.100. Dr. Adler's suggestion that the poor design of certain enumerated ACPs located on interstate highways will "disrupt" the evacuation seems to have little force in view of the fact that these ACPs are located on inbound barrels of the highways involved and thus, by definition, will not significantly affect outbound flow. Appl. Reb. No. 9, *supra*, at 35-36; Tr. 17,029-33.

3.101. Dr. Adler's criticisms of the ACPs also was based on the erroneous assumption that the ACPs will be activated coincidentally with the order to evacuate. Tr. 17,017. When this was brought to his attention, he agreed that this alleviated his concern about long queues at the ACPs. Tr. 17,017-18.

3.102. The Board finds the design and procedures of the SPMC ACPs to be adequate for their intended purpose. However, the traffic control diagrams for the two interstate highway access control points — ACP GT-2 and ACP HA-4 — must be revised to reflect a more gradual phase-in of traffic control measures and advance warnings in order to increase the effectiveness and safety of the TCPs. The Board requires that additional traffic cones be provided for this purpose. See Urbanik Dir., ff. Tr. 26,337, at 11-12; Tr. 26,449, 26,451, 27169-70.

## H. Road Impediments

3.103. Contention JI-5 raises issues as to whether the SPMC has the necessary procedures and equipment to clear impediments blocking evacuation routes. Contentions Memo. at 9-10.

3.104. FEMA has found the SPMC to be adequate in this respect. Appl. Exh. 43C, at 67-68. Dr. Urbanik similarly indicated that the Applicants' ETEs afford sufficient consideration to the removal of road blockages by tow trucks. Urbanik Dir., ff. Tr. 27,150, at 5.

3.105. The only direct evidence offered with respect to this contention by the Intervenors was offered by the Attorney General and consisted of survey testimony demonstrating that there is in place a letter of agreement (LOA) for fifteen tow trucks and twenty-two drivers to implement the SPMC. Mangan Dir., ff. Tr. 19,429, *passim*. However, the thrust of the Attorney General's argument in his proposed findings is that for the first few hours after the order to evacuate, before Traffic Guides and other ORO personnel are in place within the EPZ, there is no reasonable assurance that accidents will be spotted and reported by the ORO. MAG PF 3.1.64.A.

3.106. The Attorney General's argument is not convincing. First, we can presume that local and State Police, and possibly local officials and workers with radios in their vehicles will be able to identify road impediments and to call them in, just as they would do in more normal circumstances. Common

sense also tells us that other vehicles participating in the evacuation as evacuees may have means (car phones and citizen band radios) of contacting authorities concerning road impediments.

3.107. Second, there is simply no regulatory requirement for a spotting and reporting procedure prior to the timely implementation of the emergency plan. The late-staffing problem the Attorney General argues arises from a postulated rapidly developing accident at the very end of the spectrum of accidents within the NUREG-0654 planning basis. We have ruled in this proceeding that “[t]hat particular accident sequence need not be isolated from all others for emergency traffic management purposes.” LBP-88-32, *supra*, 28 NRC at 795. Moreover, just as was the finding in our analysis of the Attorney General’s argument with respect to late staffing of TCPs, the Board does not view this late staffing argument as a defect in planning, since complete and timely mobilization under a fast-breaking accident scenario is simply impossible.

3.108. Personnel at thirty-seven (37) TCPs and at any supplemental ACPs provide a readily available source of feedback information regarding impediments to evacuation traffic along prescribed evacuation routes within the Massachusetts portion of the plume EPZ. These personnel will be in place during the evacuation regardless of weather conditions and time of day. These TCPs and ACPs are located at interchanges and intersections along major evacuation routes, and Traffic Guides may directly or indirectly observe road impediments. Even if a blockage occurs beyond their visible range, the effects would be observed by either a sharp decline of evacuating traffic or by having downstream traffic back up past their post (NHRERP, Vol. 6, at 12-3). It is also probable that a passing motorist will inform the Traffic Guide that a blockage has taken place. *Id.* These Traffic Guides are instructed to contact the Evacuation Support Dispatcher via radio if traffic is blocked or if there is no evacuating traffic. Appl. Reb. No. 9, *supra*, at 47; Appl. Exh. 42, Appendix J, at J-3, J-5; *see also* Urbanik Dir., ff. Tr. 26,337, at 9, 18; Tr. 26,417-18.

3.109. Traffic Guides are dispatched to their assigned TCPs and ACPs at the Site Area Emergency classification. They are instructed to wait at the side of the road until notified that the point should be activated. However, even prior to the activation order, they are instructed to report traffic problems to the Evacuation Support Dispatcher. Appl. Reb. No. 9, *supra*, at 47-48; Appl. Exh. 42, Appendix J, at J-2, J-4. Moreover, it is highly likely that some evacuees will inform Traffic Guides of an upstream impediment, particularly if it retards traffic. Tr. 17,758.

3.110. Additionally, up to twenty Route Guides for backup notification of the hearing-impaired may be traveling roads within the Massachusetts portion of the plume EPZ while performing their emergency duties. They are instructed to report any obstacles, stalled cars, or other impediments to traffic flow to the Evacuation Support Dispatcher via radio. Appl. Exh. 42, IP 2.11, Attach. 3, Item 3C. Route Guides for notification of the hearing-impaired are dispatched at a

Site Area or General Emergency classification, and at a sheltering or evacuation recommendation. Appl. Reb. No. 9, *supra*, at 48.

3.111. A total of 146 Route Guides is also assigned to buses to assist the evacuation of schools, special facilities, and the general population who are transit dependent. These Route Guides travel through the Massachusetts portion of the plume EPZ and are instructed to report any obstacles, stalled cars, or other impediments to traffic flow by radio to the Staging Area Leader for those assigned to schools and special facilities, or to the Transfer Point Dispatcher for those assigned to transfer points. Appl. Reb. No. 9, *supra*, at 48; Appl. Exh. 42, IP 2.10, Attach. 3, Item 10.

3.112. Twelve Transfer Point Dispatchers are dispatched to the six Massachusetts transfer points (one transfer point for each town) at the Site Area Emergency classification. Two road crew vehicles (tow trucks) are also assigned to each transfer point at this time. Road crews are issued NHY ORO radios upon arrival at the Transfer Points (Appl. Exh. 42, IP 2.10, 5.4.7H). These radios allow them to communicate with the Transfer Point Dispatcher, Staging Area, and EOC. Transfer Point Dispatchers are responsible for deploying road crews to identified road impediments. Appl. Reb. No. 9, *supra*, at 48-49; Appl. Exh. 42, IP 2.10, 5.4.

3.113. Aerial surveillance of road network impediments is available by helicopters during acceptable flight conditions. Appl. Exh. 42, IP 1.3, Attach. 1; Plan, Appendix C, LOA for use of helicopters. The helicopter pilot is briefed and dispatched by the Evacuation Support Coordinator or his designee. Communications are routed through the helicopter company, which maintains radio contact with their aircraft. Appl. Reb. No. 9, *supra*, at 49.

3.114. Traffic impedance, road construction, and flood information will also be available from local police and road departments via the local Emergency Operation Centers (EOCs). The six Local EOC Liaisons, who are to report to the local EOCs at the Alert classification, maintain contact with the Local EOC Liaison Coordinator throughout emergency operations. Appl. Exh. 42, IP 1.8. Any information on road impediments is expected to be available to the Local EOC Liaison Coordinator. Appl. Reb. No. 9, *supra*, at 49.

3.115. The Communication Coordinator at the NHY Offsite Response EOC monitors all communications on the Massachusetts Governmental Interface (MAGI) radio system. The frequencies monitored include state and local public safety frequencies. Appl. Exh. 42, at 4.6-1. The Communication Coordinator keeps the Assistant Offsite Response Director, Response Implementation, informed of important events (e.g., traffic impediments) taking place as monitored from the Massachusetts communities. Appl. Exh. 42, IP 1.4, Attach. 2, Step 7; Appl. Reb. No. 9, *supra*, at 49-50.

3.116. The Applicants have committed to modifying SPMC § 3.6.5 and IP 1.11 in future revisions to include reference to bridges as potential impediments

to evacuation traffic. Specifically, IP 1.11 will be revised to have the State Liaison coordinate with the Massachusetts Department of Public Works to ensure continued operation of the drawbridges. Any problems with bridges would be reported to the Evacuation Support Coordinator in the EOC. Appl. Reb. No. 9, *supra*, at 50.

3.117. Communications procedures, as indicated above, call for field personnel to report traffic impediments via radio to the Evacuation Support Dispatcher at the Staging Area or to the Transfer Point Dispatchers at the transfer points. The Transfer Point Dispatchers provide this information to the Evacuation Support Dispatcher. This information is then provided to the Staging Area Leader who informs the Evacuation Support Coordinator in the EOC. Additionally, personnel in the EOC monitor all radio communications and they forward impedance information to the Evacuation Support Coordinator as it is received. *Id.* at 50-51.

3.118. The Evacuation Support Coordinator, in conjunction with the Staging Area Leader, evaluates the impedance's impact on the evacuation roadway network. A road crew is selected to respond and a determination is made whether there is a need to reroute evacuation traffic (Appl. Exh. 42, IP 1.3, Attach. 1). In making the road crew selection, consideration is given to which crews are closest to the impedance and their respective direction of travel to respond to the impediments. The Staging Area Leader then has the Transfer Point Dispatcher contacted, via radio, to have the appropriate crew dispatched. Appl. Reb. No. 9, *supra*, at 51.

3.119. Following this, the Evacuation Support Coordinator and Staging Area Leader continue to monitor the road crew's progress in responding to the impedance. If the crew encounters delays, the situation is evaluated and additional crews are dispatched or other appropriate responses are formulated. After the road crew(s) complete their response, they are available to be dispatched via radio to other locations. *Id.* at 51.

3.120. The redundancy of the impedance response procedures (e.g., Staging Area Leader and Evacuation Support Coordinator concurrently evaluating impediments; radio communications to road crews and other field personnel from both the EOC and Staging Area) provides flexibility to ensure that an appropriate and coordinated response is formulated and implemented for road impediments under all scenarios. *Id.* at 51-52.

3.121. Any impedance, including localized flooding of roadways, which is determined by the Evacuation Support Coordinator in consultation with the Staging Area Leader to have a significant impact on evacuation traffic flow, may require rerouting. This evaluation considers the impedance location, time of occurrence, extent of roadway blockage, estimated time to remove the impedance, and evacuation routes affected. To implement rerouting, the Evacuation Support Coordinator and Staging Area Leader modify strategies

at appropriate TCPs or relocate Traffic Guides to direct evacuees along the new route. Upon determination of the rerouting plan, the Evacuation Support Coordinator informs the Public Notification Coordinator for incorporation into EBS messages. *Id.* at 52.

3.122. During the exercise, two simulated traffic accidents were reported in the Massachusetts portion of the EPZ. One simulated accident blocked an on-ramp to a major evacuation route, and Traffic Guides were reassigned to establish new TCPs/ACPs in a timely manner. The second simulated accident required the dispatch of road crews to remove the impediment. ORO assessed and responded to both of these field problems correctly. Appl. Exh. 43F, at 227; Appl. Reb. No. 9, *supra*, at 52-53.

3.123. As noted earlier, the Town of Newbury takes the position that the SPMC is deficient because in the event of a flood, Plum Island Turnpike may become impassable. An impediment of this magnitude would be identified and considered in the early stages of an emergency, and responses would be formulated, coordinated, and implemented with the appropriate governing bodies. If the roadway remained impassable at the declaration of a General Emergency, that fact would be considered in the PAR development process. Appl. Reb. No. 9, *supra*, at 53. In any event, the potential for flooding of EPZ roads is not a defect in the SPMC. See Urbanik Dir., ff. Tr. 26,337, at 13.

3.124. Allegations were made to the effect that a certain B&M Railroad Bridge located in Salisbury had the potential for having a large truck stuck in it. The clearance at the bridge is 13 feet 3 inches which is higher than the vast majority of trucks, and there are signs on the approach to the bridge warning of its clearance. Appl. Reb. No. 9, *supra*, at 56-57.

3.125. While it is thus highly improbable that a truck would become stuck under the bridge, the diagram for TCP B-SA-01 will be revised to include a note to the Traffic Guide that vehicles turning onto Route 1 should be limited to those whose height does not exceed 13 feet 3 inches. Tall trucks will either be directed to perform a U-turn using the store parking area in the northeast corner of the TCP and return westward on Route 286 or be instructed to proceed south on Route 1, turn right (west) onto New Toll Road (just north of the bridge), and proceed to I-95. Reflecting the few vehicles potentially involved, this routing will not have any material impact on the evacuation times. *Id.* at 57.

3.126. Staff witness Dr. Urbanik stated that while he believed certain easily made refinements should be made to the traffic management plan, as indicated above, the SPMC traffic management plan is adequate. Urbanik Dir., ff. Tr. 26,337, *passim*.

3.127. He also stated that in his opinion, the SPMC traffic management plan is one of the most extensive in the United States and probably only one or two others are even comparable to it. Tr. 26,389.

3.128. The Board finds that the plan takes advantage of available opportunities to reduce evacuation times to as great an extent as is reasonably feasible. Urbanik Dir., ff. Tr. 26,337, at 18. Further, the SPMC traffic management plan utilizes appropriate and sufficient capacity-enhancing measures and other traffic control strategies; and the SPMC has identified those actions that could significantly improve evacuation times, consistent with NUREG-0654, Appendix 4. *Id.*

## I. Rulings of Law

3.129. This Board adopts the ruling of the Licensing Board in *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-85-12, 21 NRC 644, 724 (1985):

There are accidents that could progress to the general emergency stage before the EOC or staging areas could be activated, and that would allow inadequate time to go through LILCO's planned mobilization process before evacuation began. The Board can find no defect in planning, however, since complete and timely mobilization under those conditions is simply impossible. The consequences of a failure to mobilize LERO before evacuation begins are relatively small because an evacuation unaided by LILCO traffic guides could still be accomplished although it would take more time than the controlled evacuation.

Additionally, as this Board has concluded on this same issue: “[T]he staffing problem arises from a postulated rapidly developing accident at the very end of the spectrum of accidents within the NUREG-0654 planning bases” and “[t]hat particular accident sequence need not be isolated from all others for emergency traffic management purposes.” LBP-88-32, *supra*, 28 NRC at 795. Further, this Board has recognized that evacuation would be implemented on an area-by-area basis and “[a]n evacuation of only a portion of the EPZ, even in a fast-breaking accident, will ameliorate or eliminate the problem of limited [staffing] mobilization.” *Id.*

3.130. “There is no requirement under NUREG-0654 or under 10 C.F.R. § 50.47 that all emergency workers be in place before protective actions are implemented.” *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), LBP-85-14, 21 NRC 1219, 1352 (1985), *aff'd*, ALAB-836, 23 NRC 479 (1986).

## J. Conclusion

3.131. The Board concludes that the traffic management plan included in the SPMC is adequate and implementable.

3.132. The Board concludes that the Applicants have made sufficient provision for the detection, analysis, and removal or avoidance of impediments during an evacuation.

## 4. EVACUATION OF TRANSIT-DEPENDENT PERSONS

### A. Background

4.1. Joint Intervenor Contention 7 asserts that the Applicants' bus routes for evacuating transit-dependent persons are inadequate because they do not afford the most expeditious evacuation of this population. Contentions Memo. at 11-24. The bases for the contention contain numerous allegations as to discrete problems with the bus routes shown in the SPMC. *Id.*

4.2. FEMA has found the procedures for the evacuation of the transit dependent to be adequate. Appl. Exh. 43C, at 64-65.

### B. Intervenors' Case

4.3. The Town of Newbury in its proposed findings argues that while FEMA has found the evacuation *procedures* to be adequate, FEMA has not found the bus routes, number of buses, or the designated roads to be adequate for their intended purpose. TON PF 4.1.2. The Town of West Newbury joins Newbury's assertion that the bus routes were not found to be adequate by FEMA. TOWN PF 4.1.2.

4.4. The Town of West Newbury presented as its chief witness Mr. Albert Knowles, the Town's Superintendent of Streets. Mr. Knowles testified that there are no street signs at three intersections on the bus routes; that certain bus routes are subject to flooding; that the bus transfer point is in a bad location, is too small, and is subject to inaccessibility in a bad snowstorm; certain streets are subject to blockage during snowstorms; that certain streets are too narrow to accommodate both disabled vehicles and traffic flow; and, he states that delays in the bus runs may result from inadequacies with certain TCPs. TOWN Dir., ff. Tr. 16,621, at 12-14; TOWN PF 4.1.3.WN.a-e.

4.5. Mr. Knowles has no training in emergency planning or traffic management, and his experience in traffic management is limited to rerouting traffic around road hazards. Tr. 16,647.

4.6. The Town of Newbury presented a panel of witnesses who testified to various defects in the bus routes listed in the SPMC for the Town. TON Dir., ff. Tr. 17,801, at 13-16. The Town asserts that buses will not be able to complete their routes because evacuees will be utilizing both inbound and outbound lanes for their evacuation; that certain bus routes become impassible

during storms; that heavy evacuating traffic on Route 1 won't give buses an opportunity to cross Route 1 at intersections; that traffic congestion will prevent buses from picking up evacuees; and, that the narrowness of the roads at certain locations will prevent buses from passing in opposite directions. TON Dir., *supra*, at 13-16; TON PF 4.1.5(a)-(g).

4.7. The City of Newburyport presented Mr. E. James Gaines, Director of Planning and Development for the city, and Marshall O'Connor, head of the city's police department, as its witnesses to address Contention JI-7.

4.8. The City of Newburyport contends that the Applicants' plan for transit-dependent persons is inadequate to retrieve and evacuate this population in a safe, timely, and efficient manner. The City asserts that delays caused by traffic congestion, the lack of TCPs at intersections in the City, and the unavailability of buses would all defeat the Applicants' plans. Moreover, the City argues that the bus routes only skirt densely populated areas requiring residents to walk significant distances to be picked up. It also contends that the transfer point is inappropriate because it is located in a flood plain and is too small for its intended purpose. O'Connor Dir., ff. Tr. 16,458, *passim*; Gaines Dir., ff. Tr. 16,552, *passim*; CON PF 4.1.1-8.

4.9. Mr. Gaines admits to no expertise in emergency planning. Tr. 16,556. He also admitted under cross-examination that he had not examined the SPMC, but rather had relied on what the City's counsel had represented to him. Tr. 16,562-63. Mr. Gaines was unable to say with any accuracy that other buildings relied upon by the City for emergency facilities, including one on the same street as the transfer point, were outside of the flood plain on which he focused his testimony. Tr. 16,584-85. As for his opinion that the transfer point was too small, Mr. Gaines admitted that he applied no standard whatsoever to the physical space available in order to reach that determination, and that, if he had applied the numerical standard he previously has used in his capacity as Planning Director, then the space was big enough to accommodate 2000 or more people. Tr. 16,591-92.

### C. Applicants' Case

4.10. In response to the Intervenors' allegations, Applicants submitted the testimony of a panel of witnesses consisting of Stephen M. Baldacci, the Emergency Planning Technical Issues Coordinator of New Hampshire Yankee (NHY) (Qualifications, ff. Tr. 17,318); Anthony M. Callendrello, Manager of Emergency Preparedness Licensing of NHY (Qualifications, ff. Tr. 17,318); Edward B. Lieberman, President, KLD Associates (Qualifications, ff. Tr. 17,318); and Dr. Dennis S. Mileti, Professor of Sociology and Director of the Hazards Assessment Laboratory, Colorado State University (Qualifications, ff. Tr. 17,318). Appl. Reb. No. 9, ff. Tr. 17,333, at 57-109.

4.11. The Board finds these witnesses to be competent to serve as witnesses on the subjects they addressed.

4.12. Evacuation bus routes were initially developed for the six Massachusetts communities by emergency planners under the direction of Massachusetts Civil Defense Agency (MCDA) with input from EPZ planning contacts (e.g., local civil defense directors, selectmen) in each of the six Massachusetts communities.<sup>37</sup> The routes were designed to start at the Local Staging Area (i.e., Transfer Point) and extend through the town to form a closed path while generally following the guidelines stated below:

- a. No house would be more than approximately one-half mile from a bus route;
- b. Buses would not back-track on the same route where possible; and
- c. Buses, in general, would follow the directions provided at the Traffic Control Points.

Appl. Reb. No. 9, *supra*, at 58-59.

4.13. In developing the SPMC bus plan, NHY relied on the bus routes developed by MCDA. Once the routes were designed, a field verification was done to ensure that the roadways were correctly shown on the map. Due to changes in the locations of the Transfer Points (i.e., Local Staging Areas), the evacuation bus routes were slightly modified. *Id.*

4.14. A comprehensive field study was conducted of the evacuation bus routes for all six SPMC communities between November 7 and 15, 1988. Standard full-size school buses were used for field verification of the evacuation bus routes. The buses were 9 feet 6 inches wide with both mirrors extended and 7 feet 6 inches wide with mirrors retracted. Thus, at least 17 feet of road width (pavement plus shoulders) was needed for two buses to pass each other. The weight of the bus was 26,600 pounds when empty. The field study consisted of three separate runs. First, specific roadways where potential problems had been identified through drill comments, exercise comments, and contention bases were driven with a bus to assess the existence or severity of the stated problems. Road measurements, where appropriate, were taken at the observed narrowest point on roadways to determine if the road was wide enough to accommodate an evacuation bus and opposing traffic. Second, all routes were driven with automobiles to verify the information on the bus route maps regarding the existence of street signs, landmarks, roadway configuration, and correct labeling

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<sup>37</sup>Intervenors admit that the bus routes were initially developed under the direction of the MCDA and local municipalities. However, they assert that the Commonwealth and those same local municipalities abandoned efforts to evacuate the public using the bus evacuation scheme after they concluded that local conditions made such planning impossible. CON PF 4.1.11. They state that the plans were rejected by the Commonwealth as "unacceptable and inadequate." TOWN PF 4.1.11. The Board recognizes that while the Attorney General's office has rejected the MCDA plans, we have no expert testimony to establish that the plans were rejected by the Commonwealth's *emergency planners*.

of streets. A set of criteria was developed and given to the personnel to direct them in the method that should be followed when driving the routes. Third, all bus routes were driven with buses to verify that a bus could perform all turn movements and to record route distances. *Id.* at 58-60 and Attachs. I and J; Tr. 17,384, 17,419-20.

4.15. As a result of this field survey, four out of the twenty-six evacuation bus routes were revised and then rerun to record route distances. An analysis was then performed to determine new bus route transit times, total trip completion times, and the number of buses to be allocated to each route. Appl. Reb. No. 9, *supra*, at 60 and Attach. K.

4.16. The Applicants have committed to certain changes in bus route maps which will clarify and make them more uniform; Applicants have also committed to certain route changes in light of the field surveys that have been done. *Id.* at 60-63. The Board requires these changes to be completed in the next revision of the SPMC.

4.17. Applicants' panel testified as to how the bus transfer points will operate, how the estimates of transit-dependent persons were made, how the number of runs to be made was determined, the duties of the Route Guides, and how the Route Guides will interface with the Bus Drivers. *Id.* at 63-67. The Board finds all of these procedures and estimates to be reasonable.

#### D. Bus Route Adequacy

4.18. Allegations that certain roads are too narrow "at their narrowest point" to allow for buses to pass in opposing directions are truisms that carry little weight in the context of the adequacy of the bus routes. TON PF 4.1.5(e). The allegation hangs on the highly improbable chance of two buses meeting exactly at the narrowest point of the road. Furthermore, there is a logical and commonplace solution if this improbable situation is ever encountered — one bus waits while the other advances through the narrow portion of the road.

4.19. Allegations that evacuating traffic will occupy inbound traffic lanes and thereby prohibit the buses from making their runs are without merit. Such aberrant driver behavior was rejected in the NHRERP Partial Initial Decision. LBP-88-32, *supra*, 28 NRC at 746-47.

4.20. The Intervenors' allegation that there are inadequate TCPs in the towns to allow for expeditious traffic flow and alternating flow at intersections other than those found on critical pathways has been dealt with in Section 3, *supra*, and those TCP numbers have been found to be adequate. The argument

is a staffing argument and it disregards potential availability of the response of local officials and other resources.<sup>38</sup>

4.21. Even in a full evacuation, buses are not expected to encounter undue delays when crossing heavily congested evacuation routes. The evacuating vehicles will permit the bus to get through. The amount of time spent by evacuees waiting in personal vehicles for the bus to cross the evacuation route will be minimal. The backed-up traffic will quickly rejoin the original line of evacuating traffic due to the fact that minimal forward progress would have occurred in the time span it took for the bus to cross the evacuation route. The evacuees will reason that the impact on their exiting the area would be insignificant. Appl. Reb. No. 9, *supra*, at 68.

4.22. During actual emergencies people abandon personal forms of identification and personal interests, and they identify with the entire human collective or community that is threatened. There is a dramatic decline in activities and behavior that run counter to the good of the collective and those that are based in individual or personal interests, and a dramatic increase in acts and behavior that bring people together and help one another. People respond by helping other human beings who are in need of help. This would include stopping to enable an evacuation bus to cross an intersection so it could pick up people in need of transportation. *Id.* at 68-69.

4.23. To evaluate the potential for area-wide flooding, flood plain maps were obtained from the Flood Map Distribution Center in Baltimore, Maryland, for the Town of Newbury, the City of Newburyport, the Town of Salisbury, and the Town of West Newbury. Flood plains are classified into 1-year, 10-year, 50-year, 70-year, 100-year, and 500-year intervals based on the expected occurrence of a major flood incident in the respective time period. The roadways identified in the Intervenors' contention bases as problematic all fall into either the 100-year or 500-year flood-plain intervals. This translates into the probability of 0.01 or 0.002 that major flooding will occur on these roadways in any year. Therefore, it is highly unlikely that these roadways will be rendered impassable by flooding concurrently with an emergency at Seabrook. *Id.* at 69.

4.24. Due to certain weather conditions, evacuation buses might encounter sections of roadway that may be covered by water. An evacuation bus would still be able to traverse roads and pick up transit-dependent evacuees, depending on the level of flooding. Buses used in picking up transit-dependent residents have a clearance of approximately 15 to 20 inches from the road surface to the tailpipe. This distance is the limiting factor for buses traversing flooded routes.

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<sup>38</sup> We take note that Intervenors are again postulating accident scenarios tailored to fit their allegations. While the TCF argument, centering on traffic congestion, comes from the extreme end of the spectrum of scenarios (fast-breaking accident/peak transient population/sunny summer weather), allegations with regard to Transfer Points focus on evacuees facing inclement weather. Allegations with respect to flooding of roads and buildings disregard what measures local officials and residents would have taken prior to the flooding actually taking place.

If a segment of roadway that appears to be impassable due to local flooding or some other obstacle is encountered, the Route Guide is to contact the Transfer Point Dispatcher and, using the detailed route map (Appl. Reb. No. 9, *supra*, Attach. L), determine alternate roadways available to rejoin the assigned route. The Route Guides will "report any obstacles, stalled cars, or other impediments to traffic flow . . . to the Transfer Point Dispatcher . . ." (Appl. Exh. 42, IP 2.10, at 26). SPMC procedures call for the evaluation of constraints such as "road conditions, current weather conditions, and special evacuation problems." If a significant rerouting is necessary, as determined by the Evacuation Support Coordinator, Traffic Guides will be reassigned as necessary (Appl. Exh. 42, IP 2.11, at 5, step 5.1.7). Appl. Reb. No. 9, *supra*, at 69-70.

4.25. The evacuation of a school or special facility is accomplished by dispatching all necessary buses with one Route Guide to the facility.<sup>39</sup> This has been referred to as the use of convoys. Forming convoys of vehicles is a common practice in the military. The formation of buses into convoys provides greater assurance that all buses will reach their common destination in a timely manner. Convoys will travel at posted or prevailing speeds, whichever is lower, subject to maximum speeds of 50 mph on the interstate highways and 45 mph on all other roads. Any difference in travel speed for a convoy relative to a collection of single buses has a negligible impact on response time. For example, the time difference to travel 60 miles at 50 mph instead of 55 mph is less than 7 minutes. *Id.* at 70-71.

4.26. Convoys of buses should encounter less difficulty than single buses when entering an EPZ during an evacuation. It is far more efficient to move buses through an intersection as a convoy than it is to move single buses. The competing traffic flow is interrupted only once by a convoy instead of multiple times for individual buses. *Id.* at 71.

4.27. Finally, the Applicants' witnesses addressed the many-detailed bases admitted in connection with JI-7 in similar detail. *Id.* at 71-109. The Board finds that these bases have been fully and satisfactorily addressed by this testimony.

## E. Rulings of Law

4.28. "Members of the public, without specific direction, would remove impediments to evacuation and other such tasks." LBP-88-32, *supra*, 28 NRC at 750.

4.29. "Any evacuation — tornado, earthquake, hurricane, or chemical hazard related — may require evacuees to brave adverse weather conditions." *Id.* at 695.

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<sup>39</sup> This issue has also been addressed in Section 2, *supra* — ETEs for special facilities.

## **F. Conclusions**

4.30. The Board concludes that the bus routes in the SPMC, with the commitments that the Applicants have made on the record of this proceeding, are adequate for the purpose intended and are implementable.

## **5. PERSONNEL AND TRAINING**

### **A. Background**

5.1. The SPMC hearing record on training initially focused on the general methodology used to create the training program. Then, considerations were given to the adequacy of expected prerequisite experiences and appropriate training for several ORO positions. The positions reviewed included Traffic Guides, Public Notification Coordinators, Bus Drivers, and Protective Action Recommendation (PAR) decisionmakers.

5.2. The record on staffing of the ORO with adequate personnel concentrated on whether second-shift personnel will be adequately staffed and trained since some Yankee Atomic Electric Company personnel will be used for second-shift staffing. Discussion concentrated both on the continuous 24-hour staffing and on the evacuation-specific and evacuation support-related positions used only during an evacuation.

5.3. Six contentions were litigated which dealt with the subjects of personnel and training. These were JI Nos. 9, 11, 12, 13, and 15, and MAG EX-14.

5.4. The Attorney General's witnesses on the remaining contentions were Dr. Howard Harris (Harris Dir., ff. Tr. 26,156, *passim*); Dr. Thomas J. Adler (Adler Dir., ff. Tr. 26,265, *passim*); Dr. T. Michael Carter (Carter Dir., ff. Tr. 27,546, *passim*); Dr. Robert L. Goble (Goble Dir., ff. Tr. 24,125, *passim*); and Arthur Lonergan (Lonergan Dir., ff. Tr. 23,317, *passim*) in a panel with Dr. Kenneth Peelle, Sister Paula Bradley, and Sister Doris Brouillette.

5.5. Applicants presented a panel of witnesses on these contentions consisting of Anthony M. Callendrello, Manager, Emergency Preparedness Licensing for NHY (Qualifications, ff. Tr. 17,318); S. Joseph Ellis, Manager, Response and Implementation, New Hampshire Yankee (Qualifications, ff. Tr. 27,367); Catherine M. Frank, Emergency Planner, Impell Corporation (Qualifications, ff. Tr. 23,530); and Thomas F. Grew, Specialty Training Manager, New Hampshire Yankee (Qualifications, ff. Tr. 27,367). Appl. Reb. No. 20, ff. Tr. 27,388, *passim*.

## B. Staffing of ORO

5.6. FEMA has found SPMC staffing to be adequate. Appl. Exh. 43C, at 13. *See also* Tr. 18,836. FEMA is also confident that the personnel pool drawn from the Yankee Atomic Electric Company is capable of providing individuals with the appropriate skills for a second shift. Tr. 19,170, 22,613.

5.7. JI-9 raises the issue of whether there are in place sufficient procedures to execute the SPMC in the event that an emergency occurs when one or more unions at one or more of the companies from whom ORO members are drawn are on strike. Contentions Memo. at 24.

5.8. No direct testimony in support of Contention JI-9 was filed by the Intervenors. The Attorney General stated that the case would be made on this contention by cross-examination of FEMA witnesses. MAG Trial Brief (2/21/89), at 8. The Attorney General did not cross-examine on this subject. Therefore, the rebuttable presumption of overall planning adequacy results in a finding for the Applicants with respect to Contention JI-9.

5.9. JI-11 and JI-12 raise the question of whether the SPMC provides for adequate staffing to sustain an emergency response, whether there is sufficient manpower to staff a second shift, whether the second shift has received adequate training, and whether a single shift plus 20% is adequate for certain evacuation-specific personnel. Contentions Memo. at 24-26.

5.10. Second-shift staffing for certain positions will be requested and supplied through Yankee Atomic Electric Company by means of the Yankee Atomic Mutual Assistance Plan. The second-shift supervisors, however, do come from the ORO. Tr. 19,174. Second-shift staffing from Yankee Atomic Electric Company will be briefed by the personnel they replace to the extent necessary. Appl. Exh. 42, at 2.1-1, IP 2.11, IP 2.17, IP 3.2, IP 3.5, IP 2.9; Appendix J. Specifically, second-shift Traffic Guides will receive training and orientation before they are dispatched to the field. Then, upon reporting to a specific TCP, the first-shift Traffic Guide will brief the second-shift Traffic Guide on the existing situation and procedures to be followed. SPMC IP 3.2, Attach. 2, B17, at 12-13; IP 3.2, at 4, 5, 7.

5.11. Those personnel used to staff the evacuation support second-shift positions have the required technical skills and are capable of performing the required functions. The only training required for them at the time of an emergency would be orientation to the ORO, that is, as to where, when, and to whom they report. Information such as the specific report forms utilized by the ORO for recording and reporting information and the particular equipment and techniques to be employed are supplied by ORO personnel when reserve personnel report to their assigned locations. Tr. 19,163-64, 19,174-75, 19,177, 22,613, 25,512. *See also* Appl. Exh. 42, IP 2.9, at 7, 10; Appendix J, at J-3, IP 3.5, at 4, 5 and Attach. 2, at 3.

5.12. FEMA witness Donovan testified that the Applicants demonstrated shift change capability at both reception centers during the exercise, including shift change capability for evacuation monitoring positions. Tr. 18,685, 19,163. *See also* Appl. Exh. 43F, at 240. Personnel provided through the Yankee Mutual Aid Program would be drawn from a group of people who already have preidentified skills and knowledge of radiation monitoring equipment and other knowledge necessary to be able to perform designated tasks. Tr. 18,688, 19,126. *See also* Appl. Exh. 41, at 658, 662, 663. FEMA observed from the exercise that those Yankee Atomic Staff designated as the second shift for monitoring positions were as adequately trained as first-shift personnel. Tr. 18,686, 18,691, 19,160. FEMA observed that the second shift was able to step in, receive a turnover shift briefing, and use the instruments and demonstrate its proficiency just as the first shift did. Tr. 19,164-65, 22,613. FEMA witness Donovan testified that the supervisors for the second shift have been preidentified and trained. Tr. 18,687.

5.13. Evacuation-specific personnel for which there is only one allocated shift in SPMC include dosimetry record keepers and route guides and the contract personnel for vehicle drivers and road crews. Dosimetry record keepers are to be mobilized at the Alert stage, and route guides are to be mobilized at the Site Area Emergency stage. SPMC Figure 2.1-1. Even though these personnel will only be needed through the period of an evacuation, some evacuations under the SPMC have evacuation time estimates as much as 9 hours. For the most part, evacuation time estimates are in the 6- to 7-hour range. Appl. Reb. No. 16, ff. Tr. 26,681, Attach. D. In an emergency where it takes longer than 3 hours to move from an Alert, or Site Area Emergency, to a General Emergency, it is possible that some evacuation-specific personnel might be on shift as much as 12 hours. However, the stress level of activity would not start immediately. The peak activity would typically occur initially and then fall off. This is a satisfactory situation for proper performance, and the evacuation-specific personnel are already scheduled for a 12-hour shift.

5.14. The Attorney General offered no testimony and elicited no statements involving personnel staffing that contradicted the rebuttable presumption of adequacy arising from FEMA's evaluation. Tr. 18,679-703, 19,160-87.

### C. Training ORO Personnel

5.15. JI-13 raises the issue of whether SPMC requires the proper prerequisite experience for certain of the positions in the ORO, *viz*, Traffic Guides, Public Notification Coordinators, PAR decisionmakers, and Bus Drivers, and also whether the training provided for those positions is adequate. Contentions Memo. at 27-28.

5.16. FEMA has found that the prerequisite experience required for these positions and the training provided are adequate. Appl. Exh. 43C, at 10-11, 95-100.

5.17. Dr. Harris criticized the training given to ORO Traffic Guides, EBS message drafters, and PAR decisionmakers. *Id.* at 4. He testified that the training program does *not* have: (1) "meaningful verbal learning situations"; (2) a precise definition of prerequisite experience for the three positions; (3) any overall instructional plan; (4) a proper use of an approach of "short-term recall"; (5) "instructional linkages" between classroom and exercise; (6) sufficient instructor training; and (7) effective testing without open books. He concludes that the training is fragmented, and must be totally revamped. Harris Dir., *supra*, at 5-14. Dr. Harris' review was mainly focused on program design rather than a review of instructional materials and guidance for tabletops, walk-throughs, and drills. Tr 26,214-16.

5.18. As noted earlier, FEMA did not identify any deficiencies in the graded exercise. FEMA's basic view is that a full-participation exercise is the best method of testing training adequacy. Tr. 4602-03, 4074, 4088-89. Attorney General's witness Dr. Harris does not seem to contest this theory. Dr. Harris has never participated in a major FEMA exercise and does not know what aspects of the training program were exercised. Thus, he has limited basis to testify as to whether his desired "linkages" took place or whether or not tasks had been learned. Tr. 26,199-205.

5.19. It appears that Dr. Harris, in the main, is concerned with what appears to him to be a lack of documentation as to training program design rather than making an assertion that, in fact, the training program is deficient. See Tr. 26,196, 26,197, 26,217, 26,262. Specifically, he indicated that he had not seen a task analysis, although he did not dispute evidence that a task analysis had been completed. Tr. 26,196. Significantly, he did not claim to challenge the content of the training modules he reviewed. Tr. 26,195-99. In fact, he shared in a concern expressed by a member of the Board that his testimony seemed to be the result of a superficial review limited to two sections of the SPMC, Section 6 and Appendix K, and a number of training guides without the benefit of a thorough review of other materials that must have preceded the drafting of these materials. Tr. 26,218.

5.20. A job analysis was performed in accordance with Institute of Nuclear Power Operations (INPO) training development principles as the basis for the ORO training program. Tr. 27,403-09. See also Appl. Reb. No. 20, *supra*, Attach. C.

5.21. The training program was developed to meet the planning guidance set out in NUREG-0654, Rev. 1, Supp. 1, § II.O.4. Appl. Reb. No. 20, *supra*, at 4-5. The methodology used in developing the training program is Training

System Development (TSD); this method is endorsed by INPO and has been found to be effective in the training of onsite emergency responders. *Id.* at 5-7.

5.22. The training program has been modified since its initiation, and Appendix K of SPMC commits the Applicants to an ongoing program of training improvement. *Id.* at 8-9.

5.23. A total of twenty-one training modules has been developed for instruction of ORO personnel. *Id.* at 3. After completion of all training modules required for a position, an ORO member must then demonstrate satisfactory performance in a tabletop demonstration. *Id.* at 9-10.

5.24. Once ORO personnel are initially qualified, their training continues with drills and additional training activities. Supplemental training, above and beyond the required classroom modules, may be scheduled in response to: changes to the emergency plan or implementing procedures, performance evaluations such as drill or exercise comments, and requests or recommendations for the development of additional training. *Id.* at 10-11.

5.25. Prerequisites are provided in the SPMC as screening criteria for the selection of individuals to fill ORO positions. The prerequisites alone do not qualify a volunteer to perform a specific job. Meeting the prerequisites for a given position does, however, indicate that an individual is capable of completing training and then becoming qualified. As stated in the SPMC, § 2.1, prerequisite experience "is required for training and qualification," leading to placement in a given position. The initial development of prerequisites and refinement of screening criteria were iterative, relying on the ongoing development of the basic position descriptions during the planning process. *Id.* at 1-2.

5.26. ORO personnel recruitment and screening were conducted in the following manner. Applications were accepted and reviewed to determine the best candidates for each position. Approximately 2000 applications were received to fill approximately 1000 ORO noncontract positions. The applications were grouped by using job-specific prerequisite requirements established in the SPMC as initial guidelines. Once grouped, the applications were reviewed to determine which of the individuals had the combination of background, work, and educational experience best suited to filling a given position. To obtain additional input, contacts were made with individuals who either supervised or worked with the Applicants. Individuals were assigned to positions that would best utilize their previous experience. *Id.* at 2.

5.27. One generally applied screening criterion for all positions was to give priority to personnel who had prior experience in emergency response. The Applicants considered utilities to be a good source for recruiting such individuals because utility workers routinely respond and work under emergency conditions. In addition, because utilities share common job titles and work functions, they also share a common understanding of the general level of expertise, training, and experience required for those titles and functions. Thus, NHY could assume

that a utility dispatcher could be trained as an ORO dispatcher. By recruiting noncontract position volunteers from a uniform environment, NYH could utilize the applications to make a preliminary assessment of training requirements. Once individuals were selected for positions in the ORO, they were entered into the training program. Use of the present SPMC prerequisites for recruitment results in the identification of personnel who are able to successfully complete training. Their performance was demonstrated to be adequate during the FEMA-observed 1988 exercise. *Id.* at 2-3.

5.28. Attorney General's witness Dr. Harris disagrees with the Applicants' testing of ORO members through the use of open-book tests. Tr. 26,220. Applicants utilized this methodology to reinforce the use of procedures and position-specific materials by ORO members. Tr. 27,520-23.

5.29. According to Mr. Grew, the Applicants rely on evaluation forms filled out by the trainees as one form of feedback on the training program. This feedback pertains to the conduct and delivery of the training, sometimes on the plans and procedures. This feedback is in addition to the evaluation using the open-book tests. The record reflects that student feedback has proven an effective process for improving both the training program and the overall program for emergency response. Tr. 27,521-22.

#### D. Training of Traffic Guides

5.30. Attorney General's witness Dr. Adler criticized the training given to Traffic Guides. According to Dr. Adler there are two deficiencies in the training program. These are: (1) an absence of instruction on how to direct traffic efficiently, and (2) a lack of detail in describing the traffic control function. Adler Dir., *supra*, at 5. Dr. Adler was concerned that the Traffic Guides are not told the assumed cycle lengths (i.e., "green time") that are used in ETE calculations (75 seconds). He further expressed concern that no formal instruction is given on hand motions. *Id.* at 6-7. Another problem he suggests is that the Traffic Guides are not instructed as to the overall meaning of their post and thus do not know when it would be all right to hold up traffic to answer questions. Dr. Adler complains that there is no written instruction or training on traffic cone placement other than ACP/TCP diagrams. He is concerned that there is allegedly no training on how to give details for an accident report; and no instruction on when a Traffic Guide without a radio should leave his or her post to tell a Traffic Guide with a radio of a road impediment. Finally, he also claims that there is a need to have all Traffic Guides actually direct traffic flows at congested intersections as a part of their training in order to ensure that they can do their assigned job. *Id.* at 9.

5.31. FEMA found that the NHY ORO demonstrated that it had the organizational ability and resources to control evacuating traffic and to control access to restricted areas. In particular, "Traffic Guides . . . were found to be well-equipped and prepared for their mission." Appl. Exh. 43F, at 226; Appl. Reb. No. 20, *supra*, at 33.

5.32. Dr. Adler has had no hands-on traffic direction instruction which included hand signaling training but he nevertheless asserts that he has directed traffic and trained other individuals to direct traffic in certain situations as part of his business. Tr. 26,266-67. He, himself, has no formal training in this area. Tr. 26,302-03. Dr. Adler believes 1 hour of classroom traffic management training would suffice. Tr. 26,312.

5.33. While Dr. Adler states that the maintenance of an *exact* green time of 75 seconds is not absolutely critical; what is *critical* is that the interval of "green time" not be allowed to be so short as to delay the traffic flow. The "green time" should not be permitted to be shortened to a frequency of say less than every 30 seconds. Tr. 26,310. As noted by Mr. Lieberman, if the "green time" is longer than 75 seconds it will make no difference with respect to the IDYNEV model time estimates. Appl. Reb. No. 16, *supra*, at 6-7.

5.34. The Traffic Guides are instructed to use their discretion and apply common sense in handling traffic streams in changing direction of flow; not to change too frequently; to determine the length of flow by the amount of backup heading in each direction and waiting time; and to keep traffic moving. Tr. 27,423, 27,451. It seems reasonable that cycle time would be maintained greater than a frequency of every 30 seconds by these instructions to the Traffic Guides.

5.35. Dr. Adler's concerns that the Traffic Guides are not provided with instruction on the cycle lengths assumed in the IDYNEV model are not significant because the model's cycle length is arbitrary and is insensitive to differences between the actual "cycle length" representing the actions of the Traffic Guides and the 75 seconds used in IDYNEV unless the cycle time goes to less than 30 seconds. Tr. 26,310, 26,494-95. See also Appl. Reb. No. 16, *supra*, at 6-7.

5.36. The criterion applied in screening Traffic Guide recruits was to identify as many volunteers as possible with traffic direction background. In fact, fifty persons have been recruited for this position who have had prior experience in public safety functions including directing traffic. Appl. Reb. No. 20, *supra*, at 31.

5.37. An adequate training module has been developed for the training of Traffic Guides. *Id.* at 32 and Attach. L.

5.38. Traffic Guides are provided written instruction in their procedures on the placement of cones. This instruction, used in conjunction with the specific TCP or ACP intersection map, provides guidance on cone placement. Traffic Guides are also trained to report the exact location of impediments including

accidents (town, route or street, direction of travel, and nearest intersection) and the extent of damages (injuries, hazards, types and numbers of vehicles involved). Appl. Reb. No. 20, *supra*, at 32.

5.39. Traffic Guides are required to attend six training modules comprising approximately 10 hours of instruction. These modules are: Emergency Plan Overview, Staging Area Operations, Traffic and Access Control, Procedure Checklists, Tabletop, and Communications. Supplemental training sessions were conducted on November 9, 1987, and June 7, 1988, which involved the practical aspects of controlling traffic, i.e., directing actual traffic through mock intersections. This supplemental training will be incorporated into the training for all Traffic Guides. Appl. Reb. No. 20, *supra*, at 32-33. The direction of traffic at mock intersections is a form of "hands on" training. Tr. 27,454-55.

5.40. Actual experience is of limited utility for a Traffic Guide; the diagrams give procedural direction and the task involved simply is not all that difficult. Tr. 27,458-59, 27,465. *See also* Tr. 26,266-67.

5.41. Law enforcement functions play no role in the Traffic Guide duties. Appl. Reb. No. 20, *supra*, at 32.

## E. Training of Bus Drivers and Route Guides

5.42. With respect to Bus Drivers, the prerequisites are experience as a Bus Driver and requisite license. There are no emergency-specific aspects to the tasks assigned in the SPMC definition of Bus Drivers. Drivers are required to do what they normally do, which is drive buses. No special procedures or training are required because bus operation does not change when a bus is used during an emergency. The navigation of designated routes is defined as the responsibility of Route Guides. *Id.* at 34.

5.43. While SPMC provides Route Guides to accompany contracting Bus Drivers, it does not provide any Route Guides to accompany van, station wagon, wheelchair van, or ambulance drivers to their destinations in the EPZ. SPMC 2.1.1., Fig. 1, IP 2.10 and 2.11. Although companies providing these services may be located outside the EPZ, Route Guides are not needed, since these vehicles are not required to follow a predetermined route to accomplish their objective as assigned by the plan to arrive at a specified assigned destination.

5.44. The number of Bus Drivers required to implement the SPMC is 367. The number of Bus Drivers currently available on the NYH ORO bus driver roster is (as of February 22, 1989) 673. The number of Bus Drivers who have received the training modules as of February 22, 1989, is 531. Appl. Reb. No. 20, *supra*, at 35.

## F. Training of Public Notification Coordinators

5.45. With respect to the Public Notification Coordinator the prerequisite established in the SPMC is public information experience. The Public Notification Coordinator is responsible for a timely and coordinated activation of the Public Alert and Notification System, development of Emergency Broadcast System (EBS) messages, and coordination of EBS messages with New Hampshire and Massachusetts. SPMC, at 2.1-13. Appl. Reb. No. 20, *supra*, at 29.

5.46. In developing an EBS message, the Public Notification Coordinator will use one of several types of messages, in accordance with IP 2.13. One type may be the prerecorded messages in place at the EBS radio station. In this case, no modification of the messages will occur. Appl. Reb. No. 20, *supra*, at 29.

5.47. The second type of message that may be used is a prescribed message. In this case, the Public Notification Coordinator will finalize a prescribed message by inserting information such as the names of the communities affected. The prerecorded and prescribed sample messages utilized by the Offsite Response Organization were based on the messages used in the NHRERP and have been reviewed by Dr. Miletto to ensure that they properly account for human behavior and have the attributes needed for good emergency information. *Id.*

5.48. The Public Notification Coordinator may need to modify or originate an EBS message. These messages will be developed using the prescribed messages as a basis. Once the message is developed, the Public Notification Coordinator is required by procedure to obtain the review and approval of the message from the Offsite Response Director. In all cases, the EBS messages will be provided to the Commonwealth for their review, input, and concurrence with the content. In addition, the Offsite Response Director will obtain concurrence from the Commonwealth before a message is issued. *Id.* at 30.

5.49. Attorney General's witness Dr. T. Michael Carter gave his view that the ORO Public Notification Coordinators are neither well educated nor trained. Carter Dir., ff. Tr. 27,546, *passim*. This view of Public Notification Coordinators appears to be based upon a deposition regarding the actions of a single individual, the ORO Public Notification Coordinator for the Red Team during the 1988 exercise, in making modifications of prescribed EBS messages. MAG Exh. 126. The Coordinator did not have the stated prerequisite experience required for ORO Public Notification Coordinators. Tr. 27,477-83. Although this was a weakness in the selection and training of the Public Notification Coordinators, it did not demonstrate an overall inadequacy in the training program.

5.50. During the 1988 exercise, both FEMA (and, indeed, Mr. Callendrello) identified this weakness in the training of the Public Notification Coordinators, and FEMA designated this as an Area Requiring Corrective Action (ARCA). This did not reach the magnitude of a deficiency. To address

this ARCA, New Hampshire Yankee has committed to providing to the Public Notification Coordinators additional training dealing with the modification and development of EBS messages and the characteristics of good emergency messages. Appl. Reb. No. 20, *supra*, at 30.

5.51. Such training will be in addition to the required classroom instruction of approximately 15 hours. This training consists of: Emergency Plan Overview, Emergency Management, Public Alert and Notification System (PANS) Activation, EOC Operations, Transportation, Procedure Checklists, and Tabletops. *Id.*

## G. Training of ORO Decisionmakers

5.52. Finally, the Attorney General's witness Dr. Goble testified that there was insufficient training for the ORO decisionmakers to provide assurance that they will issue proper PARs. Goble Dir., ff. Tr. 24,125, at 21-22, 25-27.

5.53. Applicants described in detail the experience required and training given with respect to the area of protective action decisionmaking for the five positions challenged by the Attorney General — Offsite Response Director, Radiological Health Advisor, Technical Advisor, and the two Assistant Offsite Response Directors (Appl. Reb. No. 20, *supra*, at 12-28) — and the Board finds this element to be satisfactory.

5.54. Dose/accident assessment training is provided to the Technical Advisor and to the Accident Assessment Coordinator, who reports to the Radiological Health Advisor. The Technical Advisor and the Accident Assessment Coordinator are responsible for actual performance of dose/accident assessment and for providing this information to the Radiological Health Advisor for use in the formulation of a PAR. Appl. Reb. No. 20, *supra*, at 23-26; Tr. 27,516-19.

5.55. In evaluating the ability of the NHY ORO to make appropriate protective action decisions, FEMA stated that “[o]verall, the NHY ORO EOC staff performed in a very commendable and satisfactory manner.” Appl. Exh. 43F, at 213; Appl. Reb. No. 20, *supra*, at 28.

## H. Fear of Personal Liability

5.56. JI-15 raises the question of whether ORO workers will shirk from or perform less than optimally in their duties because of fear of personal liability. Contentions Memo. at 28.

5.57. Due to the vague and speculative nature of this assertion, the Board admitted the contention only on the condition that the Attorney General carry the burden of going forward with the evidence. Memorandum and Order — Part I (Ruling on Contentions on the Seabrook Plan for Massachusetts Communities)

at 106-07 (July 22, 1988) (unpublished). However, no direct testimony was offered by the Intervenors on this contention.

5.58. FEMA did not address this contention except insofar as it found that the SPMC adequately set forth the responsibilities and authorities of the ORO members. Appl. Exh. 43C, at 9-12.

5.59. The Attorney General elicited from FEMA witness Donovan the fact that he had attended seminars on the subject of governmental or corporate liability with respect to suits for failure to plan, failure to notify the population, and failure to follow plans in the nature of technical advice. He said he knew of "some cases" in which "actions have been brought against public officials either for a failure to plan, failure to appropriately notify the public, [or] failure to follow their plan." Tr. 19,025-26, 19,029.

5.60. However, no testimony was elicited from Mr. Donovan by the Attorney General to support the proposition that emergency workers would fail to perform out of fear of personal liability or to rebut the FEMA view that such concerns need not be accounted for in the SPMC. Thus, the condition to the contention's admission was not fulfilled.

## I. Training and Staffing of MS-1 Hospitals

5.61. Contention MAG EX-14 raised the issue of the training and staffing of the MS-1 hospitals. Contentions Memo. at 110-11. In particular, it is alleged that because additional training has been recommended for the staff of the hospital on the biological effects of radiation, the ability of the hospital to perform its function of treating contaminated injured is at issue. Contentions Memo. at 111.

5.62. The Attorney General presented a panel consisting of an investigator from his office, and two nurses and a doctor from St. Joseph's Hospital with respect to MS-1 hospitals. *See Lonergan Dir., ff.* Tr. 23,317, *passim*. Nothing adduced from these witnesses indicated any training deficiency, and the appearance of the St. Joseph's personnel only served to enhance the Board's view that the hospital is well qualified and competently staffed to perform the role assigned to it in the SPMC. Tr. 23,304-82.

5.63. Dr. Kenneth Peelle, who is Chief of Radiology and serves as the hospital's Radiation Safety Officer, testified that St. Joseph's is able to provide emergency care to individuals who have been exposed to radiation, contaminated, or physically injured. Tr. 23,358-59. Although Dr. Peelle is the only one of the three radiologists at St. Joseph's Hospital who has taken the training course provided by Seabrook Station, he has reviewed the general process of the plan with the other two radiologists and would expect them to be familiar with the procedures to decontaminate a patient. Tr. 23,364.

5.64. Sister Paula Bradley, the Nurse Manager of St. Joseph's emergency room, and her predecessor, Sister Doris Brouillette, explained that the medical staff understands the biological effects of radiation, including the need to segregate contaminated individuals, control the amount of contamination people are exposed to, and apply appropriate medical procedures. Tr. 23,352. By working as a multidisciplinary team, the staff is able to draw upon the expertise of their radiation safety officers in answering questions about safe monitoring practices. In particular, in using the radiation detection instruments, they would immediately refer any show of "the needle moving" to the Safety Officer for assessment. Tr. 23,356. In addition, hospital staff will continue to participate in further training sessions on biological effects of radiation. Tr. 23,352-56.

5.65. The ARCA identified by FEMA in the exercise is that the staff of St. Joseph's Hospital should receive additional training in understanding the use of two different types of radiation detection equipment and their purposes. During the exercise, the staff utilized the correct instruments and performed in a professional manner without impact either to their or the simulated patient's health and safety. Tr. 22,237-46.

5.66. In summary, this testimony shows no evidence of any deficiency in training or conduct during the exercise.

#### J. Rulings of Law

5.67. "Emergency workers, as a group will not abandon their roles in a radiological emergency." LBP-88-32, *supra*, 28 NRC at 749 (Finding 7.96, subparagraph 3).

5.68. Emergency workers as a group stand by their posts and do not abandon a well-defined role in emergency situations. *Id.*

#### K. Conclusions

5.69. There is reasonable assurance that strikes will not affect the availability of the emergency personnel relied on to staff and maintain the ORO adequately.

5.70. There is adequate staffing provided for the ORO to implement the SPMC, including those positions required for continuous operation and those requiring both single-shift and two-shift operation.

5.71. There is no evidence that ORO personnel will be constrained in their efforts by fear of personal liability.

5.72. Personnel at St. Joseph's Hospital are fully qualified and well equipped to provide emergency medical care under the provisions of the SPMC.

5.73. Training and prerequisite experience for ORO personnel, in particular PAR decisionmakers, Public Notification Coordinators, Traffic Guides, and Bus Drivers, are adequate.

5.74. The fact that two ARCA's were given by FEMA to two training areas does not, in itself, cause the training there to be inadequate.

## 6. PAR GENERATION

### A. Background

6.1. The SPMC hearing record on Protective Action Recommendation (PAR) generation focused on the range of protective actions provided for the beach populations and sheltering as an alternative both for the beach populations and the permanent residents in the evacuation zones. Consideration was given to whether the SPMC set forth coherent decisionmaking criteria for PARs and whether there were adequate procedures for using ETEs in decisionmaking. Questions were also raised as to whether the "keyhole" evacuation concept always with evacuation of 360° out to 5 miles was appropriate as compared to evacuation of individual sectors, and whether the population distribution maps for the EPZ were adequate for decisionmaking. Further consideration was given to the coordination between the ORO and the NHRERP and whether the time necessary to grant legal authority to the ORO would impact decisionmaking negatively.

6.2. Ten contentions were litigated which dealt with the subject of PAR generation. These were JI Nos. 17, 18, 19, 20, 21, 22, 23, and 24. Then, two contentions dealt with PARs generated during the graded exercise: MAG EX-11, Bases A and B(1), (3), (5), (6), (7); and MAG EX-19, Bases (A), (B), and (D).

6.3. The Intervenors' witnesses on these issues were Dr. Robert L. Goble (Goble Dir., ff. Tr. 24,125, *passim*) and Michael A. Cronin (on JI-23 and JI-24) (Cronin Dir., ff. Tr. 16,267).

6.4. Applicants relied on the examination of FEMA witness Donovan and provided no direct testimony otherwise. Mr. Donovan considered PAR generation for all of the above contentions.

6.5. On the two graded exercise contentions, the NRC Staff presented a panel of two witnesses consisting of Edwin F. Fox, Jr., and Robert J. Bores (Bores and Fox Dir., ff. Tr. 24,627, *passim*) and excerpts from the Donald J. Perrotti Deposition of May 9, 1989 (Perrotti Dep., ff. Tr. 25,614, *passim*).

## B. Generation of PARs

6.6. JI-17 alleges that the SPMC fails to provide a range of protective actions for the beach area populations, and that, without a sheltering option, evacuation alone does not provide maximum dose savings for the beach population for all fast-breaking serious accidents. Contentions Memo. at 29.

6.7. JI-18 raised the issue of whether the SPMC set forth coherent decisionmaking criteria in formulating appropriate PARs. Most of the bases for JI-18 were related to consideration of the alternative of sheltering to that of evacuation. *Id.* at 30-32.

6.8. FEMA has found that the SPMC is adequate in establishing a capability for implementing protective measures based upon Protective Action Guides (PAGs) and other criteria (Appl. Exh. 43C, at 53-58); FEMA has also found that the SPMC adequately describes the basis of choice of recommended PARs during emergency conditions (*id.* at 69-70).

6.9. JI-19 raised the issue of whether the requirement should always be for evacuation of a 360° to a 5-mile radius around the plant out to the distance necessary instead of allowing the option of evacuation by sectors. Contentions Memo. at 32-33.

6.10. The Attorney General prefiled the testimony of Drs. Thompson, Goble, and Beyea with respect to Contentions JI-17, JI-18, Bases A-E, G-I, and JI-19. MAG Exh. 72 for identification. This testimony was excluded in its entirety by the Board, not only because it was extremely difficult to understand (*see* Tr. 18,885), full of uncertainties and speculations, and far short of expected scientific standards, but also because it postulated hypotheticals with no evidentiary basis and improperly sought to compare sites and emergency plans. Further, the testimony revisited matters already decided with respect to the sheltering option for the transient beach population. Tr. 18,879-85, 18,905.

6.11. JI-20 raises the issue of whether the SPMC sets forth adequate procedures for the utilization of ETEs in PAR decisionmaking. Contentions Memo. at 33-34.

6.12. JI-22 raises the issue of whether the Commonwealth's lack of confidence in the ETEs contained in the SPMC will result in only *ad hoc* response, or, in any event, will result in a delayed response in the area of PAR decisionmaking. *Id.* at 35-36.

6.13. As to JI-20 and JI-22, Applicants provided persuasive testimony that the SPMC ETEs for the regions and scenarios considered are adequate for PAR decisionmaking. *See Section 2, supra.*

6.14. JI-21 raises the issue of whether the SPMC is deficient because it does not contain adequate population distribution maps. Contentions Memo. at 35.

6.15. As to JI-21, Applicants provided adequate basis for concluding that the population numbers in the SPMC will be evaluated as part of the annual review process and updated as necessary. *See Appl. Reb. No. 16, ff. Tr. 26,681, at 13.* *See also* discussion in Findings 2.42–2.45, *supra*.

6.16. No evidence in the record contradicts FEMA's finding that Applicants' population distribution information for the permanent population and methodology for estimating the transient population are adequate. *Appl. Exh. 43C, at 59; see also Tr. 18,059–60, 18,602–03.*

6.17. JI-23 raises the issue of whether the SPMC decisionmaking criteria for PARs are properly coordinated with those in the NHRERP. Contentions Memo. at 36.

6.18. JI-24 raises the issue of whether the granting of legal authority to ORO would take so much time as to preclude prompt notification of the public. *Id.* at 37.

6.19. FEMA has found that ORO has executed the necessary agreements with respect to all support organizations including the State of New Hampshire and found that the agreement for coordination between those two entities is adequate. *Appl. Exh. 43C, at 12–13.*

6.20. FEMA has also found that the SPMC adequately describes those functions that require state and local authorization before implementation. *Id.* at 9–12.

### C. Operation of Civil Defense in Amesbury

6.21. The Town of Amesbury adduced certain testimony directed to Contentions JI-23 and JI-24. The point was made that the selectmen of Amesbury might not be available on the day of an emergency, since they are part-time officials who work as far away as Boston (Cronin Dir., *supra*, at 16) and that the police chief is not familiar with the SPMC or any other emergency plans except for the community of Amesbury. *Id.*

6.22. Under Commonwealth law, the Director of Civil Defense is responsible for emergency planning. Tr. 16,751. In the event that the selectmen who are in charge of civil defense programs for Amesbury (Tr. 16,783) are not available, the Civil Defense Director, the coordinator of emergency services (Tr. 16,790) of Amesbury or his deputy will take over and do what is necessary. Tr. 16,790, 16,769, 16,809–10. They are familiar with operations of the town and could implement a plan if needed. Tr. 16,809–10. Findings 10.24–10.26, *infra*, address the substantial readiness of Amesbury to respond to general emergencies.

## D. Sheltering Options for PARs

6.23. The decision criteria of the SPMC contain a full range of protective actions. Tr. 18,572-73. These include a shelter option for the permanent population. Tr. 18,574-75.

6.24. There is no requirement for a shelter survey to be included in a radiological emergency response plan. Tr. 18,576.

6.25. FEMA witness Donovan testified that the selection in the SPMC of the 0.9 dose reduction factor (drf) is the most prudent and conservative approach to take. Tr. 18,578, 18,587-90.

6.26. FEMA found that the 0.9 drf is an appropriate factor upon consideration of the housing stock available in Massachusetts portions of the EPZ. This is based on the assumption that a wooden structure building with no basement, as found most commonly in the beach areas of the EPZ, is the deciding factor for estimating dose for the Massachusetts population. Tr. 18,577-78, 18,587-90. Protective action decisions must be based on dose projections for the public in general, and not on dose projections for the occupants of various individual buildings. Tr. 18,578, 24,919.

6.27. EPA draft guidance suggests that shelter is a protective action that is viable for only a limited time equal to less than 6 hours. Tr. 18,593. The fact that an area may have long ETEs does not mean that there is any greater need to explore sheltering alternatives. Tr. 18,590-92.

6.28. FEMA witness Donovan explained at length how, during an exercise, FEMA checks the reasonableness of Applicants' dose projections using its own (FEMA's) dose code; in this case, Applicants' projections were found to be reasonable. Tr. 18,324-28. Appl. Exh. 43F, at 220-21.

6.29. He also explained that at the plan review stage, FEMA reviews the dose projection assumptions; then, during the exercise the reasonableness of the results are checked as described above. Tr. 18,328-29.

6.30. No evidence has been adduced to contravene the rebuttable presumption as to the adequacy of the SPMC with respect to the generation of PARs; the Board finds that the SPMC is adequate and implementable in this respect.

## E. Generation and Execution of PARs During Graded Exercise

6.31. Contentions and bases, in whole or in part, raised issues as to the appropriateness of the generation and execution of PARs by the offsite response organizations during the graded exercise. These include MAG EX-11, Bases A and B(1), (3), (5), (6), (7) (Contentions Memo. at 106-10); and MAG EX-19, Bases A, B, and D (*id.* at 111-14).

6.32. MAG EX-11 alleges that ORO personnel accepted PARs received from the Seabrook Station EOF without any meaningful scrutiny to assess ad-

equacy and thus failed to demonstrate that the ORO has the technical understanding, judgment, and ability to make appropriate recommendations in a timely fashion. Also, several PARs were declared to be inappropriate for the conditions that existed. The claim was that the Massachusetts beaches were not closed at the Alert and a fundamental error was made through inadequate assessment of the meteorological data.

6.33. No contentions were raised and litigated with respect to the onsite portion of the exercise in MAG EX-19 and Bases A, B, and D except a contention that the "METPAC" computer model was either inadequate or wrongly utilized during the exercise. See MAG EX-19(D), Contentions Memo, at 113.

6.34. While it is true that the general wording of MAG EX-19(A) and (B) could be read as alluding to unspecified issues other than the METPAC issue arising from the onsite portion of the exercise, the fact is that the only specific basis pleaded for the allegedly erroneous PARs given to the offsite organizations by the onsite organization was the METPAC allegation described above.

6.35. FEMA found no deficiencies with respect to PAR generation or execution by the ORO or the New Hampshire offsite response organization. Appl. Exh. 43F, at 155-57.

6.36. No evidence at all was adduced to challenge the rebuttable presumption thus created with respect to the offsite organizations.

6.37. The Staff offered a panel of witnesses with respect to MAG EX-19 consisting of Robert J. Bores and Edwin F. Fox, Jr. Bores and Fox Dir., ff. Tr. 24,627, *passim*. The Board finds that these witnesses were competent to testify with respect to the areas they addressed.

6.38. In essence, it was the Staff position that the PARs generated by the onsite organization to the State of New Hampshire and the NHY ORO were timely and appropriate. *Id.* at 14-15.

6.39. In addition, Staff witness Perrotti, testifying by deposition, stated that the onsite response organization had procedures for formulating PARs which were adequate under NRC standards and that those procedures were correctly followed during the exercise. Perrotti Dep., *supra*, at 91-92, 192-93.

## F. PAR Exercise Contentions

6.40. The Attorney General offered the testimony of two witnesses in support of these PAR exercise contentions. The first was Dr. Goble. Goble Dir., ff. Tr. 24,125, *passim*. The Board finds this witness sufficiently qualified to render the testimony. Tr. 24,155, 24,130-44.

6.41. Dr. Goble began his direct testimony by describing the accident scenario used in the graded exercise. Goble Dir., *supra*, at 4-6. Next, he described the PARs made by the Seabrook Station personnel and the protective

actions (PAs) taken by New Hampshire and the ORO over the first day of the exercise. *Id.* at 6-8.

6.42. Dr. Goble next claimed that, while he does not have much direct evidence, he is concerned that the PAs taken were not the result of sufficient independent evaluation by the decisionmakers in New Hampshire or at ORO. *Id.* at 9.

6.43. On cross-examination it became apparent that he had little or no basis for his suggestion that there may not have been independent evaluation by these decisionmakers. Indeed, he said that the opinions as written on page 9 of his testimony were not very strong and were stated "vaguely" because he did not have sufficient evidence to draw very sharp conclusions. Tr. 24,200.

6.44. Dr. Goble also opined that the PARs would have been largely ineffective in a real emergency, although he recognized that a proper answer would depend on where people are and how they would behave at the time of an emergency. *Id.* at 10.

6.45. Dr. Goble's real concern, however, was that while the protective actions recommended during the exercise were, in fact, appropriate, they were not recommended in a timely manner. Tr. 24,197, 24,199.

6.46. Applicants explained that the first General Emergency protective action in Massachusetts (evacuation of Amesbury and Salisbury, sheltering of the remaining four communities) was recommended based upon indications of in-plant radiological conditions and made prior to any release of radiation. Tr. 26,926-27. The second General Emergency protective action (evacuation of the remaining four Massachusetts communities) was made as soon as the windshift toward Massachusetts began to occur. Tr. 26,928.

6.47. It was developed on cross-examination that Dr. Goble's opinions in this regard, to the effect that many people would not have had dose reductions, were based on his surmises as to human behavior in large part (including speculations that people told to leave the New Hampshire beaches during an Alert at Seabrook Station would repair to nearby beaches in Salisbury, Massachusetts, to continue sunbathing (Tr. 24,168-69)), and he admittedly is without qualifications as an expert in human behavior. Tr. 24,172-73, 24,229. Moreover, while he stated that many people would not, in his judgment, have received dose reductions, he admitted that many would have received significant dose reductions. Tr. 24,179.

6.48. In another particular, he criticized the fact that the northern towns had not been evacuated before the plume crossed them at 8 to 10 o'clock in the evening. Goble Dir., *supra*, at 12. However, as Mr. Donovan testified (Tr. 22,682-85, 22,687-88), and Dr. Goble admitted (Tr. 24,179-80), the play on PARs ceased at 6 o'clock. Confronted with this, Dr. Goble took the position that the New Hampshire decisionmakers should have realized that such a windshift had been predicted and should have evacuated this area in anticipation of it.

Tr. 24,181-82. However, he was unable to identify any weather forecast that made such a prediction for the coastal area. Tr. 24,182-86. Indeed, he agreed that the decisionmakers had "no evidence that would give them a firm basis for believing that [the plume] would be over those northern towns" (Tr. 24,187), and admitted that his claim in this regard was "controversial" (Tr. 24,528).

6.49. He also questioned the fact that the ORO decisionmakers did not evacuate the City of Newburyport earlier given the fact that there had been forecasts that the wind would shift from westerly to easterly during the afternoon of the first day. Goble Dir., *supra*, at 11, 14-15. His point was that in order to shift from westerly to easterly, the wind would have to swing for a period to northerly, and, thus, blow the plume toward Newburyport to the south. *Id.* However, although Dr. Goble believes that the PAR decisionmakers should have attributed the windshift to frontal activity, those forecasts, on their face, reveal an effect consistent with the "sea breeze" concept (Goble Attachments, ff. Tr. 24,129, at 8, 11; Tr. 24,239-40), and Dr. Goble himself agrees that the sea breeze shifts from offshore to onshore with a period of calm in between (Tr. 24,351-52); that is to say, it is not necessarily so that the shift involves a swinging around of the wind through a 180° arc. In addition, the wind speeds were extremely low (Tr. 24,202), and any change in wind direction would not result in any effect on unevacuated areas beyond 5 miles for a few hours. Thus, if this decision in hindsight was erroneous, it nevertheless appears soundly based at the time it was made.

6.50. The Staff witnesses indicated that the PAR not to evacuate beyond 5 miles issued shortly after a General Emergency had been declared at 13:32 hours was appropriate for several reasons, such as, (1) any radiation releases that might be expected at that time would not be likely to cause exposures in excess of the EPA PAGs beyond the evacuated areas; (2) evacuation beyond 5 miles from the plant would adversely impact the evacuation of those closer to the plant; (3) a 360° evacuation to 5 miles eliminated the need to consider shifting wind directions; (4) evacuation to 5 miles provided prompt protection for those persons most at risk; and (5) the recommendation to shelter in the rest of the EPZ afforded a better opportunity to provide those persons with emergency information and protective action recommendations. Bores and Fox Dir., *supra*, at 19-20.

6.51. The Staff witnesses also specifically rejected the concept that Newburyport, once sheltered, should have remained sheltered because the forecast was for winds to continue shifting so as to remove Newburyport from the area of plume transport and passage within a relatively short time. Tr. 24,814-28. Staff pointed out that the decisionmakers could not be sure that the windshift would continue, since frontal systems frequently stall, nor could the decisionmakers be sure that the release would terminate. *Id.*

6.52. Even if the Board were to find that there was an error in judgment as to the PAR for Newburyport because of inadequate or erroneous consideration of weather forecasts, it still does not demonstrate a fundamental flaw in the plan arising out of METPAC or otherwise which is what the Attorney General must show to prevail in the area of the onsite portion of the exercise.

6.53. Dr. Goble made many suggestions he felt were necessary to properly handle windshifts in the decisionmaking process. Goble Dir., *supra*, at 18-21. However, he did agree that one of the purposes of adopting the keyhole approach to PARs is that action is taken in the full circumference around the plant, thus mitigating the effect of windshifts for everyone within the close-in radius. Tr. 24,201-02. He also, in hindsight, indicated that sheltering the 360° up to 5 miles radius around Seabrook would have provided for less dosage for some of the persons there as compared to evacuation. Goble Dir., *supra*, at 10-11.

6.54. It is interesting to note that in the one matter where Dr. Goble had previously been given the job of planning PARs, the PARs that he and his colleagues working on the matter developed were remarkably similar to the approach taken by the Applicants in the SPMC. Tr. 24,156-57, 24,163-64.

6.55. It was developed on cross-examination that in that project, Dr. Goble and his colleagues recommended the adoption of keyhole evacuations with the 360° radius being evacuated for 5 miles and a downwind area extended beyond the 5-mile radius central core. This is precisely what was done in the Seabrook exercise. *Compare* Tr. 24,163 with 24,204-05.

6.56. In any event, Dr. Goble acknowledges that the faults he perceived in this exercise are not sufficient evidence in themselves to show that the plan and implementation were deficient, although these faults could possibly be shown deficient in one of the other accident scenarios in the spectrum. Goble Dir., *supra*, at 16-18.

## G. Meteorological Considerations

6.57. Dr. Goble then gave some general observations on how to handle the problem of windshifts, complimented the Applicants on their preparation to acquire regional weather information and forecasts, decried their reliance on only one (Seabrook's) meteorology tower for local conditions, and leveled some general criticism against one facet of the METPAC model — its lack of provision for correcting the direction of a plume segment. *Id.* at 18-21.

6.58. Dr. Goble took the position that METPAC was deficient because it doesn't use interactive data processing and because it called for the use of a default value for duration of release of 8 hours. Tr. 24,209. Goble Dir., *supra*, at 23, *as modified by* Tr. 24,282, *et seq.* However, a review of that procedure indicates that this default value was to be used only when the decisionmaker

was without any basis for selecting some other release duration. Tr. 24,282, 24,334-35. Dr. Goble argues that a default value of 8 hours is too long because it biases the selection process in favor of evacuation. *See* Tr. 24,296. As seen below, this argument is in conflict with the theory that planning is to be done for a spectrum of accidents rather than being targeted upon a relatively narrow portion of the spectrum.

6.59. Dr. Goble acknowledged that METPAC was as good or better than any other model available for the same purposes (Tr. 24,208-09, 24,338); and also that it was already in use in other nuclear power stations (Tr. 24,208-09). *See also* Tr. 24,069. Dr. Goble acknowledged that METPAC is "at the cutting edge of the technology, but it's obsolete." Tr. 24,209.

6.60. Staff witness Bores stated that METPAC is one of the better dose evaluation models he had seen in use by any of the utilities. Tr. 24,951.

6.61. Dr. Goble criticized the Massachusetts Emergency Response Protective Areas (ERPAs) in terms of their location and design. Goble Dir., *supra*, at 16. He made the point that one of his PARs, i.e., to shelter Salisbury and evacuate Amesbury, could not be accomplished under the plan's present procedures, given the ERPAs. Tr. 24,505-06, 24,518-19. The ERPAs were drawn so that one ERPA includes communities within 5 miles of the plant and the other ERPAs include those 5 to 10 miles from the plant, which is consistent with the type of protective actions normally taken. Tr. 24,074.

## H. Scheduling of Beach Closings

6.62. Dr. Goble also indicated that "to the extent the SPMC prohibits considering a beach closing at the alert stage" the SPMC had a fundamental flaw. Goble Dir., *supra*, at 14. As Dr. Goble admitted on cross-examination, he meant, rather, that the SPMC does not consider beach closing until the Site Area Emergency (SAE) level. Tr. 24,189. In fact, beach closings are not prohibited at an earlier level. The Offsite Response Director communicates to the Governor's representative the reasons he feels that a beach closure is not necessary. Then, the Governor, the ultimate decisionmaking authority in the Commonwealth, makes the decision. Tr. 23,962.

6.63. The Attorney General criticized the way the beach closing was made once the SAE was declared. His concern concentrates on the fact that the onsite staff is supposed to recommend a beach closing if any one of a series of technical conditions is met. Tr. 24,769-70, 24,777. At the time the decision for beach closing was made, supposedly none of these technical conditions were met, and thus this should be considered to be a failure to follow the onsite plan. After considerable discussion, Staff witness Bores concluded that the SPMC, in Procedure IP 2.5, states that a beach closing in the Massachusetts EPZ is not

automatic but that the SAE triggers the evaluation of the need for the various predetermined special protective actions. Tr. 24,750-56.

### I. Dr. Goble's Criticisms and Positions

6.64. It also seems apparent that many of Dr. Goble's criticisms of the selection and exercise of PARs are based upon hindsight. *E.g.*, Tr. 24,512, 24,518. This places decisionmakers at a disadvantage in comparison, since during an emergency they must base their actions on information available at the time, without the benefit of hindsight. *E.g.*, Tr. 24,821-27, 24,946-47.

6.65. Many of Dr. Goble's positions appear to be based upon his view that the planning and PAR decisionmaking process at the time of an event should be driven by a goal of seeking to mitigate to the greatest extent possible a fast-breaking, serious, and fast-ending accident, unless such accidents can be ruled out. He would choose this even at the expense of not accomplishing otherwise reasonably achievable dose savings in other less-severe situations. His reasoning was that the overall objectives of the plans should be to maximize dose savings, and the biggest accidents give the most potential for dose savings, even if they have lower probabilities of occurring. Repeatedly, Dr. Goble's analyses led him to the conclusion that sheltering would be the preferred protective action over evacuation. Tr. 24,577-78, 24,582, 24,586-87.

6.66. This theory held by Dr. Goble is not in conformity with the regulations and guidance of the NRC which require that plans be designed with flexibility and to address a spectrum of accidents, not just one end of the spectrum. NUREG-0654, at 6-7. The concentration on the fast-ending event by Dr. Goble appears to be misplaced even if the regulations and guidance of NRC were otherwise. Such fast-ending events could be a planned release of noble gases with no radioactive particulates included or on the ground; or it could be a total loss of containment. The first can be easily planned for and coordinated with evacuation. The latter would usually imply that evacuation should get under way as soon as possible since the EPZ area could be radioactive for some period of time after the longest evacuation time. Nevertheless, we rely on the NRC guidance in concluding that plans must consider the complete spectrum of accidents, not just one end of the spectrum.

2.67. The Attorney General's other witness offered with respect to this area was Dr. Harris whose testimony as to training has already been discussed above.

### J. Rulings of Law

6.68. "Our emergency planning requirements do not require that an adequate plan achieve a preset minimum radiation dose saving or a minimum

evacuation time for the plume exposure pathway emergency planning zone in the event of a serious accident. *Rather, they attempt to achieve reasonable and feasible dose reduction under the circumstances; what may be reasonable or feasible for one plant site may not be for another.*" *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-86-13, 24 NRC 22, 30 (1986) (emphasis added).

6.69. "The existing emergency planning [regulation] does not require that plans achieve any preestablished minimum dose savings in the event of an accident. For example, approved emergency plans with full State and local governmental cooperation have highly variable evacuation time estimates ranging from several hours to over ten hours and the projected dose savings for such plans would vary widely. Thus, the regulation is inherently variable in effect and there are no bright line mandatory minimum projected dose savings or evacuation time limits which could be viewed as performance standards for emergency plans in the existing regulations. Moreover, the dose savings achieved by implementation of an emergency plan under adverse conditions, e.g., during or following heavy snow, could be substantially less than under perfect conditions. This variability is consistent with a concept or approach to emergency planning and preparedness that is flexible rather than rigid." *Licensing of Nuclear Power Plants Where State and/or Local Governments Decline to Cooperate in Offsite Emergency Planning (Proposed Rule)*, 52 Fed. Reg. 6980, 6982 (Mar. 6, 1987).

6.70. "The Commission presumes as does FEMA that offsite individuals in the EPZ may, as a result of a nuclear plant accident, either become externally contaminated with radioactive materials or become exposed to dangerous levels of radiation, or both." *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-83-10, 17 NRC 528, 534-35 (1983).

6.71. It is not sufficient for Intervenors to demonstrate the existence of an error or lack of judgment on the part of players in the exercise as such; rather, what must be demonstrated is that imperfections in the exercise demonstrate the existence of a fundamental flaw in the plan or plans being exercised. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-903, 28 NRC 499 (1988).

6.72. "[A] fundamental flaw in an emergency plan, as revealed in an exercise, has two principal components. First, it reflects a failure of an essential element of the plan, and, second, it can be remedied only through a significant revision of the plan." *Id.* at 505 (emphasis in original).

6.73. Any purported deficiency observed in an exercise which can be corrected by the provision of supplemental training cannot be held to evidence a fundamental flaw in a radiological emergency response plan. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-918, 29 NRC 473, 486 (1989).

## K. Conclusions

6.74. The SPMC contains a range of possible protective actions that are suitable to the circumstances of the Seabrook site.

6.75. The SPMC sets forth adequate procedures and criteria for the generation of PARs.

6.76. The SPMC appropriately provides for "keyhole" evacuation protective actions and has adequate procedures to provide reasonable assurance that such recommendations will be made upon the basis of adequate information and appropriate criteria.

6.77. The SPMC adequately incorporates ETE information into the PAR decisionmaking process.

6.78. The SPMC contains adequate population distribution information.

6.79. The SPMC contains adequate procedures to provide for the notification of PARs to state and local officials and the general public, and for coordination of PARs with the State of New Hampshire.

6.80. PAR generation and execution during the graded exercise revealed no fundamental flaws in the emergency plans exercised.

## 7. COMMUNICATIONS/NOTIFICATION

### A. Background

7.1. A total of nine contentions was litigated with respect to the area of notification and communications. They are: JI-27 (Liaisons); JI-30 (Telephone Communications); JI-31 (Lateral Field Communications); JI-34 (Notification of Contract Personnel); JI-35 (EBS Messages); JI-36 (Media Coordination); JI-39 (Preemergency Information to Beach Transients); MAG EX-8 (ORO Radio Communications); and MAG EX-9 (EBS/Media Messages).

7.2. Contention JI-27 raises the issue of whether the relationships between the Offsite Response Organization (ORO) and other organizations are adequately defined to facilitate communications between them. Contentions Memo. at 37-39.

7.3. Applicants' Seabrook Plan for Massachusetts Communities (SPMC) identifies the federal, state, local, and private organizations involved in implementing any Seabrook emergency response and describes the personnel and duties of the NHY ORO, including coordination and liaison personnel. Appl. Exh. 42, § 2.0. Tables 2.2-1 and 2.2-2 of the plan list state and local counterparts to ORO and the emergency response function that Applicants contend ORO is fully capable of implementing in the absence of state and local participation. *Id.*

7.4. FEMA has found that the Applicants have adequately described the ORO organization and the areas where it needs legal authorization; in addition, FEMA has found that adequate and necessary written agreements with the State of New Hampshire and others have been executed. Appl. Exh. 43C, at 9-13.

7.5. The Board finds that the relationships between ORO and other organizations involved in Seabrook emergency operations are adequately defined to facilitate communications between them. Other aspects of JI-27 are addressed in Section 10, *infra*, along with other contentions with respect to organizational and governmental coordination.

## B. Telephone Communications

7.6. JI-30 raises the issue of whether the SPMC relies too much on the commercial telephone system in light of the alleged overload of that system which will occur in an emergency. Contentions Memo. at 40-41.

7.7. FEMA has found the provisions in the SPMC for communications within ORO, with other organizations (including states and local governments), with federal agencies, the plant, for activating response personnel, and for communicating with medical support facilities to be adequate. Appl. Exh. 43C, at 29-34.

7.8. City of Newburyport witness O'Connor gave testimony setting forth his opinion that reliance on the commercial telephone system for communication is inappropriate. In the case of the City of Newburyport, there are no public telephones available at four of the seven Traffic Control Points (TCPs). O'Connor Dir., ff. Tr. 16,458, at 24.

7.9. While lack of public telephones might be an inconvenience, communication for personnel at TCPs and Access Control Points (ACPs) would be available by two-way radios. Two-way radios are issued at the ORO Staging Area to a Traffic Guide for each TCP or ACP, and to all Route Guides prior to their dispatch into the field. Appl. Reb. No. 22, ff. Tr. 27,223, at 17.

7.10. There is a conclusory opinion by the Attorney General's witness Sikich<sup>40</sup> that there is "foreseeable line overload" (Sikich Dir., ff. Tr. 20,800,<sup>41</sup> at 2, 22, 40), and also a statement that phones at special facilities may not be manned on a 24-hour basis and messages regarding sheltering, evacuation, or an emergency situation at Seabrook may not be received by the population. *Id.* at 41.

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<sup>40</sup>The qualifications and credibility, or lack thereof, of Mr. Sikich who, given the volume of his prefiled testimony, was apparently supposed to be the lead witness for the Attorney General, is discussed in detail in Section 8, below.

<sup>41</sup>This Sikich testimony appears at two places in the record. The first time is at Tr. 20,230; the second is at the cited page, 20,800. It is the latter one that is utilized herein, because that is the one that reflects all of the strikings made as a result of the full cross-examination and later motions with respect to this testimony.

7.11. Intervenors raised a limited concern that notification provided to school principals may not be verified by return phone call due to commercial telephone overload considerations. In response, Applicants stipulated that upon the issuance of a full-power license, they will provide school principals in the Massachusetts EPZ with a code in a sealed envelope to be used as a verification code when called by the ORO School Liaison. Tr. 19,905-06.

7.12. There are three methods for notifying schools of the emergency: telephone, sirens, and tone-alert radios which will be supplied. Tr. 19,015.

7.13. Initial notification of offsite authorities of an emergency at Seabrook does not rely on the commercial telephone network. Such notification, including that of Massachusetts governmental entities, is made by Seabrook Station Control Room via the Nuclear Alert System (NAS). The NAS is comprised of various microwave and leased telephone links and does not rely on commercial telephone line availability. Appl. Exh. 42, § 4.1.

7.14. The public notification system in Massachusetts does not rely on the availability of commercial telephone lines for primary communications. Initial activation of the VANS (Vehicular Alert and Notification System) operators at the VANS Staging Areas will be made by the EOC Contact Point via the Vehicular Alert and Communications System (VACS) which transmits a radio signal that activates an alarm system. Subsequent voice communications between the Offsite Response EOC and the VANS Operator are via the ORO Emergency Radio Network (ERN). *Id.* § 4.5.

7.15. The graded exercise tested all the mechanics for notifying the appropriate parties to activate the siren alerting system. Tr. 18,312.

7.16. The Board finds, as did FEMA, that provisions for communications within ORO and from ORO to other organizations and personnel required to be contacted in the event of an emergency at Seabrook are adequate and that there is no undue reliance on commercial telephone communications.

### C. Field Communications

7.17. Contentions JI-31 and MAG EX-8 are essentially the same issues. JI-31 raised the issue of whether there were adequate horizontal or lateral communications between field personnel. Contentions Memo. at 41. MAG EX-8 raised the issue of whether communications within the ORO in the context of the exercise were demonstrated to be adequate. *Id.* at 95-96.

7.18. FEMA has found such communications to be adequate. Appl. Exh. 43C, at 29-34; Appl. Exh. 43F (Exercise Report), at 204. In its Exercise Report, FEMA, while finding that all of its objectives were met, however, found some problem areas and recommended corrective actions. Objective 4 required a demonstration of the ability to communicate with all appropriate locations, organizations, and field personnel. Several problems were encountered with two

radio networks (EMS and ERN). In some instances, directives to field workers were not received in the field. FEMA attributed this to the ranges of the radios and in part to heavy radio traffic. *Id.* at 204-07.

7.19. The Board notes that FEMA Reports (Appl. Exhs. 43F and 43C) identify and describe most, if not all, of the issues litigated under JI-31 and MAG EX-8, all of which have been considered and/or resolved by FEMA in its overall evaluation. *See also* Appl. Exh. 43E.

7.20. With respect to these two contentions, the Attorney General presented as his witness Stanley I. Cohn. Cohn Dir., ff. Tr. 26,042, *passim*. Mr. Cohn is qualified as an expert in telecommunications. *Id.*, Attach. 1.

7.21. Mr. Cohn points out that in evaluating any radio system the first consideration is the required range, or coverage, for which the system is designed. Mr. Cohn alleges that the ERN was designed to have range coverage for the 10-mile Massachusetts EPZ; it was not designed to have any specific goal of reliability outside of the EPZ. The alleged result is that for substantial operations that involve New Hampshire Yankee ORO field workers outside the EPZ, radio communication is not reliable. Cohn Dir., *supra*, at 4. Mr. Cohn alleges that because of the ERN's limited range, buses coming from many towns outside of the EPZ may not be able to communicate vital information with any degree of predictability or reliability until they are within a radius of 15 to 20 miles from the location of the repeater station. *Id.* at 5-6. Next, the point is made that on the basis, *inter alia*, of an assertion that the Justice Department considers "an acceptable system access time to be 2.5 seconds," too many people are assigned to the Route Guides' radio channel. *Id.* at 7-11.

7.22. As to the allegation that Route Guides and bus drivers will not be able to receive or transmit vital information that may be needed until they are within 15 to 20 miles from the repeater station, no evidentiary support is provided, nor does the Attorney General explain what is meant by "vital information" or, assuming a range problem, why earlier communications are necessary. In addition, Applicants' witness Mr. Catapano indicated that extending the range when not needed may cause more radio traffic to occur with potential additional congestion. Tr. 27,345-46.

7.23. FEMA identified several communications problems with the two-way radio networks and made recommendations with which Applicants complied. Appl. Exh. 43F, at 206-07; Appl. Exh. 43E, at 15.

7.24. Mr. Cohn noted that apparently no traffic analysis was done in designing the ERN radio system. Mr. Catapano, however, indicated that a functional analysis was made. Tr. 27,273.

7.25. The testimony goes on to criticize the roll-call procedure to be sure Route Guides have all received a general message (such as to ingest potassium iodide (KI)) because it will add to channel overload. Cohn Dir., *supra*, at 11-12.

In fact, a roll-call procedure will not be used. Tr. 27,342; Appl. Reb. No. 22, *supra*, at 18-19. *See Finding 7.49, infra.*

7.26. It also appeared on cross-examination that the Department of Justice had not adopted an absolute 2.5-second standard as Mr. Cohn described in his testimony (Tr. 26,056-59), and that the document in which the "standard" appeared as the opinion of the authors was directed to trunk line requirements for incoming telephone communications in police stations rather than radio communications among field operatives. Tr. 26,059-60.

7.27. Mr. Cohn also agreed that police departments are often in the position where decisionmaking is *ad hoc* by virtue of the fact that procedures cannot cover the myriad of situations a police officer on patrol may face (Tr. 26,074, 26,076), and that radio communications can substitute for previously adopted procedures to affect decisionmaking in the field. Tr. 26,077-78.

7.28. To the contrary, the decisions facing most field personnel in a nuclear emergency response are, for the most part, predetermined and governed by procedures, thus lessening the need for radio communication for such purposes. *See Tr. 26,106.* For example, the witness acknowledged that Bus Drivers seldom need to use the radio unless they have a breakdown. Tr. 26,080. He also admits that there are some differences for emergency communications requirements between public safety and nuclear emergencies. Tr. 26,135.

7.29. It also appears that the testimony, as filed, did not take into account the fact that the system used in the SPMC has provisions for the EOC to override and interrupt all communications in the emergency radio network with an "alert tone" which tells all field personnel to stand by for an important message. Tr. 26,119.

7.30. It would appear that even if one agreed with Mr. Cohn as to the possibilities for channel overload with respect to field personnel, the problems could be overcome by relatively simple fixes in the nature of channel reassessments (Tr. 26,087, 26,090-91, 27,326), or procedural changes (*e.g.*, Tr. 27,276), and thus, even if Mr. Cohn's testimony were accepted in all respects on this matter, this does not demonstrate a fundamental flaw in the SPMC.

7.31. In fact, since the exercise, the Applicants have received a license for a fifth channel for use during drills by drill controllers, which would be available for use during an actual emergency. Tr. 27,257-58, 27,272.

7.32. In addition, some of the concerns Mr. Cohn brought up (to the extent they exist at all) would appear to be ones that can be alleviated by proper training, and Mr. Cohn indicated that he was not completely aware of the training that had been given to ORO personnel who were required to use radios. Tr. 26,100. *See also Tr. 26,107.* For example, the witness did not know if these personnel were trained to pause in their radio communications in order to permit, if necessary, others with a higher priority message to break in. Tr. 26,099-101.

7.33. He also stated that he was unable to say whether any necessary communications were precluded by system design and configuration during the exercise. Tr. 26,104. None, in fact, were. Tr. 27,287; Appl. Reb. No. 22, *supra*, at 23 and Attach. D.

7.34. In response to the testimony presented on the subject contentions, the Applicants offered a panel of witnesses consisting of Anthony M. Callendrello, Manager, Emergency Planning Licensing, New Hampshire Yankee (Qualifications, ff. Tr. 17,318); Gary Catapano, President, AllComm, Inc. (Qualifications, ff. Tr. 27,223); and William F. Renz, Emergency Planning Specialist, Aidikoff Associates (Qualifications, ff. Tr. 27,223). Appl. Reb. No. 22, *supra, passim*.

7.35. The Board finds that these witnesses are competent to testify with respect to the areas they addressed.

7.36. During the time of an emergency, ORO field personnel primarily execute preplanned actions and have a very narrow scope of responsibilities. Accordingly, their need to communicate laterally to other field workers is extremely limited. The primary need for ORO field personnel to communicate is in a vertical fashion (up or down the chain of command). The circumstances under which even these vertical communications are expected to occur are minimized by preset plans and procedures that to the greatest extent possible attempt to obviate the need for any extensive communication to take place. This contrasts greatly with the need of police and fire department personnel who must deal with a broad range of emergencies on an *ad hoc* basis. In order to perform effectively, police and fire personnel must be able to resolve *localized* problems via *ad hoc* decisionmaking and utilize lateral communications to achieve the desired results. Apparently, the Intervenors feel that this approach should be applied to ORO activities in the EPZ. Should this be the case, widespread *ad hoc* decisionmaking by field personnel would quickly lead to chaos because it amounts to decisionmaking in a vacuum. Appl. Reb. No. 22, *supra*, at 2-3.

7.37. The command personnel at the Staging Area and EOC have a view of the "broad picture" relative to other emergency response activities that may be taking place beyond the "vision" of field personnel who may be involved with a response to a localized event. Additionally, they have access to a pool of knowledge and information relative to resources available to the ORO for responding to an "emergency occurring within an emergency." *Id.* at 3.

7.38. The vertical command structure utilized by the ORO, however, does not require that all communications must first be vertically transmitted, processed, and recommunicated through the entire ORO chain of command for resolution. *Id.*

7.39. The vertical command structure utilized by the ORO allows for decisions to be made and problems to be resolved at each of the various levels of its structure. The more complex problems necessarily must move higher up

the chain of command for resolution while the less complicated problems are resolved at a lower level within the command structure (Staging Area). *Id.* at 4.

7.40. Additionally, there are intelligence-gathering mechanisms (MAGI and ERN radio monitors) which provide information to the top of the command structure relative to all significant events (problems) taking place in the field. These information mechanisms are not dependent upon the chain of command for their operation. *Id.*

7.41. As noted earlier (*see* Finding 7.26, *supra*), there were allegations that the ORO communications network was not up to the standards of public safety communications because access delays could exceed the allegedly recommended time of 2.5 seconds. It is known that, in general, the standards applied to public safety agency communications do not apply to ORO communications. The communications needs of the ORO differ from the needs of public safety agencies such as police or fire departments. Whereas the ORO is responding in a predetermined manner to the situation of evacuation, public safety agencies must respond in an *ad hoc* manner to a variety of emergency situations. Appl. Reb. No. 22, *supra*, at 4-5; Tr. 27,298-99. *See also* Tr. 27,314.

7.42. ORO Traffic Guides, Route Guides, Transfer Point Dispatchers, Road Crews, and VANS Drivers are provided with two-way radios capable of operating on five (Tr. 27,257-58) paired frequencies of the ERN. The ERN allows field personnel the ability to communicate directly with each other, if necessary, as well as with the Offsite Response EOC and the ORO Staging Area and Reception Centers. In other words, all ERN radio-equipped ORO personnel can talk directly to all other ERN radio-equipped personnel. The ERN allows communications to occur in both lateral and vertical modes as needed during the emergency response. Appl. Reb. No. 22, *supra*, at 7-8.

7.43. The ERN provides the required communications capabilities to support field operations as outlined by the SPMC both inside and outside the EPZ. These capabilities have been successfully demonstrated on numerous occasions during drills and the graded exercise. *Id.* at 8-10.

7.44. Irrespective of the fact that the ORO utilizes a vertical command structure and the need for field personnel to communicate directly with one another will be minimal, there exist provisions for lateral communications amongst field personnel in the unlikely event this should become necessary. These provisions are supported by both the designed hardware capabilities of the communications networks and equipment and the training provided to ORO personnel. *Id.* at 11-12.

7.45. At the time of an emergency, Massachusetts state and local authorities will continue to provide the standard functions associated with police, fire, and other public safety activities. The NYH ORO maintains the capability to communicate with state and local governments via the Massachusetts Governmental Interface (MAGI) radio network. The MAGI network operates

on existing radio frequencies which are routinely utilized by Massachusetts state and local response organizations. *Id.* at 13.

7.46. During 1985 and 1986, NHY designed or redesigned, provided, and installed many of the primary communication systems now in use by many of the Massachusetts public safety entities that would be involved with a response to an emergency at Seabrook. The ORO MAGI system was designed to provide a communications link to these and other public safety entities. The hardware components of MAGI were chosen and configured to allow compatibility and integration with these public safety communications systems. Accordingly, MAGI can be thought of as a "Gateway" mechanism allowing the MAGI radio operators at the EOC the ability to monitor the public safety activities taking place in Massachusetts. *Id.* at 13-14.

7.47. In the event it becomes necessary, due to the failure of primary communications paths between the ORO and Massachusetts public safety entities, MAGI will also allow a voice communications link to the various Massachusetts state and local public safety agencies. *Id.* at 14.

7.48. During an emergency, should unacceptably heavy communications traffic develop on the channel being utilized by Route Guides or Traffic Guides, it is planned that both the overflow channel and/or the backup interfacility channel could be utilized as additional capacity for conveying any necessary communications. Moreover, the drill controller channel could also be used to provide additional capacity in an emergency. This effectively provides three additional channels or a total of five channels (Tr. 27,257-58) which could be made available for either Route Guide or Traffic Guide communications. *Id.* at 14-15.

7.49. During the graded exercise some Route Guides and Bus Drivers missed the one KI ingestion transmission at 15:45. FEMA recommendations to alleviate this problem were as follows: "Review and revise Attachment 5 of IP 1.4 to include a roll call process or other means to insure appropriate communications are complete." The roll-call process was reviewed and it was decided that it was inappropriate to achieve the desired results and, in fact, may be counterproductive by contributing significant additional radio traffic to the channel. To address this, IP 2.8, Step 5.4.3 now instructs dispatchers to repeat KI ingestion directives (or any other important messages) to ORO field personnel approximately every 30 minutes to ensure that these personnel receive these instructions upon arrival within the ERN coverage area. Appl. Reb. No. 22, *supra*, at 18-19; Tr. 27,230-31. Mr. Cohn was not aware that there was a provision for a "tone alert" for emergency messages. He cautioned that a stronger signal nearer the repeater might be picked up with a resulting cancellation of the tone alert. Tr. 26,128-29. However, the same repeating procedure could be used to solve that problem.

7.50. The two-way radios provide the capability for a Traffic Guide at any given TCP or ACP to communicate directly with any other TCP or ACP. Similarly, Route Guides can directly communicate with one another, both in their roles on the buses, and as the providers of notification to hearing impaired. The two-way radios also enable Traffic Guides and Route Guides to report road impediments or other information that could impact an evacuation to the appropriate personnel. Appl. Reb. No. 22, *supra*, at 19.

7.51. Applicants also described the communications capabilities available to Transfer Point Dispatchers, Road Crews, and Ambulance Drivers. *Id.* at 19-22. The Board finds these to be adequate for the purpose intended.

7.52. ORO field personnel issued two-way radios operating on the ERN have been provided training on their use. This classroom training is included in Module 20 of the ORO Emergency Plan Training program, which specifically discusses guidance for ORO field personnel on how to communicate with each other over the ERN. In addition, walk-through drills were conducted in preparation for the FEMA graded exercise of June 28 and 29, 1988. *Id.* at 22-23 and Attachs. D and E.

7.53. There was an appreciable amount of radio traffic during the exercise and at some points delays may have resulted. However, at no point did radio traffic preclude any needed communication from occurring. Recognizing that radio traffic can be heavy, training of all ORO personnel issued two-way radios emphasizes the need to limit radio communication to that which is required. Other important communications protocols are also emphasized. *Id.* at 23 and Attach. D.

7.54. Some portion of the congestion that occurred during the exercise was caused by controller use of radios as opposed to actual players. Tr. 27,277, 27,285, 27,320.

7.55. The objective of demonstrating the ability of the ORO to communicate with all appropriate locations, organizations, and field personnel (Objective 4) was met during the FEMA graded exercise for Seabrook. Appl. Reb. No. 22, *supra*, at 23; Appl. Exh. 43F, at 204-07. The Board concurs.

#### D. Notification of Contract Personnel

7.56. JI-34 raised the issues as to whether communications for the notification and mobilization of response personnel are adequate. Contentions Memo. at 41-42.

7.57. All bases for JI-34 were withdrawn by the Attorney General except Basis C, which raised an issue as to whether the SPMC contained adequate provisions for alerting and notifying emergency personnel responsible for driving the various conveyances involved. *Id.* at 42.

7.58. FEMA has found that the SPMC contains adequate provision for notifying ORO response personnel. Appl. Exh. 43C, at 22-23, 29-34.

7.59. While the resource providers' methods of communication are not normally a part of FEMA's review criteria for communication plans, FEMA collected and reviewed information about their methods of communication or "call-out procedures" while verifying Letters of Agreement (LOA) in the SPMC. Questions E and F of the questionnaire used in the LOA verification program pertained to driver personnel and communications and/or call-out procedures. The answers were reviewed by Richard Donovan, FEMA's RAC Chairman, and found to be reasonable and adequate. MAG Exh. 73, at 32; Tr. 18,918-19.

7.60. The Attorney General submitted the only direct testimony filed by any Intervenor with reference to this issue and it consisted of a paragraph that speculated, in effect, that if an emergency occurs during late afternoon or early evening or on weekends, the drivers will not be at work, and may not be at home to receive a telephone call. Mangan Dir., ff. Tr. 19,429, at 37. This speculative testimony is not enough to defeat the rebuttable presumption of adequacy accorded by the FEMA finding or the statement of adequacy by the RAC Chairman. Appl. Exh. 43C, at 22-23, 29-34; Tr. 18,918-19.

## E. Media Coordination

7.61. JI-36 raises the issue of the adequacy of the procedures for coordinating with the news media. Contentions Memo. at 43-44.

7.62. The principal assertion in JI-36 is that no provision has been made for the news media at the Emergency Operations Facility (EOF). In the Attorney General's witness Dr. Carter's experience working on site at EOCs during a time of hurricane threat, the greatest problem faced by EOC operations is the disruptive influence of the news media. Carter Dir., ff. Tr. 27,546, at 39. For Seabrook, facilities and equipment for the news media have been provided at the Media Center, not the EOF or EOC. Consistent with current NRC guidance, the media need not be accommodated at the EOF or EOC as alleged. "Functional Criteria for Emergency Response Facilities," NUREG-0696 (February 1981). In fact, their presence there might interfere with emergency response activities. Appl. Reb. No. 19, ff. Tr. 27,843, at 3, 42. As to accommodating the media, the Media Center appears to have the capability to provide accurate and timely information as well as access to authoritative sources of information without interference with response activities. *Id.* at 42, 43.

7.63. FEMA has found the SPMC provisions and procedures for coordinating with the news media to be adequate. Appl. Exh. 43C, at 39-41; Appl. Exh. 43F, at 218-20. The Board agrees.

## F. EBS Messages

7.64. JI-35 and MAG EX-9 deal with messages and news releases to the public. JI-35 raises the issue of adequacy of the emergency messages in communicating necessary information to the public. Contentions Memo. at 42-43. MAG EX-9 raises the issue of whether the exercise demonstrated that ORO had the ability to effectively coordinate the formulation and dissemination of accurate and timely information to the public. *Id.* at 96-98.

7.65. EBS messages that will be broadcast to the public are either prerecorded, prescribed, or modified, as appropriate, from the prescribed messages. The SPMC prescribed messages are based on similar messages in the New Hampshire Radiological Emergency Response Plan (NHRERP). The EBS messages were developed in accordance with the criteria in NUREG-0654, II.E.5, and the guidance contained in FEMA REP-11, "A Guide to Preparing Emergency Public Information Materials," June 1987. Appl. Reb. No. 19, *supra*, at 11.

7.66. News releases, including information provided to the media at press briefings and over the telephone at the Joint Telephone Information Center (JTIC), are developed to give up-to-date information regarding plant status, emergency operations, and response actions under way affecting the public. The SPMC procedures for developing news releases include a checklist to ensure the inclusion of appropriate items. *Id.* at 12; Appl. Exh. 42, Procedures, IP 2.12, at 5.2.2.

7.67. During the earlier evidentiary hearings dealing with the New Hampshire Radiological Emergency Response Plan, Dr. Miletí (who also testified in the Massachusetts hearings) evaluated the Seabrook EBS messages for accuracy, clarity, consistency, certainty, and specificity, among other attributes. He also evaluated them for source attributes: i.e., officialness, credibility, and familiarity. Dr. Miletí thought the EBS messages were good, and once honed against his "ideal" attributes, they will provide the listening public a "most solid foundation from which to base sound decisionmaking." See LBP-88-32, *supra*, 28 NRC at 748 (Finding 7.93). As stated in Finding 7.65, *supra*, the SPMC prescribed messages were based on similar messages from the NHRERP which have been found adequate. Appl. Reb. No. 19, *supra*, at 11, 31.

7.68. The Attorney General's witness with respect to these issues was Dr. T. Michael Carter. Dr. Carter is an expert in the area of behavioral response. He has worked in the field for the past 13 years. Dr. Carter's experience includes research on emergency response to natural hazards in communities. In addition, he has taught modules of the evacuation course which deals with technological hazards at the FEMA training center. Carter Dir., *supra*, at 1-4 and Attachment; Tr. 27,551, 27,571-72. Dr. Carter has no background or expertise in the area of nuclear facility emergencies; his training and experience have been exclusively

in connection with regional weather-related disasters, principally hurricanes. Tr. 27,604, 27,635-37. Dr. Carter's testimony draws upon his weather-related disaster experience. Admittedly, weather-related disasters, which are regional, present different uncertainties as to risk and protective actions than nuclear point-source hazards. Tr. 27,600-04.

7.69. Dr. Carter began with a dissertation on what he believed the criteria for constructing EBS messages should be, which were taken from Dr. Dennis Miletli's testimony in the NHRERP phase of this proceeding (Appl. Dir. No. 7, ff. Tr. 5622, at 149-59), and Sorensen, Vogt, and Miletli, *Evacuation; An Assessment of Planning and Resources* (ORNL-6376, § 5.4, at 110-12), and Perry, Lindell, and Greene, *Evacuation Planning in Emergency Management* (1981) embellished with hurricane warning overtones. Carter Dir., *supra*, at 5-19.

7.70. He criticized the prescribed EBS messages generally because they fail to give instructions to all persons in the EPZ, incorporate a statement as to the actual or forecasted severity of the release or potential health effects of the release, and instruct listeners as to how to prepare for future actions that may be taken. His testimony then particularized his criticisms of the exercise EBS messages. Carter Dir., *supra*, at 20-32.

7.71. These criticisms concern EBS messages informing one group in the EPZ (e.g., boaters, beach and wildlife refuge visitors, and residents of distinct towns in the Massachusetts EPZ) to take protective actions without informing other groups within the EPZ of those actions and why they are being taken except by issuance of news releases. Dr. Carter asserts that this division of instructions creates confusion and anxiety. *Id.* at 21. See also Appl. Reb. No. 19, *supra*, at 32.

7.72. Dr. Carter examined the SPMC messages to determine whether they contained seven items of information all of which he alleges must be communicated in order to enable all members of a population to develop an appropriate perception of personal risk and to take appropriate protective actions. Carter Dir., *supra*, at 16-21. Dr. Carter's essential items are: identify the nature of the hazard; identify the time frame in which radiation exposure will occur or is forecast to occur; identify the geographical areas at risk; clearly assess the severity of the risk; give information regarding the health effect of exposure; specify the level of certainty regarding the release (if it has not already occurred); recommend protective actions. *Id.* at 16-17.

7.73. One of the EBS messages that Dr. Carter addressed in detail was ORO EBS #3. Dr. Carter complains that the EBS message released at 2:20 p.m., while stating that the emergency could produce a contaminating accident, gives no rationale for the fact that residents of Salisbury and Amesbury are being advised to evacuate while the remainder of the Massachusetts EPZ is being advised to shelter in place. The statement regarding the projected severity

of the accident is the first statement that indicates that the public should be concerned about the accident. However, throughout the emergency, residents of all six communities had already been told, in essence, that they were in areas of near equal risk by the fact that they were named as being within the 10-mile EPZ and yet no distinctions among the communities had been made. Dr. Carter suggested that in order to avoid confusion and anxiety among the public, an explanation of why the distinction is being made should have been contained in the message. Dr. Carter points out that a second problem in this same message is that the statement regarding the possibility of a contaminating event is never repeated in subsequent messages. That is, after raising the public's level of concern by mentioning possible contamination, the ORO fails to make further mention of the actual or projected severity of the accident through the remainder of the first day. Again, Dr. Carter alleges that the effect of this is an increase in confusion and anxiety. *Id.* at 26-27. Dr. Carter alleges yet another problem in this same EBS message which would have been exacerbated by the statement of possible contamination — inconsistent information concerning the status of schoolchildren in Salisbury and Amesbury. *Id.* at 27. The information in ORO EBS #3 is summarized in the Exercise Report (Appl. Exh. 43F, at 82-83), in pertinent part, as follows:

- residents of Amesbury and Salisbury are advised to evacuate;
- schoolchildren in evacuating communities may be picked up at host facilities;
- children in certain towns, including Amesbury and Salisbury, are being held at school.

7.74. Mr. Donovan explained the context in which the EBS messages were broadcast as a portion of the exercise scenario designed to test the ability of NHY ORO to implement its utility-only plan in a worst-case situation with no assistance from the Commonwealth of Massachusetts. Earlier in the day, the FEMA Control Cell role-playing as Commonwealth officials had refused to approve a precautionary evacuation or deferred dismissal of schools. Tr. 22,468. A General Emergency was declared at the Seabrook Plant at 1:32 p.m. Appl. Exh. 43F, at 82. At 2:04 p.m., the Massachusetts Governor, simulated by the FEMA Control Cell, recommended evacuation of the Amesbury and Salisbury communities. *Id.* at 52, 77. Mr. Donovan stated that the NHY ORO decisionmakers had assumed that because the recommended evacuation occurred shortly before the regular school dismissal time and because the regular buses would be waiting at the schools to pick up children and transport them to their homes, the Massachusetts officials would permit the school buses to evacuate the schoolchildren to the reception centers. Tr. 22,469. However, Mr. Donovan, in order to test NHY ORO in a worst-case situation, instructed the FEMA Control Cell simulating Massachusetts officials to deny authorization to use the school buses to evacuate the schoolchildren and thereby require NHY

ORO to mobilize its own bus resources for the evacuation of the Amesbury and Salisbury schools. Tr. 22,469-70. It was in this context that NHY ORO drafted and broadcast EBS Message #3 which stated that the Massachusetts Governor recommended the evacuation of Amesbury and Salisbury, and later on in the message stated that the parents with children at school in Amesbury and Salisbury are "advised they are safely maintained at school, where they will be kept until they can be safely moved." Tr. 22,469; Appl. Exh. 43F, at 82-83. Mr. Donovan disagreed with the Attorney General's assertion that this EBS message was inaccurate or that it indicated that schoolchildren were being evacuated and sheltered at the same time. Although Mr. Donovan thought that the language of the message "lacked clarity" and might be confusing to some members of the public, he emphasized that "a discerning parent would have heard that the children are going to be evacuated and that they are being kept at school until they can be evacuated." Tr. 22,467-68. Mr. Donovan (who was at the EOC when this message was approved for broadcast (Tr. 22,464)) then directed simulated members of the public to call in, stating that they were confused by the message and asking for clarification as to whether the schools were being evacuated or sheltered; this was done so as to further test the ORO's capabilities to disseminate public information. Tr. 22,466. Also, following the release of EBS Message #3, the NHY ORO conducted a press briefing at which the message was discussed with members of the press, where it was pointed out that the ORO was in the process of getting buses to the schools in order to effect the children's evacuation. Tr. 22,476, 22,495-96.

7.75. Applicants presented, with respect to these matters, a panel of witnesses consisting of Anthony M. Callendrello, Manager, Emergency Planning Licensing, New Hampshire Yankee (Qualifications, ff. Tr. 17,318), Dr. Dennis S. Mileti, Professor of Sociology and Director of the Hazards Assessment Laboratory, Colorado State University (Qualifications, ff. Tr. 17,318); and Gary Catapano, President, AllComm, Inc. (Qualifications, ff. Tr. 27,223). Appl. Reb. No. 19, *supra, passim*.

7.76. The Board believes that, ideally, messages should include succinct information or instruction for all members of the EPZ and on the surface it does not appear unreasonable to expect that members of the population at seemingly equal risk should have an adequate explanation afforded them where they are not instructed to take the same protective actions. Unfortunately, putting additional information in the EBS messages regarding why people who are safe are not at risk would detract from the needed information required to be disseminated to the public who are at risk. FEMA/NRC guidance suggests that warning messages not be cluttered with extraneous information. Appl. Reb. No. 19, *supra*, at 32. Plans for an emergency at Seabrook correctly provide other formats for the presentation of non-EBS relevant information, i.e., in news releases or press conferences. *Id.*

7.77. As to whether the messages must contain information as to severity of release or potential health effects, Applicants' witnesses argue that that assertion ignores the reality of a radiological emergency. They say it would take too long to calculate actual or projected releases in order for such information to be effective in most messages. *Id.* at 33.

7.78. Additionally, Applicants argue that it is not appropriate to include potential health effects in EBS messages because (a) a majority of the public does not understand the terms of the health effects in the messages and an EBS message is not the place for basic science education; (b) any information relating to potential health effects may detract from the needed certainty of the message; and (c) they are unaware of any analogous emergency warnings in which the physiological effect of exposure to a hazard are explained in community warnings (for example, the physiological character of drowning in a storm surge associated with the landfall of a hurricane). *Id.* They also state that the content of EBS messages should not permit the public to discount or second-guess the risk since this could detract from the public taking the protective actions recommended in the message. *Id.* The Board concurs.

7.79. Unfortunately, unlike most of the natural hazard scenarios Dr. Carter has studied, the luxury of time and the type and amount of information necessary to fully inform the public would just not be available for most of the emergency planning incident scenarios at nuclear power plants. As found in the New Hampshire hearings, it is unlikely that it will be possible to predict the duration or amount of a radioactive release with any degree of reliability. Tr. 10,720-21, 11,481-82. *See also* LBP-88-32, *supra*, 28 NRC at 759 (Finding 8.39). Speculation would probably induce more of the anxiety and confusion that Dr. Carter wants to avoid. FEMA found the prescribed EBS messages and press releases to be adequate. Appl. Exh. 43C, at 27-28; Appl. Exh. 43F, at 215-18. The Board has reviewed the EBS messages and press releases and concurs as to their adequacy.

7.80. Contrary to Dr. Carter's allegation (*see* Finding 7.70, *supra*), the prescribed messages do give recommended actions to all members of the EPZ. These messages are designed to give recommended actions to people in the EPZ based on the risk that they face. Everyone in the EPZ is advised to stay tuned to the EBS station. People in towns are advised to consult emergency information materials sent to their homes or information flyers at beach and recreation facilities. People who would be safe if they sheltered are advised to do so, and those who should evacuate are so advised. Appl. Reb. No. 19, *supra*, at 32.

7.81. The EBS messages refer listeners to the public information materials for further information and advise them to stay tuned to the EBS station or a local radio station. Any further preparatory information, as Dr. Carter suggests, would be based on speculation regarding the unknown course of the emergency. Such

speculation is not required for the needed attention and focus to the message. To the contrary, this type of speculation would probably induce more of the anxiety and confusion that Dr. Carter wants to avoid. *Id.* at 34.

7.82. Dr. Carter decried the facts that during the exercise ORO gave no message to the public until after the State of New Hampshire had issued information and closed the New Hampshire beaches and that the ORO messages, when issued, did not tell people that New Hampshire beaches had been closed or give a recommendation for visitors to Massachusetts beaches or the wildlife refuge. Carter Dir., *supra*, at 24.

7.83. He criticized the distinction between the EBS system and the news release system. *Id.* at 32-35. In this, his quarrel is not with the SPMC, but may be with the guidance of NUREG-0654 that there be separate media center and EBS systems. Tr. 27,628-30.

7.84. He criticized the way ORO is set up to handle the media; he feels that it is necessary to be ready for a potentially disruptive and highly charged atmosphere; he opined that during the graded exercise, messages were haphazard and delayed and in a real emergency, a hostile press would have used these matters to say that those in charge did not know what they were doing. Carter Dir., *supra*, at 39-40.

7.85. Applicants have described in detail the public information resources and personnel available to execute the SPMC. Appl. Reb. No. 19, *supra*, at 2-11. Similarly, they have described the methods by which emergency information will be developed, disseminated, and coordinated under the SPMC. *Id.* at 11-22.

7.86. As mentioned in Finding 7.62, *supra*, the Media Center is capable of providing the media with accurate and timely information, as well as reasonable access to authoritative sources of information. The Media Center functions and processes provide this type of information and access to official utility and governmental information without interference with response activities. Similarly, the Public Information Advisor (PIA) functions and processes at the EOC provide for the coordination of information between the EOC and the Media Center. Finally, the close proximity of the Media Center to the EOF and EOC and their equipment ensure that information flows will be prompt and authoritative sources of information can be readily available that might not otherwise be already available at the Media Center. Appl. Reb. No. 19, *supra*, at 42-43. See Finding 7.62, *supra*.

7.87. Widespread dissemination (both local and national) of news is ensured regardless of attendance at the Media Center because the SPMC procedures require news releases to be provided to AP and UPI wire services. Appl. Exh. 42 (SPMC), at 5.6.7, 5.7.2. Therefore, local and national broadcast media stations will have access to all news releases in a timely manner since virtually all TV and radio stations receive either or both wire services. Appl. Reb. No. 19, *supra*, at 43.

7.88. The SPMC also provides adequate procedures to ensure that media inquiries to the Media Relations Assistants at the JTIC will receive responses with official utility and governmental information. Current EBS messages issued by the utility are provided promptly to the JTIC by the PIA as soon as they are approved. Similarly, the Public Information Coordinator (PIC) provides the JTIC with copies of all news releases and EBS messages issued by other organizations at the Media Center. *Id.* at 43-44.

7.89. In an actual emergency, PARs will depend on the risk to the affected public. Recommendations to evacuate a specific population, for example, will depend on the existing and projected risk of exposure. That risk is location and time specific depending on meteorological conditions, distance from the release, and other factors concerning the status of response functions. These factors pertaining to risk were built into the exercise scenario. Thus, communities in New Hampshire might be evacuated sooner than communities in the Commonwealth depending on meteorological and distance factors. The exercise scenario indeed required communities in New Hampshire to take protective actions sooner than communities in the Commonwealth, based on the plume trajectory. Thus, EBS messages reflecting the PARs were issued sooner in New Hampshire than in the Commonwealth. This was consistent with the exercise scenario and found to be adequate by FEMA. *Id.* at 54.

7.90. EBS messages for Massachusetts are developed by the Public Information Staff in the EOC and are coordinated with the New Hampshire EOC Operations Officer in the Concord EOC as well as New Hampshire officials in the EOC prior to final approval by the NHY Offsite Response Director. Overall coordination of EBS messages is further ensured by the fact that the Media Center provides a mechanism and a facility for representatives of the principal state, federal, and utility response organizations to coordinate and interact on public information matters. In addition, representatives of the ORO, the onsite Emergency Response Organization (ERO), and the State of New Hampshire review all news releases and EBS messages at the JTIC prior to distributing them to their staff. This provides another process for the review, coordination, and correction, if necessary, of EBS messages and news releases. *Id.* at 55-56.

7.91. Applicants have made the following commitments as to EBS messages: the prescribed EBS messages that are currently located in the plan will be incorporated into IP 2.13 in the next revision of the SPMC. *Id.* at 11. References to the telephone book insert will be removed from the EBS messages and the plan. Tr. 27,877-78.

## G. Preemergency Information for Beach Transients

7.92. JI-39 raised the issue of the adequacy of Public Information Materials (PIM). Contentions Memo. at 44.

7.93. All aspects of this contention were withdrawn by stipulation, save one, and that is the issue of whether the transients in the Massachusetts portion of the EPZ will have adequate access to PIM. Stipulation, ff. Tr. 28,285.

7.94. Applicants will distribute, according to SPMC § 3.7, PIM to a large number of facilities frequented by transients. This includes hotels, motels, restaurants, campgrounds, and parks. Tr. 27,872-73, 27,876-77.

7.95. The Commonwealth has prevented the Applicants from erecting signs on beaches, as will be done in New Hampshire, to alert people as to the meaning of the sirens. Tr. 27,967-68. Applicants stand ready to erect signs when the Commonwealth permits such activity. *Id.* In addition, Applicants are pursuing alternative approaches, such as use of billboards. Tr. 27,968-69.

7.96. Based upon the foregoing, the Board finds that the Massachusetts transients are afforded sufficient access to PIM.

## H. Rulings of Law

7.97. The provisions of 10 C.F.R. § 50.47(b)(6) require that means exist for prompt communications among principal response organizations and to emergency personnel and to the public. It does not require that communications provisions exist so that members of the public can telephone requests for assistance should the need arise.

## I. Conclusions

7.98. Relationships between ORO and other organizations are adequately defined and adequate provisions for communications between ORO and such organizations have been provided.

7.99. The SPMC does not place undue reliance on the commercial telephone system.

7.100. There is adequate provision for communications between and among persons in the field.

7.101. There are adequate provisions for notifying response personnel.

7.102. The EBS messages are adequate.

7.103. Adequate provision has been made for communications with the media in the event of a radiological emergency.

7.104. Adequate provision has been made for Public Information Materials.

## 8. PROTECTIVE ACTIONS FOR PARTICULAR POPULATIONS

8.1. An evacuation of all or part of the EPZ surrounding a commercial nuclear power plant imposes difficult demands on both emergency workers

and evacuees. However, those demands are particularly acute with respect to the elderly, the disabled, children, institutionalized persons, and other special populations whose abilities to respond effectively to an evacuation order are to some degree limited. In this section, we deal with the provisions of the SPMC designed to identify and accommodate the special needs of these particular evacuees, and challenges to the adequacy of those provisions. *See also* Section 2 (Evacuation Time Estimates), Section 5 (Personnel and Training), and Section 9 (Monitoring, Reception, and Congregate Care Centers).

8.2. Six of the litigated SPMC contentions (JI-45 through JI-50) dealt with protective actions for particular populations. In addition, four contentions dealt with in part elsewhere, as refined and focused by the parties' proposed findings, related in whole or in part to the needs of special populations. Those contentions are JI-51, JI-55, JI-56 (Base C), and JI-58. Finally, a number of issues with respect to protective actions for Massachusetts schools were raised in connection with contentions filed following the June 1988 exercise. *See Findings 8.157-8.162, infra.*

8.3. JI-45 questions whether there is reasonable assurance that adequate protective measures can and will be taken with respect to school and day-care center populations. Contentions Memo. at 48-52. JI-46 raises the same issue with respect to hospital patients and those who become contaminated injured. *Id.* at 53-57. In a similar vein, JI-56 (Base C) questions (1) the adequacy of letters of agreement (LOAs) with host medical facilities, and (2) the existence or comprehensiveness of LOAs with other hospitals whose possible use is contemplated under the SPMC. *Id.* at 84.

8.4. JI-47 questions whether the SPMC contains adequate protective measures which can and will be taken with respect to institutionalized persons who cannot be evacuated. *Id.* at 58-59.

8.5. Taken together, JI-48, JI-49, and JI-59 question whether the Applicants have properly identified the number, location, and particular requirements of resident special-needs populations within the Massachusetts portion of the Seabrook EPZ, and developed the resources and procedures capable of responding to those needs. *Id.* at 59-70.

8.6. To the extent relevant to this section, JI-51 and JI-58 challenge the adequacy of the Congregate Care Centers intended to serve special populations, particularly in the area of staffing. JI-58 and JI-55 also question the adequacy of transportation resources needed to serve special-needs populations. *Id.* at 70-74, 77-82, and 86-87.

8.7. Applicants addressed these contentions with a panel of witnesses consisting of Anthony M. Callendrello, Manager, Emergency Preparedness Licensing, New Hampshire Yankee (Qualifications, ff. Tr. 17,318); Michael C. Sinclair, Emergency Planning Specialist, Aidikoff Associates (Qualifications,

admitted Tr. 20,807);<sup>42</sup> and Dr. Dennis S. Milet, Professor of Sociology and Director of the Hazards Assessment Laboratory, Colorado State University (Qualifications, ff. Tr. 17,318). Appl. Reb. No. 6, ff. Tr. 21,049, at 1-64. Intervenors sought to support these contentions principally with the testimony of Sharon Moriearty, Deputy Director of the Massachusetts Office of Handicapped Affairs (MOHA) (Qualifications, ff. Tr. 20,151, Attachment), and Guy Daines, Director of Civil Emergency Services, Pinellas County, Florida (Qualifications, ff. Tr. 19,515, Attachment). The Board finds that these witnesses were competent to testify with respect to areas and matters related to protective actions for special populations.

8.8. FEMA has found generally that the provisions of the SPMC with respect to special-needs populations are adequate ("NHY ORO has made arrangements to notify Special Populations . . ."; "NHY ORO has established the capabilities for effecting the evacuation of . . . Special Populations . . ."), and specifically that the SPMC protective actions for schools, hospitals, and special-needs populations are adequate. Appl. Exh. 43C, at 38-39, 56, 57, 60-62, 64-65.

#### A. Identification of Special Populations

8.9. The Applicants first attempted to identify the number, type, and location of special populations that might require specialized transportation or attention in the event of a radiological emergency at the Seabrook Station. However, unlike the typical case where emergency planners are working with state and local governments who already have an established network to identify and serve such populations, the Applicants here were required to develop the SPMC in the face of the active nonparticipation of such governments. Because of this, the portion of the SPMC at issue in this section was based, in part, upon publicly available, but somewhat dated, government documents and information. It is against this backdrop that we evaluate the adequacy of the Applicants' identification of special populations, and Intervenors' accompanying challenges.

8.10. As we understand the Applicants' approach, they sought to identify the existence, type, and number of special populations in two ways. First, they sought to identify the location and capacity of all facilities within the EPZ where one could assume special-needs individuals would be located (e.g., schools, day-care centers, hospitals, nursing homes, group homes). Through this process, the Applicants identified approximately 16,000 persons, primarily schoolchildren, who fell within the meaning of "special populations." The results of this process

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<sup>42</sup> Mr. Sinclair's qualifications were admitted in this phase of the proceeding at the referenced page but not bound into the transcript, as is our custom. His qualifications appear in the transcript of the NHRERP phase of the case, ff. Tr. 4222.

are summarized in Appendix M of the SPMC (Appl. Exh. 42), which will be updated as more current information becomes available. Appl. Reb. No. 6, ff. Tr. 21,049, at 3-8. Applicants have committed to include Intervenor-identified special facilities in the SPMC Appendix M listing. *Id.* While Appendix M is generally reviewed and updated at least annually, Applicants have committed to update data on day-care centers quarterly due to the apparent volatility of this segment of the special-facilities universe. Tr. 21,637-43. See also Tr. 21,112, 21,115; MAG Exh. 86; Tr. 21,186-92.

8.11. Second, the Applicants conducted a mail survey followed by telephone interviews of those respondents who identified themselves as disabled to identify homebound special-needs individuals within the EPZ. In connection with this mail survey, the Applicants undertook an extensive advertising campaign urging people within the EPZ with special needs to identify themselves. Applicants subsequently mailed Appl. Exh. 40 (an emergency public information calendar containing a preaddressed, prepaid mailer designed to identify homebound special-needs individuals) to every household in the EPZ. *Id.* at 13. The Applicants' mail survey resulted in the identification of 503 homebound special-needs individuals. *Id.* at 8-15. The Applicants noted their intention to contact all handicapped advocacy organizations in Northeastern Massachusetts to seek, *inter alia*, assistance from them in identifying and/or contacting homebound special-needs individuals. *Id.* at 16; Tr. 21,057.

8.12. In connection with their methodology to identify home-based special-needs individuals, Applicants claim compliance with NUREG-0654, Rev. 1, Supp. 1, because, *inter alia*, of the identification of handicapped individuals in the EPZ in accordance with the direction provided in FEMA Guidance Memorandum 24 ("GM 24"). Appl. Reb. No. 6, *supra*, at 45-47.<sup>43</sup> Specifically, GM 24 states that emergency preparedness activities should recognize that some handicapped individuals have specialized needs in emergencies. MAG Exh. 71. It goes on to cite NUREG-0654/FEMA-REP-1, Rev. 1, Standard J, as requiring "that the State and local governments include in their plans 'means for notifying and *protecting* those persons whose mobility may be impaired due to factors such as institutional or other confinement.'" *Id.* at 2.

8.13. FEMA Guidance Memoranda (GMs) describe the purpose for certain planning standards and evaluation criteria and offer methods by which emergency planners *may* meet the standards addressed in the GM. However, the particular methods set forth in FEMA GMs are not mandated by the NRC or FEMA, and a planning organization may choose to achieve the same purpose by

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<sup>43</sup> FEMA has reviewed a special-needs survey done by the Applicants and found it to be in full compliance with FEMA guidance with respect to such surveys. Tr. 18,097, 18,099-101. FEMA went on to note that the survey went beyond FEMA guidance requirements (Tr. 18,099-100), and, despite its acknowledged deficiencies, represented an excellent job in building the data base on homebound special-needs individuals. See Tr. 18,831-32, 18,842, 18,868-71.

a different approach. Tr. 18,819-21. Thus, as we have noted in other sections, FEMA GMs play the same role and have the same legal effect as the NRC Staff's regulatory guides.

8.14. The Board found that the Intervenors had not adequately specified any deficiencies in fundamental survey methodology either in their contention or in response to discovery requests and that, therefore, such deficiencies could not be shown. Tr. 20,103-20. Based on this ruling, the testimony of Dr. Don Dillman and Ms. Sharon Moriearty on survey methodology was found to be inadmissible. Therefore, in assessing the merits of JI-48, the Board limits its views to questions regarding the actual results of the survey, including challenges to the number of individuals and the types of disabilities that were identified.<sup>44</sup>

8.15. As noted above, the Applicants' survey identified 503 resident special-needs individuals within the Seabrook EPZ, 473 of which would need assistance due to the absence of any accompanying relative. This represents approximately 1% of the total EPZ population. *Compare* Appl. Exh. 42, Appendix M, with MAG Exh. 121.

8.16. The Attorney General argues that this number is far smaller than the number of such individuals one could reasonably expect to find generally, that it results from the hesitancy of people to identify themselves as handicapped or in need of special assistance, and that it should be rejected as inadequate for the purposes of planning. In support of this proposition, the Attorney General relied on the testimony of Guy Daines.

8.17. In Mr. Daines' experience, special-needs residents are very reluctant to identify themselves in advance. Daines Dir., ff. Tr. 19,515, at 5; Tr. 19,565. Mr. Daines spoke extensively about such problems (Daines Dir., *supra, passim*) and emphasized that the registered people are "just the tip of the iceberg." *Id.* at 9. It is Mr. Daines' judgment that, based on his experience in other counties, a planning basis of between 4.3 and 5.0% is valid when determining the number of special-needs individuals who will need assistance. Tr. 19,580. This number, according to Mr. Daines, excludes those who rely on friends and relatives. Tr. 19,596.

8.18. We accept Mr. Daines' concern but are unwilling to accept his "iceberg" concept which is unsupported by any citations to the literature of his field. We do not doubt that some handicapped individuals will not identify themselves as needing special assistance. However, the reluctance to self-

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<sup>44</sup> FEMA has made no judgment regarding the accuracy of the Applicants' survey or of how many nonidentified members of the special-needs population there may be. Tr. 18,106. Nor has FEMA made any judgment as to whether the Applicants have identified a sufficient number of resident special-needs individuals. Tr. 18,102. Similarly, FEMA has made no determination that the identified number of disabled residents is accurate within any specified order of magnitude. Tr. 18,106. Since FEMA apparently has no objective criteria against which to judge the results of the survey and because FEMA has admittedly not even considered the sufficiency or accuracy of the survey results, the Board gives no weight to FEMA's finding that the results of the particular survey conducted by the Applicants here are adequate.

identify is not a sufficient basis for this Board to find the results of the Applicants' survey of homebound special-needs individuals inadequate, or to reject the Applicants' claim that *all* special populations in the EPZ are listed. See Appl. Reb. No. 6, *supra*, at 3.

8.19. In connection with the NHRERP, we concluded that the Commission's emergency planning standards did not require mathematical precision. LBP-88-32, *supra*, 28 NRC at 716. No different rule is applicable to the SPMC. And to defeat the apparent identification of all special populations within the EPZ, Intervenors would have to establish either some defect in Applicants' methodology (an issue Intervenors have not properly raised) or identify a special population that has been missed in its entirety. While some individuals may have been missed, the Intervenors have provided no reason to believe that whole populations have been ignored.

8.20. Other evidence supports our finding that the results of the Applicants' survey provided an appropriate planning basis for special-needs populations. The Pinellas County office of which Mr. Daines is the Director did a mail survey of its residents similar to that done by the Applicants. In the Pinellas County survey, a combination of bulk mailing and utility bill inserts as followup were used to ascertain the names and locations of those who would need assistance in an emergency. Whereas Applicants' survey revealed a list of handicapped persons equal to about 1% of the population (see Appl. Exh. 42, Appendix M), the Pinellas County survey identified a number of handicapped equal to only some four-tenths of 1% (0.004). Daines Dir., *supra*, at 2-4. The fact that Applicants identified a higher percentage of disabled people than Mr. Daines did in his survey for his county enhances our confidence that the number of homebound special-needs individuals within the Seabrook EPZ has been reasonably pinpointed, at least for emergency planning purposes.

8.21. While we are satisfied, in general, with the thoroughness of Applicants' planning effort, we note that the Applicants' survey failed to identify *any* noninstitutionalized emotionally or mentally disturbed people in the entire EPZ as needing assistance. Tr. 18,871-72. However, there is no persuasive evidence in the record suggesting, much less establishing, that more than a *de minimis* number of such individuals reside in the EPZ, or, if they do, that they will be left unaided under the SPMC in the event of a radiological emergency. Thus, we have no basis to reject the Applicants' survey result for this group. Nevertheless, the total absence of any members of this handicap group concerns us. Some of these people may be homeless or street people (although most of the homeless are in our largest cities and many are neither emotionally nor mentally disturbed). See Moriearty Dir., ff Tr. 20,151, at 22 (MOHA "has assisted many . . . homeless . . ."). Some may live alone but be barely living at a level equal to their day-to-day survival needs. Because of the way they function, they may not be amenable to identification through mail surveys, or easily contacted

by telephone. We expect Applicants to renew their efforts and to refine their techniques to provide greater confidence in their survey's lack of identification within the EPZ of noninstitutionalized emotionally disturbed or intellectually limited people who might need assistance.

8.22. Intervenors also challenge the completeness and currency of Appendix M of the SPMC (the summary of the Applicants' identification of facilities for special-needs populations). We will not detail the ebb and flow of the numbers reflected in Appendix M. Applicants do not dispute that the SPMC list of facilities for special-needs populations is incomplete, recognize that Appendix M must be continuously monitored and updated, and have committed to do so. *See Finding 8.10, supra.*

8.23. The fact that the Applicants have engaged in emergency planning based upon imperfect and incomplete information reflects, in our view, the noncurrency of any data-gathering techniques used for future planning, and documents the effects of state and local government decisions abdicating their own emergency planning responsibilities. *See Tr. 21,637-43.* It does not, however, establish that the process through which the Applicants have identified and will identify such facilities is itself inadequate under the Commission's emergency planning rules.

8.24. The Applicants have committed to review and revise Appendix M of the SPMC (and the resultant allocation of resources) as additional information becomes available, including current information from state and local governments should they decide to participate in the emergency planning process. *See Finding 8.10, supra.* We also are confident that Applicants will do everything reasonably possible on an ongoing basis to keep Appendix M current, and will include organizations that feed, care, or advocate for the non-institutionalized mentally or emotionally disturbed (if they exist in the area) in their ongoing efforts. The Commission's emergency planning rules require no more.<sup>45</sup>

## B. Assistance to Special Populations During an Evacuation

8.25. The fact that we have found the Applicants' survey methodology and the results generated by their survey to be adequate does not end our inquiry. Rather, it provides the starting point for our principal task of determining

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<sup>45</sup> Ms. Moriarty testified that the methodology used by the MOHA to evaluate the needs and plan interventions for special-needs populations would have been useful to the Applicants, and that she was prepared to make that methodology available. Tr. 20,156. However, she further testified that she would *not* make available to Applicants the information that her agency had gathered concerning the handicapped unless requested by the handicapped or their supporting network. Tr. 20,173, 20,175. Unfortunately, as we understand her testimony, it is not the policy of her office to unilaterally solicit such authorization. *See Tr. 20,200-01, 20,209-10.* We need not resolve this "chicken or egg" problem since we find the results of the Applicants' survey adequate for the purposes of planning.

whether there are reasonable assurances that the particular needs of special populations will be satisfied in the event of a radiological emergency. In making this determination, we elect to focus our analysis in terms of the five areas where the particular needs of special populations require some accommodation: notification, transportation, supervision and physical assistance, monitoring and decontamination, and congregate/medical care facilities. Intervenors question the adequacy of the SPMC provisions and identified resources in each of these areas.

8.26. In the event of an emergency, the first step in initiating an evacuation or transmitting a protective action recommendation (PAR) for special-needs populations is notification. In addition to the general notification procedures applicable to EPZ residents generally (sirens, EBS messages, etc.), the SPMC provides that the initial contact with special-needs populations (either through representatives of facilities containing special-needs populations or through direct communication with homebound special-needs individuals) will be by telephone.

8.27. During this initial contact, information regarding the existence and nature of the emergency, actual transportation and assistance needs, appropriate preparatory activities, and possible protective actions are to be exchanged. The SPMC will be amended to specify that Special-Population Liaisons, when notifying special populations about emergency classifications, should inquire whether individuals require special assistance other than transportation. Any such requests will be relayed to the Special-Population Coordinator at the ORO EOC for appropriate disposition. *See Appl. Reb. No. 6, supra*, at 16-17, 27-31, 39-42, and 49. As a general matter, we find the implementation and notification procedures (including those for the hearing-impaired) set out in the SPMC provide reasonable assurance that special-needs populations within the Seabrook EPZ will receive effective and timely notice of the need for emergency action.

8.28. However, based on the results of the June 1988 exercise, certain aspects of the SPMC's notification procedures were found to be lacking. Initially, the SPMC identified a contact point for each facility where telephone notification was to be provided by a Special-Population Liaison. Subsequently, it was determined that in some instances, the contact points were not manned 24 hours a day. As a result, the Applicants are reevaluating the data on each facility and its resident population, and will revise the notification procedure in each instance to ensure that it is appropriate for the particular circumstances. *Appl. Reb. No. 6, supra*, at 33; Tr. 21,635-36. The Board considers this to be an adequate response to the deficiency identified in the exercise.

8.29. In this regard, we note our agreement with the Attorney General that the need for effective notification is particularly important with respect to the elderly disabled. Of the forty special facilities listed by the Applicants in Appendix M, thirteen, or approximately 33%, are housing projects for the

elderly. The total population in the special facilities listed in Appendix M is 2044. Of that number, 1160 or 57% are residents of elderly housing facilities. Moreover, the Applicants have acknowledged that they failed to list Heritage Towers, a facility for the elderly in Amesbury. That will bring the total of special facilities up to forty-one of which fourteen are projects for the elderly.

8.30. While we expect that the Applicants will take the needs and capabilities of this group into account in their reevaluation of the SPMC facility-specific notification procedures, we do not find the general SPMC notification procedures deficient in this area. Where contact with elderly housing facilities is unsuccessful, the SPMC will make available transportation to such facilities based on a preidentified "default" value. See Finding 8.36, *infra*. Thus, individuals who are ambulatory or can be assisted by others will have buses available to them. Similarly, specialized vehicles allocated to such facilities will also be dispatched in such circumstances. Appl. Reb. No. 6, *supra*, at 30-31, 33. Finally, even if telephone contact with a facility is initially unsuccessful, it is reasonable to assume that its residents would make use of the SPMC assistance telephone number to make their needs known to the ORO should they hear the alert sirens. See *id.* at 15; Finding 8.51, *infra*.

8.31. The Attorney General attempts to raise a question concerning the adequacy of methods being used to alert the elderly living in public housing projects. However, no admitted contention reasonably supports such a challenge. Furthermore, we find the methods for alerting the special-needs elderly living in housing projects (consisting of sirens, public broadcasting, continuing efforts to list elderly disabled for special-resource availability, and continuing efforts to refine facility-specific contact methods) to be adequate. Tr. 21,636.

8.32. In order to alleviate a problem revealed during the exercise of certain school liaisons not being able to get through their notification lists, a change has been made in the SPMC so that liaisons will have fewer facilities assigned to them and, after completing their calls, they will assist those with more facilities to notify. FEMA concluded that this revision corrected this problem. See Appl. Exh. 43F, at 251; Appl. Exh. 43E, at 24.

8.33. However, as we have already found, the number of facilities requiring notification is greater than the number listed in Appendix M of the SPMC. See Findings 8.22-8.24, *supra*. See also MAG Exh. 86. The Attorney General asserts that there are over three times as many special-population calls to make as there are school liaison calls to make, and that calls to these facilities will therefore take three times as long. MAG PF 8.1.102.C.

8.34. Because the Attorney General fails to provide any basis upon which we could translate and evaluate numbers of calls into units of time, we decline to make any finding on the length of time it might take to notify all schools and special facilities within the EPZ. The Applicants testified that notification of schools should, based on their modifications, take between 60 and 90 minutes.

Tr. 21,362. We require that the SPMC be further modified, if necessary, to ensure that notifications of special facilities will be accomplished in a similar time frame.

8.35. Subject to modification of the SPMC to ensure that all facilities for special populations can be contacted within 90 minutes, we find reasonable assurances that the special populations within the EPZ will receive both timely and effective notice of the need to evacuate or take emergency protective actions in the event of a radiological emergency.

8.36. While the SPMC contemplates that the exact transportation needs for special populations will be determined at the emergency notification stage (*see* Finding 8.27, *supra*), the Applicants' planning assumption was that 100% of the capacity or enrollment of each hospital, facility, school, or other special-needs facility, and each preidentified resident special-needs individual would require transportation out of the EPZ.<sup>46</sup> Appl. Reb. No. 6, *supra*, at 30, 31, 33, 40-41, 46; Tr. 21,267, 21,330-31. In addition, the Applicants sought to ensure that the type of vehicle dispatched (i.e., bus, bed bus, passenger van, wheelchair van, or ambulance) was not only appropriate to the particular special need(s) of its occupant(s), but also that the dispatched vehicle would be properly sized to accommodate both the special-needs individual(s) it is to serve and any necessary accompanying staff or caretakers. Tr. 20,874-75, 23,155. Finally, in the event a call to verify transportation needs for a special-facility or homebound individual is unanswered and the failure to answer is not satisfactorily explained by other facts known to ORO, the SPMC contemplates that the allotted vehicle or vehicles will be dispatched. Tr. 21,073.

8.37. In Section 9, *infra*, we address questions regarding the general adequacy of the transportation resource pool (including those intended to serve special populations). Here we focus on challenges to (1) the Applicants' assessment of the particularized transportation needs of special populations, (2) the appropriateness of assigned vehicles, and (3) the availability of personnel necessary to accomplish the efficient loading of such vehicles.

8.38. In assessing the transportation needs of EPZ hospitals, whose patient mix can vary daily, the Applicants arbitrarily divided the hospitals in their transportation needs analysis into thirds for the purpose of allocating vehicles, and then instituted a variety of checks to assure themselves of the reasonableness of this procedure. Similarly, they speculated that one-third of the persons in

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<sup>46</sup> While the SPMC provides resources for all of the patients in a facility, section 2.6 of the hospital facility plans prepared for and provided to the administrators of the Amesbury and Anna Jaques Hospitals include instructions for exercising the option of reducing the hospital patient census during the early stages of an emergency by discharging some patients on their own, to the custody of family members or custody of others. Such patients should be identified at the Alert classification (Step 3.2.13) and subsequently discharged during a Site Area Emergency (Step 3.3.6), if appropriate. A similar procedure for the discharge of patients during an emergency is referenced in Anna Jaques Hospital External Disaster Plan. Appl. Reb. No. 6, *supra*, at 30. Should this be done, both the EPZ transportation load and the relevant reception center monitoring load would be reduced.

hospitals would need to be transported by ambulance, one-third by wheelchair vans, and one-third by bus. They found that their vehicle allocations are similar to those used by Massachusetts Civil Defense Agency (MCDA) in 1986. Tr. 21,397-401.

8.39. In assessing the transportation needs of special facilities such as nursing homes, the Applicants generally used the following four-level standard to match patient classifications with transportation needs:

Level 1: Patients requiring the highest level of medical care provided by the facility. In a nursing home, these patients would be those requiring constant skilled nursing care due to the seriousness of their condition. Patients in this category would require an ambulance if the facility staff deemed it necessary to provide continuing medical treatment during transport.

Level 2: Patients who may be bedridden or mobility-impaired as a result of sickness or injury, but who may not require constant medical supervision. Patients in this category generally would require transport in a supine position.

Level 3: Patients who are usually ambulatory, although some may be mobility-impaired. In a nursing home, these patients generally require supervision and assistance with such daily activities as dressing and taking required medications. The majority of patients in this category could be transported in a bus, van, car or station wagon, or if necessary, in a wheelchair van.

Level 4: Patients are ambulatory and generally self-sufficient but require some assistance with daily activities such as the administration of required medications. These patients could be transported by bus, van, car or station wagon.

Appl. Reb. No. 6, *supra*, at 31-32.

8.40. In conducting the transportation needs analysis to ascertain how many vehicles of each different type would be needed to transport special-facility residents, the Applicants asked facilities the question "How many patients in your facility at any given time would be required to be placed in a wheelchair during transport if your facility would be evacuated." In posing that question the Applicants emphasized the actual need for a wheelchair. Tr. 21,394. The purpose of that question was to distinguish those patients from ambulatory patients. Tr. 21,395.

8.41. Intervenors suggest that the Applicants' question was ambiguous, and thus there is no assurance that the Applicants' survey obtained the information necessary to formulate a true picture of the transportation needs of special-facility residents. They point out that the Applicants never specified how long patients would have to sit up in a wheelchair during an evacuation, and never asked whether some patients would need gerri-chairs as opposed to wheelchairs.<sup>47</sup> Tr. 21,395-97. We do not discern enough ambiguity in the

<sup>47</sup>The Attorney General asserts that a gerri-chair is a wheeled chair that is used in nursing homes but has the distinction from a wheelchair of tilting back so that it is half-way between being a stretcher and a wheelchair. The stretcher function, when used, means that gerri-chairs take up more room than wheelchairs. Therefore, the Attorney General maintains, the Applicants' assumption that a wheelchair van has a capacity for six wheelchairs-

(Continued)

Applicants' question to evoke our concern. The Board finds that Applicants' question adequately communicated what they intended, and that the information they intended to obtain adequately determined each facility's transportation needs.

8.42. When the Applicants did their nursing home needs assessment to determine how many ambulances would be needed (as opposed to evacuation bed buses), not all such facilities within the EPZ responded to their request for information. Of the ten EPZ nursing homes contacted, eight provided information about the particular transportation needs of their residents. This facility-specific information is reflected in the forms of Evacuation Transportation Resources available under the SPMC and allocated to the responding facilities. For example, for patients the nursing homes indicated might require continuous medical treatment during transport, the plan provides for an ambulance. For those requiring only supine transport, the planned resource is an Evacuation Bed Bus. For those requiring transport in a wheelchair, the plan provides a wheelchair van, and the remaining ambulatory nursing home patients are provided buses. Appl. Reb. No. 6, *supra*, at 30-31.

8.43. For the two EPZ nursing homes that declined to provide patient information, planners were forced to rely at least in part on Department of Public Health (DPH) regulations as one component in calculating the transportation needs of the residents of these two homes. Tr. 21,372-73. Based on lists provided by the Department of Public Health Nursing Home Licensing Bureau indicating the number of patients per level of care at each of these facilities, the Applicants estimated the necessary number and ratio of ambulances to bed buses. Tr. 21,387-88. According to the Applicants, these definitions provide a relatively accurate and stable means for assessing the needs of individuals. Appl. Reb. No. 6, *supra*, at 31. However, despite the fact that Levels I and II of the Applicants' transportation classification do not correspond to the DPH levels of care (Tr. 21,374), the Applicants were forced to allocate transportation resources based on the DPH-identified levels of care. Tr. 21,373. While imprecise, such an assignment is a very rough (and in light of the absence of information, very necessary) way of trying to ensure that patients who need to be transported in an ambulance will have one available to them.<sup>48</sup>

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bound evacuees is overly optimistic if persons need to be transported by geri-chair using its stretcher function. However, the record contains none of the factual predicates necessary to make the leap in logic the Attorney General appears to suggest. Moreover, we find no allegation reasonably flowing from an admitted contention that would support any challenge to the Applicants' failure to consider geri-chairs.

<sup>48</sup> We note that the decision by the operators of these two EPZ nursing homes not to participate in the Applicants' planning process has two deleterious effects. First, to the extent Applicants have underestimated the number of residents of these two homes that require an ambulance, the operators failed their own patients. Second, to the extent the Applicants have overestimated the number of necessary ambulances, the operators have unnecessarily caused the Applicants to commit ambulances that might be more effectively used elsewhere.

8.44. As noted in Findings 8.9 and 8.15, *supra*, the Applicants identified the particular transportation needs of the homebound handicapped based on telephone contacts following positive responses to the Applicants' mail survey. Based on this individual needs assessment, such special-needs individuals were assigned to one of the five categories of special needs in order to provide a response specific to the individual's condition. The five needs codes were selected to enable the ORO to respond adequately to an individual's needs in an emergency. The needs codes and the corresponding categories are:

- 01 — Evacuation bed bus
- 02 — Wheelchair van
- 03 — Curbside pickup
- 04 — Hearing impaired
- 05 — Sight impaired

Appl. Reb. No. 6, *supra*, at 16-17. These codes reflect the Applicants' proposal to use bed buses to evacuate all homebound special-needs individuals who were previously listed in Appendix M as requiring an ambulance. Tr. 21,064.

8.45. FEMA GM 24 sets forth guidelines for providing and administering assistance with sheltering and evacuation to resident special-needs individuals. It also breaks up the disabilities to be provided for into three general categories — sensory impaired, mobility impaired, and mentally/emotionally impaired. MAG Exh. 71, *passim*.

8.46. As described in GM 24, sensory impairment includes disability related to hearing and seeing. MAG Exh. 71, at 6; Moriearty Dir., *supra*, at 7. An individual with a sensory impairment who depends on environmental or technological support would need assistance to evacuate or shelter. *Id.* at 11-13. Mobility impairment includes the elderly and those dependent on environmental support like wheelchairs, crutches, or life support systems. MAG Exh. 71, at 7. Generally speaking, mobility-impaired individuals will have varying degrees of limitation in terms of walking, carrying, lifting, etc. Moriearty Dir., *supra*, at 7. Depending on the severity of the impairment, the presence of adaptive equipment, and the physical accessibility of the environment, a mobility-impaired person will need assistance to evacuate or shelter. *Id.* at 15-17. Mental/emotional impairment is a broad category which can include mental retardation, mental illness, chemical dependence, Alzheimer's, and stroke. MAG Exh. 71, at 1; Moriearty Dir., *supra*, at 8. Depending on the actual condition, varying kinds and levels of assistance are appropriate in a protective action to shelter or evacuate. Moriearty Dir., *supra*, at 19-20.

8.47. Applicants correctly view compliance with GM 24 as being permissive rather than mandatory. Tr. 21,075. See Finding 8.13, *supra*; Appl. Reb. No. 6, *supra*, at 46. Still, we find that the Applicants' approach to identifying and coding homebound special-needs individuals is consistent with GM 24.

8.48. The Board shares the Attorney General's concern about the problems that might arise when nonidentified members of the resident disabled population find that they require assistance at the time of an actual emergency. Mr. Daines indicated that the failure to dedicate resources for the nonidentified resident disabled (Daines Dir., *supra, passim*), and the reliance on incomplete and inaccurate lists during an emergency, is a grave mistake reflecting bad planning (Tr. 19,547-48). Even where a list is highly accurate, Daines asserted that there will still be people calling in needing assistance (Tr. 19,550); although not all preidentified people can be expected to actually use the dedicated vehicles available to them (Daines Dir., *supra*, at 8; Tr. 19,565).

8.49. Our concern is limited to seeing that the Applicants make reasonable provision for the likelihood that there will be some unidentified members of the resident disabled population that will call in demanding assistance. As set out below, we find that the Applicants have done so.

8.50. As noted in Finding 8.18, *supra*, we accept the proposition that some handicapped will decline to identify themselves as needing assistance in a preemergency survey but will seek assistance during an emergency. Moreover, while the needs and specific identities of homebound special-needs individuals change over time, emergency planners cannot assume that reductions in the number of preidentified handicapped will equal additions due to newly identified handicapped. Consequently, we agree with the Attorney General that the Applicants must assume that its list of special-needs individuals is incomplete, and thus must be prepared to respond to requests for assistance from handicapped individuals who have not preidentified themselves. However, we do not conclude that the SPMC is deficient in terms of its planning basis for this special population.

8.51. To the extent the Applicants' survey failed to identify every homebound special-needs individual *who will require special assistance in the event of an actual emergency*, the SPMC provides a mechanism for individuals who were not preidentified to seek assistance in the event of an emergency. In both the annual public information calendar and the EBS messages disseminated during an actual emergency, such individuals are provided a toll-free telephone number through which they can make their immediate needs known to the ORO. Appl. Reb. No. 6, *supra*, at 15. Calls to the ORO would result in the assignment of ORO personnel to respond to the request. NYH will use its own personnel and is seeking the assistance of outside organizations, such as those that deal with blind and deaf individuals. Thought also has been given to the needs of mobility-impaired individuals. *Id.* at 49-51.

8.52. In connection with the Applicants' proposed use of bed buses instead of ambulances to evacuate some hospital patients, nursing home residents and homebound special-needs individuals, the Attorney General offered testimony suggesting that the bed buses the Applicants propose to use could not be

registered or licensed as ambulances in Massachusetts, and thus should be found to be an unacceptable transportation resource. St. Hilaire, *et al.* Dir., ff. Tr. 23,209, *passim*. Voir dire and cross-examination of Gerald St. Hilaire, who is Chief Legal Counsel and a Deputy Register for the Massachusetts Registry of Motor Vehicles, showed that the Registry has not previously applied the law of Massachusetts in ways that would be relevant to the facts at issue; St. Hilaire's testimony, which offered essentially an advisory opinion on the law, was therefore stricken. Tr. 23,232-36.

8.53. The other member of the Attorney General's panel, Howard Saxner, is a Deputy General Counsel for the Massachusetts Department of Public Health. He testified that he knew of one instance in which his Department had taken legal action against an out-of-state company that had been providing emergency transportation services in Massachusetts without a Massachusetts ambulance license. Tr. 23,238-39. That company, however, operated in Massachusetts on at least several occasions, was prepared to offer standby care, and most importantly, was not responding to a "major catastrophe." Tr. 23,244. The witness could not recall any occasion on which the Department of Public Health has sought an injunction against a vehicle that is designed to transfer the sick and injured in the event of a major catastrophe but that is not certified as an ambulance. Tr. 23,257-58.

8.54. This Board has declared that official notice of state law is not a good concept in a federal proceeding such as this one. Tr. 21,378-79. Title 105 C.M.R. Ch. 170.010 was never accepted as an exhibit, and no findings can be made based upon it or on any other provision of Commonwealth law that is related to this provision. Moreover, we cannot help but note the irony that one arm of the Commonwealth appears willing, indeed is prepared, to stop evacuation bed buses at the EPZ boundary to issue citations or injunctions when the need to use these vehicles is due in part to the inaction of another arm of the Commonwealth.

8.55. As this Board has already found, the Governor of the Commonwealth has more than ample power to permit use of such vehicles in an emergency. LBP-89-8, 29 NRC 193, 197 (1989). Since the Governor has the authority to permit the use of such vehicles in an emergency and since the Commission's "realism" rule requires us to assume that the Governor will exercise his authority if necessary, we conclude that the Applicants can (and we do) rely on the availability of evacuation bed buses to implement the SPMC. See Memorandum and Order (Ruling on Massachusetts Attorney General's Motion to Accept an Exhibit), August 7, 1989 (unpublished). Moreover, it does not make sense for this Board to require an Applicant to purchase, train drivers for, and then keep idle expensive ambulance equipment that would be used, if ever, in a highly unlikely event. We would not encourage nor do we require such unwise expenditures.

8.56. We have found the SPMC to give adequate consideration to the evacuation times for special-needs populations regardless of the mode of transportation. *See Section 2, supra, Findings 2.95–2.104; Finding 8.95, infra.*

8.57. In Section 9, *infra*, we address the Commonwealth's argument that insufficient numbers of ambulances will be available in the event of a radiological emergency to implement the SPMC. Here we respond to the Commonwealth's argument that insufficient numbers of ambulances and trained personnel will be available to provide necessary transportation services to evacuees once outside the EPZ.

8.58. From the Reception Centers, all those individuals who are radio logically contaminated who need transport to MS-1 hospitals and homebound handicapped people who need transport to regular host hospitals are expected to be transported in separate vehicles to maintain contamination control. If an individual's condition is such that ambulance transport is required, an ambulance will be summoned. Tr. 21,582. Mr. Sinclair testified that moving people from Reception Centers to medical facilities will be accomplished by ambulances *not under agreement* from the companies normally serving the host communities. Tr. 21,588.

8.59. The Attorney General asserts that there is no reasonable assurance that adequate numbers of noncommitted, host-community ambulances will be available for such purposes, and if available, there are no procedures in the SPMC that ensure the contact and timely arrival of such ambulances. In addition, notwithstanding FEMA guidance MS-1 suggesting provisions for contamination control in transporting contaminated persons to medical facilities, the Attorney General points out that the Applicants have produced no evidence to show that host-community ambulance companies have had any training in contamination control. Staff Exh. 7; Tr. 21,579, 21,581-82.

8.60. As to the availability of ambulances generally to serve the contaminated injured outside the EPZ, the Board is satisfied that community ambulance companies may be used solely as backup resources for these purposes without special training. While there is no guarantee that host-community ambulances would be available as a resource in the absence of a prior written agreement, we are convinced that many of the professionals who have dedicated their lives to ambulance service would be available in time of dire emergency. The Commonwealth's own survey of ambulance providers indicates that communities outside the EPZ will not be stripped of ambulances, and suggests the possibility that ambulance response might be subject to a preexisting contract between a non-participating company and the host community. *See Finding 9.31, infra.* Our belief that a positive response to requests for transportation assistance will be forthcoming is in part based on our common-sense knowledge of the dedication of ambulance personnel, the fact that ambulance companies are in the regular business of providing ambulance services, and in part on our reasonable ex-

pectations that the Governor would use his emergency powers to alert them. Tr. 21,370-71. Finally, even if all of the companies not under contract and all the municipalities not under agreement were to refuse to participate, we believe that the pool of surplus, unused, and returning SPMC-committed ambulances will also be available to meet this potential need. *See* Tr. 21,369.

8.61. Moreover, we are confident that adequate communication can occur so that the rather simple tasks involved in transporting the contaminated injured can be performed properly by the personnel who regularly participate in the medical delivery system. We note that following notification by telephone, ambulances routinely respond to emergency situations involving injuries in situations similar to those that would exist outside the EPZ (e.g., rush-hour accidents, multiple injury accidents). Finally, contaminated injured would likely be initially identified and attended to by emergency response workers who are either trained in handling contaminated individuals or who can easily access a trained individual.

8.62. The Board finds reasonable assurances that sufficient numbers and types of vehicles will be available and will be appropriately dispatched to ensure that the transportation needs of special populations within the EPZ and the contaminated injured outside the EPZ will be met in the event of a radiological emergency.

8.63. Except in the case of evacuation bed buses, the Applicants generally rely on the drivers of special vehicles, who have or will have training in lifting and loading, to effectuate the loading of their vehicles. Tr. 21,065, 21,069-70, 23,156. Again with the exception of bed buses, drivers who will "load" special-needs individuals will not have assigned assistants. However, the Applicants believe that it is unlikely that situations will develop requiring more transportation personnel than are assigned under the SPMC. Mr. Sinclair gave uncontradicted testimony that he did not know of specific circumstances requiring more than one trained person to be present. Tr. 21,070.

8.64. Bus drivers are not trained to assist in loading people, but buses will not be sent to transport special-needs people requiring such assistance. Tr. 23,156-57, 23,158.

8.65. The evacuation bed buses provided to special facilities will be operated by a driver trained to utilize the equipment. Bed bus drivers will be provided emergency response training, evacuation bed training, emergency medical service training, basic first aid, CPR, and patient lifting techniques training. Tr. 21,071.

8.66. At each facility, the SPMC counts on the availability of special-facility staff to assist the driver in loading his vehicle. Where more than one bus unit is assigned to a facility, drivers from other units will be available to assist in loading each of the bus units. When only one unit is assigned to a facility, one ORO member will be assigned to ensure adequate capability to load

the bus. For evacuation bed buses assigned to pick up impaired homebound individuals, one ORO member will be assigned to assist the driver on each bus. Appl. Reb. No. 6, *supra*, at 23-24; Tr. 18,837, 21,065-66, 21,279-80. The Applicants propose that the individuals assisting bed bus drivers will be chosen from either the route guide pool or the dosimetry record keeper pool. Tr. 21,308. While no special training is required for individuals assisting evacuation bed bus drivers (Tr. 21,280); some will receive the same training provided to bed bus drivers (Tr. 21,072).

8.67. Recognizing that adequate transportation must not only be available but must also be effectively employed, Intervenors challenge the number and training of the SPMC transportation personnel in terms of their ability to effectuate the orderly and efficient loading of special-needs individuals. Mr. Daines testified that in his experience, elderly individuals have difficulty climbing steps onto buses. He criticizes the SPMC for lack of staff to load the elderly or disabled into vehicles and suggests that three people should be available for assistance. He also advocates a medically trained person on every bus utilized to evacuate special-needs persons, including elderly special-needs persons. Daines Dir., *supra*, at 11-13; Tr. 19,557.

8.68. Based on common sense and daily experience, the Board rejects the proposition that a minimum of three people is required to assist the elderly and disabled into evacuation vehicles. And while Mr. Daines' proposals may be ideal, such an abundance of specialized personnel on vehicles responsible for transporting special populations out of an EPZ is not generally required under the Commission's emergency planning rules. Should additional personnel be needed to prepare and load special-needs evacuees into their assigned vehicle, we believe that such resources will be available either from the staff of the special facilities or from SPMC emergency response personnel.

8.69. In the case of nursing homes, staff is reduced at night but there exist provisions for calling in additional staff in an emergency (Tr. 21,271), and the experience is that additional staff does come in. Tr. 21,317. Although Applicants acknowledge that they have no information or factual data as to whether the ten nursing homes in the Massachusetts EPZ have call-in procedures to summon additional staff to assist in the event of a radiological emergency at Seabrook (Tr. 21,316-19), the Board is satisfied with Applicants' testimony that these institutions do have the procedures and capabilities to augment their scheduled staffs.

8.70. Even if events precluded the call in of additional facility staff, requests for assistance could be made to the ORO, whose primary personnel resources would be Route Guides. Tr. 21,304. However, on any given shift, Route Guides have a reserve staffing of only 20% above estimated needs. Consequently, assuming that all route guides on any shift show up, there will be thirty-three Route Guides to respond to calls for assistance by special facilities

or resident special-needs persons who need assistance during a radiological emergency. Tr. 21,306-07. This number of available Route Guides would be reduced further if the Applicants assign Route Guides to assist evacuation bed buses. Depending on the nature of the emergency, the ranks of the SPMC Route Guides could be supplemented with dosimetry record keepers. (Those personnel would have other assigned functions during a general emergency, i.e., issuing dosimetry and maintaining dose records.) On each shift, assuming that everyone shows up, forty-eight dosimetry record keepers would be available. Finally, the Applicants can also make available through the offsite response organization approximately eighty people as a resource pool to assist special facilities, the resident special-needs population, and evacuation bed bus drivers. Tr. 21,307-08, 21,311.

8.71. With respect to the emotionally and mentally disabled, we note FEMA's view under GM 24 that physical assistance means more than drivers loading individuals onto transport vehicles and transporting them. Cf. Appl. PF 8.1.67. However, we conclude that such specialized assistance can be accomplished by the "contact" people, whom Applicants count on to be available to assist. We are persuaded that adequate assistance of this type will be available. *See Findings 8.77, 8.79, and 8.80, infra.*

8.72. The Board finds that the SPMC provides or reasonably assumes the onsite availability of the personnel necessary to assist special-needs evacuees (including the homebound) onto their evacuation vehicle.

8.73. As we understand the SPMC, it incorporates an "evacuation in place" concept in order to ensure the availability of trained and experienced personnel necessary to provide the particularized assistance and interim care that special-population evacuees will require to exit the EPZ and settle into temporary shelters. Thus, the plan contemplates that the teachers, day-care workers, nursery school personnel, special-facility and medical-facility staffs, nurses, and physicians will continue in their preemergency service provider roles while accompanying their charges through the evacuation process and into the early stages of congregate care. *See, e.g., Appl. Reb. No. 6, supra*, at 24-25 and Attach. I; Tr. 21,264, 21,285-86, 21,326. In addition, facility administrators and shift or unit supervisors would continue to exercise their preemergency authority to call in from their respective employee pools additional staff that might be necessary to respond to the emergency, and to assign their personnel in a manner that best serves, within the SPMC response framework, the needs of their particular group of evacuees. *See, e.g., Appl. Reb. No. 6, supra*, at 23-24 and Attach. I.

8.74. In order to assist in their understanding of the role they will be expected to play in the event of a radiological emergency, NHY will make SPMC orientation available to schools and special-facility personnel. *Id.* at 23.

In addition, NHY has offered to provide training and planning support to special facilities and will continue to do so. *Id.* at 26.

8.75. FEMA has found that special facilities, hospitals, and nursing homes, collectively, take pride in providing care and it is satisfied that they will act to implement an emergency plan appropriately. Tr. 22,413, 22,605. *See also* Tr. 21,281. We agree. We are not persuaded by Ms. Moriearty's testimony that medical facilities, hospitals, and clinics are not a realistic supply of adequate additional personnel. Moriearty Dir., *supra*, at 21-22.

8.76. In a series of proposed findings the Attorney General argues that reliance upon these "evacuees" to provide necessary interim care, supervision, and assistance to fellow evacuees during the evacuation process and for up to 12 hours thereafter at congregate care centers is without record support. He goes on to assert that there is no reasonable assurance that these "evacuees" will continue in their preemergency roles in the event of an actual emergency. We previously rejected a similar argument advanced by the Attorney General with respect to the NHRERP. LBP-88-32, *supra*, 28 NRC at 729-42, 749. He has provided no basis for us to conclude that special-facility or hospital staffs would react differently from school teachers, or that such professionals in Massachusetts will act differently from their counterparts in New Hampshire. The change in geography does not lend credence to an argument already found to lack merit.

8.77. With the exception of assistance in sheltering techniques, we find that the Attorney General's suggestion — that there would be a lack of helping behavior among fellow evacuees and between preemergency service providers and their preemergency charges in an emergency of this sort — is simply contradictory to established theory in disaster research. First, many empirical studies on geological, climatological, and technological emergencies provide a vast data base about helping behavior. Second, emergencies comparable to an emergency at a nuclear facility such as Seabrook are, by definition and in reference to human behavior, extraordinary situations. Third, such emergencies change the priorities of ongoing social life and transform social goals, objectives, and identifications. People abandon personal forms of identification and personal interests, and they identify with the entire human collective or community that is threatened. One of many names given this phenomenon is the "therapeutic community." The collective altruistic response of residents in and around San Francisco, Oakland, and Santa Cruz, California, following the recent earthquake that struck those areas is a current example of this phenomenon. Fourth, a consequence of these changes is that the threatened community experiences a dramatic decline in behavior that runs counter to the collective good and those that are based on individual or personal interests, and a dramatic increase in behavior that brings people together to help one another. Fifth, this "shift" would undoubtedly occur in an emergency at Seabrook since it has occurred in every mass emergency of this sort studied by social scientists. In general,

therefore, people in emergencies become concerned about the safety of others. Consequently, people check on the safety of others; communicate with friends, neighbors, and intimates; and offer help and provide assistance to each other, including those with physical or mental impairments. Appl. Reb. No. 6, *supra*, at 47-48.

8.78. Applicants' human behavior expert, Dr. Milet, advocates reliance upon friends and relatives to assist the handicapped for emergency planning purposes because this is what, in fact, happens in a real emergency. Tr. 21,086-87. The SPMC itself encourages such behavior in several ways. In the public information calendar distributed to all households, there is a section entitled "Good Neighbor Assistance" which states: "If your neighbors, relatives, or co-workers might need help in evacuating, please check on them before you leave." Also, each EBS message that recommends evacuation includes a request that "All persons in the area to be evacuated are urged to be good neighbors and help one another by sharing rides and helping others with problems." Appl. Reb. No. 6, *supra*, at 48-49. We believe these written and oral messages to "check" on neighbors are useful and will foster helping behavior among evacuees.

8.79. We find that in times of emergency, people tend to band together into a "therapeutic community" and to take care of individuals who have difficulty fending for themselves. Applicants' rebuttal testimony, which we find credible and accept as our own finding, states that:

It is highly unlikely that physically or mentally impaired residents of the Seabrook EPZ would not be able to engage in protective actions during a Seabrook emergency because of their impairments. The reason for this is straightforward; neighbors, friends and relatives would offer and provide help. This helping behavior would occur in reference to alert for the deaf, for example, as well as to protective actions.

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[W]e are simply unaware of even one empirical case in any historical emergency in which a physically or emotionally impaired person was unable to engage in a protective action because no one offered to help them.

Appl. Reb. No. 6, *supra*, at 46-47. See Tr. 21,086-87.

8.80. Our finding that adequate assistance will be available for special-needs populations also extends to the homebound. Depending on the type of handicap being addressed, FEMA GM 24 suggests that varying levels of assistance be provided to those in need where the protective action is to evacuate or shelter. MAG Exh. 71, *passim*. Mr. Donovan stated that under GM 24, a planner should ensure that there are responsible and knowledgeable contact personnel to provide physical assistance for disabled individuals. Tr. 18,830. Moreover, Mr. Donovan noted that GM 24 anticipates that individuals with disabilities may have needs other than transportation. Tr. 18,839.

8.81. Ms. Moriearty asserted that a disproportionate number of persons with disabilities are poor and therefore cannot be expected to have the extended family and support systems available to people unencumbered by poverty. Because of this, she viewed the SPMC as deficient because it concentrates only upon certain types of assistance disabilities, i.e., those that give rise to a need for transportation and special notification methods for the deaf. Moriearty Dir., *supra, passim*.

8.82. While we agree that a proportionately greater number of mentally and emotionally disabled people than the general population are probably marginal members of society, living transient life styles without meaningful family relationships or a home base, we do not conclude from that fact, as does Ms. Moriearty, that the SPMC is deficient because it does not specifically identify marginal members of society or allocate specially trained personnel to assist this group in the event of a radiological emergency.

8.83. "Non-functional and emotionally disturbed" individuals, as referred to by the Intervenors, are commonly defined by medical authorities as people who cannot function on a day-to-day basis in society without assistance. Such individuals often are in an institutional setting except where they live with family or in supervised, community-based settings, i.e., group homes with resident staff. It is reasonable to assume such "nonfunctional" emotionally or mentally impaired individuals will more than likely have available and knowledgeable staff people to assist them. The same personnel would be available to assist with recovery/reentry situations, since the individuals would likely be returning to their previous locations. Appl. Reb. No. 6, *supra*, at 51-52.

8.84. We view the Intervenors' real challenge to focus not on the "non-functional" but rather on the "minimally functional." This group *might* reside independently in the EPZ, *might* not have available family or governmental assistance resources, and *might*, due to their limited survival skills, be vulnerable in an emergency. Applicants have identified no such individuals, and thus, logically, have dedicated no staff to provide assistance and established no responsible contacts. By the same token, the Intervenors have failed to establish that any such homebound individuals live in the EPZ. See Findings 8.18-8.19, *supra*. We reject the proposition that the SPMC is deficient because it fails to provide for a group of special-needs individuals whose existence within the EPZ has not been established.

8.85. As to those "nonfunctional" emotionally or mentally disabled individuals residing in special facilities, we note that the Applicants have entered into no agreements or arrangements regarding the provision of assistance to this

population in an emergency. Tr. 21,057-58.<sup>49</sup> Despite this, we conclude that the Applicants can reasonably rely upon special-facility contact personnel to provide the necessary expertise and guidance suggested by GM 24 even in the absence of a preexisting agreement with these contacts to do so.

8.86. Our confidence that evacuees in need of assistance will not be abandoned in the EPZ is bolstered by several other factors which lead us to conclude that the SPMC provides an appropriate response framework through which necessary assistance efforts can be coordinated and channeled to evacuees in need. For example, if events preclude the call-in of additional special-facility staff before an evacuation was recommended, requests for assistance could be made both to the ORO through the facility Liaison and to local police and fire departments. Appl. Reb. No. 6, *supra*, at 24 and Attach. I. See Finding 8.70, *supra*. State and community mental health programs, with which licensed group homes have a continuous relationship, could be called upon to assist with the relocation of group-home residents. Appl. Reb. No. 6, *supra*, at 32. To the extent American Red Cross (ARC) volunteers have the capability, they can be counted on to assist where appropriate, and if their numbers are inadequate, the ARC, through its agreements with federal and state governments and private relief organizations, can request assistance as may be required to assist special-facility staff personnel in ensuring that evacuees' needs are met. Appl. Reb. No. 6, *supra*, at 25. See Findings 9.154-9.155, *infra*. In addition, Applicants have assigned some resources (approximately eighty people) directly to the ORO who could provide *ad hoc* assistance. Appl. Reb. No. 6, *supra*, at 50; Tr. 21,306-31. Finally, blind or deaf individuals who are not self-sufficient often have live-in assistance, relatives, neighbors, or other people who look after their needs. These people would be available to assist during an emergency. However, in the rare situation where such a blind or deaf individual might, upon notification, request help to comply with a protective action recommendation, the SPMC has provisions to make such assistance available. See Findings 8.51, *supra*, and 8.143, *infra*.

8.87. The capabilities of the ORO can also be augmented when necessary through its role as the coordinating response organization for other private relief organizations. In Massachusetts, for example, the Massachusetts Comprehensive Emergency Response Plan (CERP) states that the Commonwealth has established an Advisory Committee consisting of appointees from the MCDA,

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<sup>49</sup> Ms. Moriearty has stated that to her knowledge few, if any, organizations have the capacity and resources to assist the disabled in responding to an emergency. Moriearty Dir., *supra*, at 20-22. Applicants themselves have no idea what, if any, services can be provided by outside organizations to special individuals. Tr. 21,059. Because Applicants propose but have yet to contact and arrange for any assistance from handicapped advocacy or service organizations (Tr. 21,057), we do not consider the potential availability of such assistance in projecting satisfaction of the GM 24 recommendation. These advocates also will be asked to review and provide recommendations on the SPMC provisions for assisting handicapped individuals. Appl. Reb. No. 6, *supra*, at 51; Tr. 21,057.

the Massachusetts Department of Public Welfare, the Salvation Army, the Mennonite Disaster Service, Catholic Charities, the Society of St. Vincent de Paul, and the Seventh-Day Adventists for coordinated provision of private agency resources, and that ARC's New England Division has agreed to "exercise the responsibility of providing liaison" with MCDA and private relief organizations represented on the Advisory Committee. Appl. Reb. No. 6, *supra*, at 26 and Attach. J.

8.88. In addition, the Commonwealth, through its Department of Human Resources, has at its disposal the staff and facilities of state institutions that currently house such groups as the mentally ill and emotionally disturbed. *Id.* at 26. The potential availability of this placement and staff resource may be reasonably assumed under the Commission's "realism" rule.

8.89. In addition to our findings above, including our finding on the therapeutic community, there are other sources of conservatism in Applicants' allocation of resources. See Tr. 21,267 concerning double counting of special-needs individuals living in institutions; Tr. 21,267, 21,330-31, 20,874-75 concerning transportation for 100% of the population of each facility and its supporting personnel; and Tr. 21,400 concerning use of a number substantially in excess of the *average* daily population of hospitals for needs assessment. Intervenors have not analyzed or challenged directly the adequacy of the resources available under this overall plan, including elements of conservatism, double counting, direct resources, and the availability of outside personnel. We find, after considering all these factors, that the allocated resources are adequate.

8.90. While not required, supporting plans specific to the type of facility (e.g., school, day-care center, or nursing home) were developed by the Applicants. The plans contain sufficient basic information and instructions to assist a facility in implementing protective actions and provide directions on how to interact with the ORO. The plans also contain spaces where facility personnel can insert information such as telephone numbers, transportation needs, and contact persons which will be helpful or necessary in the event of a radiological emergency. Appl. Reb. No. 6, *supra*, at 18-19; *see also* Tr. 21,204-05. These plans use standard radiological emergency response plan techniques that are in use in the Commonwealth for other fixed nuclear sites. Tr. 21,203, 21,219-20, 21,632. However, these supporting plans are not essential to ensure the protection of health and safety during an emergency since other mechanisms exist within the SPMC to compensate for the lack of a specific plan for each facility.

8.91. Each special facility identified in the SPMC has been or will be offered a copy of an emergency plan specific to its type of facility, with an offer of assistance from NHY planners in tailoring the plan to reflect the particular circumstances of each facility. Appl. Reb. No. 6, *supra*, at 19; Tr. 21,205, 21,219-20, 21,632. We find that Applicants' offer of assistance to institutions is adequate for their needs. We expect that, should the nuclear plant be

approved for operation, these institutions will abandon their resistance and avail themselves of Applicants' offer of assistance.

8.92. While most or all of the New Hampshire nursing homes have drilled and trained in emergency procedures, none of the Massachusetts nursing homes have been drilled or exercised in connection with these supporting plans. Tr. 21,221-22. No Massachusetts facility has affirmed that it would be able to take the plan and implement protective actions such as sheltering or evacuation based upon it. Tr. 21,198-99. The Applicants have done no empirical study to see whether such supporting plans can be implemented by lay persons to take protective actions. Tr. 21,218-19. They rely in part on the fact that similar supporting plans are used in the industry. Tr. 21,217-19.

8.93. The Applicants concede that nursing homes that have drilled and trained in emergency procedures will be able to implement those procedures more quickly than nursing homes that have not. Tr. 21,228. However, they assert that the plans that have been generated would be usable without drills and training; indeed, past history has shown that nursing homes do a good job in most disasters with their own plan. Tr. 21,222-23.

8.94. The Attorney General claims that Applicants should have addressed how much longer it will take to accomplish an evacuation with untrained staff in a special facility such as a nursing home. The ETEs for special facilities are calculated by adding together the sum of the estimated amount of time it will take to mobilize vehicles at their place of origin, the inbound travel time for those vehicles to reach the EPZ, the time to load passengers at the special facilities or other locales, and the outbound travel time. NHRERP, Vol. 6, at 11-18. That calculation assumes that the residents of special facilities will be ready to board vehicles at the time that the vehicles arrive at the door. The Applicants allowed 15 minutes for the actual emptying and loading of patients at nursing homes. *Id.* at 11-21, 11-26. While there may be some additional time needed to load patients at Massachusetts nursing homes because training has not yet occurred, we conclude that any additional time needed would be relatively small and thus does not detract from our finding of reasonable assurance that special facilities will be evacuated in a timely and effective manner in the event of a radiological emergency.

8.95. The Attorney General also asserts that the Applicants have failed to develop and provide ETEs on a facility-by-facility basis, notwithstanding his reading of FEMA Guidance Memorandum 21 and NUREG-0654, Appendix 4,<sup>50</sup> as requiring such ETEs. MAG Exh. 74. In our view, the Attorney General read too much into GM 21 and NUREG-0654. There is no requirement for separate facility ETEs in the guidance. See Section 2, *supra*, Findings 2.95-2.104.

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<sup>50</sup> Although the Attorney General cites Appendix "E," it is Appendix 4 that deals with special-facility populations, at 4-3.

8.96. FEMA Guidance Memorandum 21 calls for provisions to be made to ensure the adequacy of health-medical personnel. MAG Exh. 74, at 3. The Board has reviewed the relevant portions of the record and finds that there will be adequate health-medical personnel to handle the needs of an evacuation.

### C. Monitoring/Decontamination

8.97. The SPMC makes specific provisions for monitoring and decontamination of special-needs evacuees, including nursing home residents and the handicapped, at Reception Centers before they are transported to their designated host facilities. Appl. Reb. No. 6, *supra*, at 52. See Findings 9.5-9.11, *infra*.

8.98. Handicapped access to the ORO-designated Reception Centers is not at issue since mobility-impaired individuals (and nursing home evacuees) transported by ambulance, bus, wheelchair van, or other vehicle will be monitored in the vehicle in which they arrive at the Reception Center by NHY ORO Monitoring/Decontamination personnel. Appl. Reb. No. 6, *supra*, at 52; Tr. 21,425.

8.99. At each reception center, four people are assigned responsibility for monitoring and decontaminating special-needs persons. SPMC, Procedures Volume, IP 2.9, § 5.2.9.B.4; Tr. 21,425, 21,556.

8.100. ORO Monitoring/Decontamination personnel are trained in the specific steps necessary to identify contaminated injured individuals as described in IP 2.9, § 5.2.15, A through E. Individuals who cannot be satisfactorily decontaminated at the Monitoring Trailers are offered the option of enrolling in the Radiological Screening Program also available to ORO emergency workers. SPMC, § 3.5.3, at 3.5-9, 3.5-10; IP 2.9, § 5.2.16. The Radiological Health Advisor is responsible for initiating and tracking followup actions for these individuals which may include requests for bioassays at MS-1 hospitals or the use of Yankee Atomic Mobile Body Burden Van services (IP 2.8, 5.1.5; Attach. 2). Appl. Reb. No. 6, *supra*, at 59-60.

8.101. Intervenor SAPL challenges whether the procedures set out above will provide maximum dose savings and thus provide reasonable assurance of adequate public protection. It argues that the SPMC lacks clear criteria for use by the Radiological Health Advisor in determining who is referred to MS-1 hospital for evaluation and who is simply entered into the "Radiological Screening Program." See SAPL PF 9.1.74.b. In support of its assertion, SAPL points to testimony by Applicants' witnesses (Tr. 25,700, 25,703), to the effect that the evacuees who cannot be decontaminated after three attempts are routed out of the monitoring trailer in the same direction as uncontaminated evacuees, and are only entered into the Radiological Screening Program for attention at some later time. See SAPL PF 9.1.74.c.

8.102. We are unconvinced by SAPL's argument. In the first place, its concerns regarding the adequacy of referral criteria and the Radiological Screening Program are outside the reasonable boundaries of any admitted contention. *See* Tr. 26,000, 26,002-03. In addition, we would not find the SPMC deficient in this area even if SAPL's arguments fell within the ambit of a contention. The referral procedures are not wholly without criteria. SAPL points to one; i.e., noninjured contaminated not decontaminated after three attempts are placed in screening program. *See also* IP 2.9, at 5.2.15. Radiological health physics experts were consulted in connection with the development of the procedures. Tr. 21,561-62. While the referral procedures may not be as detailed and refined as SAPL would like, we would find, if necessary, that they are sufficiently clear for our purposes here.

8.103. In Section 9, *infra*, we address the question of whether there is reasonable assurance that those members of the evacuating public who arrive at a reception center will be *monitored* in about 12 hours. In LBP-88-32, we concluded that completion of *decontamination* activities is not subject to a similar time frame. *Id., supra*, 28 NRC at 722. Applicants' witness Callendrello acknowledged that the kinds of decontamination that can be accomplished for a special-needs person in a vehicle are limited. Tr. 21,557. However, Intervenors have advanced no convincing evidence that the SPMC "in-vehicle" decontamination procedures, while perhaps cumbersome and not necessarily totally effective in every case, are inadequate. We find that the SPMC decontamination provisions and personnel satisfy the Commission's emergency planning requirements.

8.104. The SPMC incorporates the definition of "contaminated injured" used in FEMA Guidance Memorandum MS-1, Medical Services, *Background*, at 1:

As used in 10 C.F.R. 50.47(b)(12) and planning standard "L" of NUREG-0654/FEMA Rep. 1, Rev. 1, the term contaminated injured means 1) contaminated and otherwise physically injured; 2) contaminated and exposed to dangerous levels of radiation; or 3) exposed to dangerous levels of radiation.

8.105. FEMA GM MS-1 (at 3, L.1) provides specific direction on the required number of hospitals for the treatment of contaminated injured individuals.

There should be one primary local hospital and one backup hospital for each site for the evaluation and emergency treatment of "contaminated injured" members of the general public.

Those hospitals that are designated as "primary" and "backup" in compliance with MS-1 are clearly identified in the SPMC, Appendix M, as St. Joseph's Hospital of Lowell and Brigham and Women's Hospital of Boston, respectively. Appl. Reb. No. 6, *supra*, at 53-54. The capacity of the primary and backup

hospitals for handling contaminated individuals is stated in the SPMC Appendix M, and proper annotation of the list (name, location, type of facility, capacity, and any special radiological capabilities) is provided as directed in MS-1, at 3; NUREG-0654, Rev. 1, Supp. 1, II.L.3; and 51 Fed. Reg. 32,905. Appl. Reb. No. 6, *supra*, at 54.

8.106. The LOAs with St. Joseph's Hospital and with Brigham and Women's Hospital comply with the guidance in MS-1. This provision, which is taken directly from MS-1, at 4, 0.4—Areas for Review and Acceptance Criteria, states in part that:

Each hospital listed under Evaluation Criteria L.1 and L.3 shall have at least one physician and one nurse on call within about 2 hours who can supervise the evaluation and treatment of radiologically "contaminated injured" members of the general public.

Appl. Reb. No. 6, *supra*, at 56.

8.107. Notwithstanding the clear import of the language of the MS-1 guidance, SAPL urges us to find that several physicians with supporting staff should be the minimum number of personnel required at any one time to evaluate and directly treat contaminated injured evacuees. SAPL PF 8.1.126. We decline SAPL's invitation to author a new emergency planning standard on emergency medical treatment. The criteria applicable to such medical treatment require the presence of a physician and a nurse to "supervise" the evaluation and treatment of contaminated injured. Under the SPMC and the Applicants' LOAs, this will be the case.

8.108. The two designated MS-1 hospitals also meet the Joint Commission on Accreditation of Hospitals (JCAH) national standards for radiology or nuclear medicine. FEMA has indicated in MS-1 that JCAH accreditation is an acceptable indicator of a hospital's ability to treat contaminated injured individuals. MS-1, at 2.

The written agreements should contain simple assurances that the providers have adequate technical information (e.g., treatment protocols) and treatment capabilities for handling "contaminated injured" individuals. An indication of Joint Commission on Hospital Accreditation (JCAH) accreditation will suffice for such assurance. (Note: Veterans Administration (VA), military and other governmental hospitals are not usually accredited by JCAH but usually have the desired capabilities.)

Treatment protocols and trained personnel are available at the designated MS-1 hospitals and are part of the SPMC supporting plans identified in SPMC, Appendix F. Appl. Reb. No. 6, *supra*, at 55. One of the three qualified radiologists employed by St. Joseph's has been trained under the Seabrook planning program. Tr. 23,335-36.

8.109. St. Joseph's Hospital officials have advised NHY that the hospital has an average occupancy of 162 of its total licensed capacity of 232 beds, indicating the potential availability of approximately 70 beds. Contacts with Brigham and Women's Hospital determined it has an average occupancy of 504 of its 720 licensed beds, indicating the potential availability of approximately 216 beds. Appl. Reb. No. 6, *supra*, at 55.

8.110. Under current plan provisions, St. Joseph's can treat two contaminated injured persons at a time (Tr. 23,333-34), although it can accommodate possibly ten to twenty contaminated injured patients who are awaiting decontamination and treatment. Tr. 23,349.

8.111. The Applicants acknowledged that the primary MS-1 hospital, St. Joseph's Hospital, is not prepared to provide medical treatments such as bone marrow transplants to the contaminated injured who have received a large dose of radiation. Tr. 23,325-26. The treatment that St. Joseph's could provide is the administering of antibiotics, intravenous replacement of body fluids, and blood transfusions. Tr. 23,329. Moreover, as a normal part of their practice the physicians at St. Joseph's do not routinely treat the radiologically injured. Tr. 23,331. In addition, during the exercise FEMA found that the medical and nursing staff did not fully understand the biological effects of radiation. Appl. Exh. 43F, at 231. Finally, the St. Joseph's radiologist called to testify by the Attorney General could provide no assurance that St. Joseph's can decontaminate six patients per hour. Tr. 23,345-47.

8.112. We do not read the Commission's emergency planning rules to require the Applicants to identify and make arrangements with hospitals whose staff is experienced in providing extraordinary, long-term medical treatments to radiologically contaminated injured individuals. Rather, the focus of the Commission's rules is that emergency plans need make prior arrangements with medical facilities who have the capability to provide necessary, interim relief during the early stages of an emergency to isolate, stabilize, and evaluate such evacuees. The ability of St. Joseph's Hospital to provide this type of appropriate treatment for contaminated injured individuals was demonstrated as part of the 1988 Seabrook Station Graded Exercise. This medical emergency drill was conducted in compliance with NUREG-0654, Rev. 1, Supp. 1, II.N.2, which directs that the drill involve simulated contaminated individuals and provide for participation by local support service agencies. Appl. Reb. No. 6, *supra*, at 57. We find that both the LOAs with the MS-1 hospitals and the hospitals themselves provide reasonable assurance that the interim needs of the contaminated injured will be satisfied under the SPMC.<sup>51</sup>

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<sup>51</sup> The Applicants testified that a LOA with a third MS-1 hospital has been executed, and this additional hospital can function as either the primary or the backup facility, if needed. Tr. 21,599-600. Given the absence of any information regarding the identity, staffing, and resources of this medical facility, SAPL objects to any consideration

(Continued)

8.113. In addition to the MS-1 hospital arrangements contained in the SPMC, the Commonwealth has identified twelve hospitals in communities near the Seabrook Station EPZ that have the capability to deal with contaminated injured individuals, although two appear to be located within the EPZ and thus might not be available for use in the event of a radiological emergency. Appl. Reb. No. 6, *supra*, Attach. N. Supplemental medical resources are also available through the activation of the Federal Radiological Emergency Response Plan (SPMC, at 2.3-7, 3.2-4). Appl. Reb. No. 6, *supra*, at 58.

8.114. While all ambulance drivers are trained to handle contaminated injured individuals (Tr. 21,510-11, 21,518), some ambulance attendants who had received Seabrook-provided training were found to need additional training during the FEMA exercise. Appl. Exh. 43F, at 230. This does not demonstrate that the SPMC is deficient with respect to the transport of contaminated injured evacuees. It does demonstrate a need for some corrective action. We expect the Applicants, should they be forced to continue their lead role in emergency planning and training, to make whatever changes are necessary in the scope or depth of their training in this area to overcome the need for additional training reflected by the FEMA exercise.

8.115. We find reasonable assurance that special-needs populations (including contaminated injured evacuees) will be monitored in a timely manner, and that adequate arrangements have been made to ensure that appropriate decontamination and treatment (if necessary) will be provided in the event of a radiological emergency at the Seabrook Station.

#### D. Adequacy of Congregate Care and Medical Facilities

8.116. The SPMC contemplates the creation of two dedicated Congregate Care Centers for special populations in the event of a radiological emergency: a Host School Center at the Holy Cross College and a Host Ambulatory Special Needs Center at the Shriners' Auditorium in Wilmington, Massachusetts. See Findings 9.14–9.15, *infra*. In Section 9, we deal with challenges to the general adequacy of all Congregate Care Centers, including those intended to serve special populations. Here we focus on Intervenors' particular challenges to the adequacy of the Holy Cross, the Shriners' Auditorium, and host medical facilities in light of the particular needs of special populations.

8.117. The SPMC does not rely upon host-facility arrangements that may exist between nursing homes, but is sufficiently flexible to allow for the use of such arrangements if the facility administrators so opt. Tr. 21,255;

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of it in evaluating the adequacy of the SPMC provisions in this area. SAPL PF 8.1.129. As our findings indicate, the apparent availability of a third MS-1 hospital plays no role in our conclusions.

Appl. Reb. No. 6, *supra*, at 67, 69. For those special populations for which no facility-to-facility arrangement exists (and the SPMC assumes that none exist), the SPMC provides alternative Congregate Care Centers.

8.118. The capacity of the designated special-needs facility, Shriners' Auditorium in Wilmington, is approximately half the size of the special-needs population. Tr. 21,453. However, a Westboro facility will be available as a backup to accommodate the approximately 1400 special-needs persons who cannot fit into the Shriners' Auditorium.<sup>52</sup>

8.119. Although Applicants' witness did not know how many handicapped-accessible bathrooms were located in these buildings, he did state that the buildings are fully handicapped accessible. Tr. 21,458. In addition, notwithstanding the absence of any suggestion in the record that the number of mobility-impaired evacuees exceeded the capacity of the first floor of the Shriners' Auditorium, the Applicants have committed to installing an elevator at the facility to make its second floor fully accessible to such evacuees. Tr. 21,454, 21,458.

8.120. The Attorney General's witness Sikich testified to a number of criticisms of the SPMC in the special-needs area. Sikich Dir., ff. Tr. 20,800, *passim*. However, we find that Mr. Sikich exaggerated his personal qualifications and we therefore find him lacking in credibility.<sup>53</sup>

8.121. Over Intervenors' objections (Tr. 20,365-67) the Board granted Applicants wide latitude to attempt to impeach Mr. Sikich. The Board also allowed Applicants to present a rebuttal panel on Mr. Sikich's qualifications and credibility before Mr. Sikich was allowed to testify on the merits of the SPMC. See Tr. 20,365. This was entirely proper because the Applicants demonstrated that they had reason to believe that Mr. Sikich had misstated his qualifications under oath; they were not obligated to notify the Attorney General in advance of their intentions to rebut his testimony should he make such misstatements. See Tr. 20,369-70.

8.122. Mr. Sikich clearly overstated his background expertise and qualifications and did so to an extent that draws into question his credibility as a witness.

8.123. He stated his educational background to include, among other things:

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<sup>52</sup> At the time that FEMA reviewed the use of the Westboro facility it was only designated to house the general population who would be evacuated from the EPZ. Because it was not designated as a host facility for special-needs persons, FEMA never considered its suitability as a facility for those persons. Tr. 21,461-62. Therefore, no presumption of adequacy attaches to the use of that facility to house special-needs persons.

<sup>53</sup> Sikich's main concerns were, *inter alia*, the ability of the American Red Cross officials and volunteers to satisfy the special staffing needs of special populations at the Shriners' Auditorium, and the lack of accessibility of the second floor of the auditorium. See MAG PF 9.1.4. Even if we were to give any weight to Sikich's views, they are of no moment. We find that accompanying evacuating professional staff may be counted on to meet, at least on an interim basis, the unique needs of special-needs populations (Findings 8.73-8.87, *supra*), and that the second floor of the Shriners' Auditorium will be accessible (Finding 8.119, *supra*).

Sikich Dir., ff. Tr. 20,800, resume, at 2.

8.124. Cross-examination revealed that the entry for "M.A., Management" was supposedly not intended to mislead people to believe he had received that degree (Tr. 20,249); indeed, "[H]e never attended classes on the Central Michigan University Campus" (Tr. 20,249), and did not know how many classes he took (Tr. 20,250). Although he admitted that it would be incorrect for him to claim to have a Master of Science in Psychology (Tr. 20,238) or a Master of Arts in Educational Psychology (Tr. 20,240), it was revealed that (in other contexts outside of this case) he has claimed both, once in a resume (Appl. Exh. 69 and Tr. 20,238-40), another time on a personnel form on which he personally wrote in the bogus claim. Appl. Exh. 70 for identification, and Tr. 20,240-42.

8.125. Mr. Sikich claimed he was "negotiating the publication of a book [he] wrote on emergency planning and preparedness." Sikich Dir., ff. Tr. 20,800, at 12. The book is not completed. There also is no evidence of a contract to write a book. Tr. 20,256-57.

8.126. Mr. Sikich in his direct testimony at least implied that he had the entire responsibility for developing the initial emergency preparedness training program for Detroit Edison's Fermi 2 Reactor (Sikich Dir., *supra*, at 4). This claim was untrue, at least in part (Tr. 20,547-48). He admitted that, in fact, an outside corporation had developed the program, although he contributed to the program in a significant manner. Tr. 20,270.

8.127. Mr. Sikich claimed in his direct testimony that he "wrote the Radiological Emergency Response Preparedness Training Instruction Manual for Detroit Edison in 1982." Sikich Dir., *supra*, at 12. He admitted under cross-examination that a large part of the manual was in fact the compilation of materials written by others. He did write significant portions of the document. Tr. 20,266-67.

8.128. We have decided not to discuss further the many other problems of Mr. Sikich's testimony. The interested reader might choose to read further in Applicants' Proposed Findings of Fact, July 19, 1989, which provide further transcript citations that support our conclusion that Mr. Sikich's testimony is not entitled to any weight. In this regard, we note that after the cross-examination summarized above, the Attorney General withdrew five additional pieces of prefiled testimony by Mr. Sikich. Tr. 22,274-75, 22,278, 22,298.

8.129. As noted in Finding 8.73, *supra*, the responsibility for the care and supervision of school and special-facility populations remains with the administration and staff during any emergency. The supporting plans for all schools and special facilities are intended to facilitate the implementation of protective actions such as sheltering or evacuation within each facility by the staff and students/residents.

8.130. The Applicants have not analyzed how long it will take parents who have evacuated separately from their schoolchildren to arrive at the host school facility in Worcester to collect their children. Tr. 21,230. Applicants have no analysis as to how long it will take parents to be reunited with children at the school host facility, and they expect teachers to care for the schoolchildren at that facility until parents arrive. Tr. 21,322.

8.131. The Applicants have no procedures for reuniting transit-dependent families with their schoolchildren who have been evacuated to the host school facility in Worcester. Tr. 21,324. However, Applicants state that they will have the resources, i.e., returning school buses or passenger vans, to reunite transit-dependent families on an *ad hoc* basis. See also Tr. 21,250-51. Of course, the resources that might be available to transport transit-dependent families to Worcester to find their children would not be available until they had completed their assigned evacuation tasks. Tr. 21,324.

8.132. We conclude that the Applicants can reasonably rely upon returning buses and passenger vans to reunite transit-dependent parents with their separately evacuated schoolchildren. However, we require that the Applicants develop specific procedures to identify, assign, and schedule returning evacuation vehicles for use in reuniting parents and children *and* in transporting such re-united transit-dependent families to their assigned SPMC congregate care facilities.

8.133. While the maximum licensed capacity of the two hospitals located within the EPZ is 219 beds, the 1987 combined average daily census for these two facilities was 129 beds. In addition, it is estimated that approximately 119 of the EPZ nursing home and special-facility populations would require continuous medical supervision necessitating their evacuation directly to a host medical facility. Appl. Reb. No. 6, *supra*, at 61.

8.134. To serve this potential hospital bed need, the Applicants have entered into LOAs with four hospitals having a maximum licensed capacity of 1120 beds, and whose average daily census reflects a potential availability of 350 beds. If necessary, an additional sixty-five beds could be made available through the transfer of patients to a facility affiliated with one of four hospitals under LOAs. In addition, the Applicants committed to amend Appendix M of the SPMC to list approximately sixty other major eastern Massachusetts medical facilities that could, on an *ad hoc* basis, be called upon to treat evacuees with immediate medical needs. LOAs with these latter sixty medical facilities are not required under NUREG-0654. *Id.* at 61-63.

8.135. In calculating how many host hospitals are needed to house evacuees from Massachusetts EPZ hospitals and nursing homes, the Applicants have based their calculation on average daily census rather than what the facilities' maximum census is at any time during the course of the year. *Id.* While the Applicants' approach does not *guarantee* that the average bed availability

projected for a particular hospital will at any particular time be actually available, we find that it is an acceptable approach for emergency planning purposes given the excess availability of hospital beds from the LOA hospitals collectively.

8.136. The Applicants did not assess the capacity capabilities of host hospitals to receive intensive care patients or the relative occupancy rate for persons on that type of ward. Tr. 21,450. According to the Applicants, an assessment of the host hospitals' capability to receive intensive care patients was not performed because they rely to a large extent on the numerous hospitals located in the greater Boston area to accept such patients, if necessary, under existing joint agreements between the hospitals. While such implicit overflow reliance may not be appropriate in some areas of the country, we find it reasonable for the Seabrook EPZ given the high concentration of hospitals in northeastern Massachusetts.

8.137. In addition to the host hospital facilities, the SPMC also relies on two designated MS-1 hospitals to serve as treatment centers for hospital and nursing home patients and injured individuals who may be radiologically contaminated. The combined capability of these two MS-1 facilities (St. Joseph's and Brigham and Women's Hospitals) to accommodate contaminated evacuees is approximately 286 beds. This number exceeds the number of patients that could come from at-risk hospitals. Tr. 18,990. In the unlikely event that all seventy of St. Joseph's beds were required for the treatment of contaminated individuals, there would still be sufficient capacity in the other host hospital facilities to accommodate all of the anticipated noncontaminated EPZ hospital, nursing home, and special-facility evacuees, with additional MS-1 capacity represented by the Brigham and Women's Hospital. Appl. Reb. No. 6, *supra*, at 63-64.

8.138. There is no need to include the plans and procedures for the transfer of patients between hospitals in the SPMC; all accredited hospitals have such plans and procedures. Tr. 18,979-81. All accredited hospitals must have emergency plans also. Tr. 21,633.

8.139. FEMA has found the SPMC to be adequate with respect to hospital LOAs contained in the plan. Appl. Exh. 43C at 17-18. No Intervenor has advanced any persuasive basis to question this finding. We find reasonable assurance that sufficient medical treatment and hospital beds will be available to meet the potential needs of special-population evacuees in the event of a radiological emergency at the Seabrook Station.

## E. Sheltering

8.140. Depending on the specific nature and scope of the radiological event that triggers an activation of the ORO, an evacuation of the EPZ may not

necessarily be the protective action of choice, either generally or for individual members of the public.<sup>54</sup>

8.141. For a fast-breaking event, sheltering in place might be appropriate for large segments of the EPZ. In addition, the option of sheltering rather than evacuation for mobility-impaired individuals may remain the choice for many of those individuals during an emergency. Finally, under the SPMC, it is the facility administrator who is responsible for the choice of protective action implemented. Tr. 21,548. Thus, even if evacuation is the recommended protective action for an area, administrators of special facilities may elect to shelter in the best interest of their patients or residents.

8.142. As to these possibilities, the SPMC provides some basis upon which the appropriate recommending official, administrator, or individual can determine whether sheltering is a viable option, and if so, how to implement a sheltering decision. However, as in the case of a general evacuation of the EPZ, special populations would require, in several cases, specialized information or assistance to fully implement a shelter recommendation. Intervenors challenge the SPMC's sheltering provisions, particularly the absence of facility-specific dose reduction assessments, as inadequate with respect to special populations.

8.143. In the case of individual sheltering, it can be generally assumed that such individuals will base their decision on their knowledge of their own circumstances and their ability to carry out the necessary sheltering actions described in the public information materials and/or EBS messages. The SPMC assumes that a person who could not shelter would not do so and will inform the ORO via the telephone number provided. *See Finding 8.51, supra.* However, the shelter-in-place concept employed by the SPMC does not involve extraordinary measures that would require special assistance to any individual. Appl. Reb. No. 6, *supra*, at 51; Tr. 21,078.

8.144. For nursing homes located in the State of New Hampshire, the Applicants did an assessment under the NHRERP as to the sheltering factors of those nursing homes so that state decisionmakers would be in a position to determine whether it was better to shelter in those facilities even if there was a recommendation to evacuate the general public. Tr. 21,417. Such an assessment recognizes that in many instances because of the difficulty in moving nursing home patients and the consequences of exposure to that population, as opposed to the general population, it may be better to shelter rather than to

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<sup>54</sup> While the New Hampshire PAR process is capable of making distinctions between general and special populations, the Massachusetts PAR decisionmaking process does not. Tr. 21,547, 21,555. SAPL argues that there is no basis for this distinction. Because the New Hampshire approach is logically the better one, SAPL maintains, the SPMC is inadequate since it does not incorporate this "better" approach. SAPL's position misconstrues our task. The issue before us is not whether the SPMC is the best plan possible. Our task is to determine whether the plan is adequate and satisfies the Commission's emergency planning requirements. We note that the Commission has concluded that while the "best" plans result from a coordinated state/local/utility planning process, applicant-developed plans may nonetheless be adequate. 52 Fed. Reg. 42,078, 42,082 (Nov. 3, 1987).

evacuate the residents of nursing homes. No similar planning has been done for Massachusetts nursing homes. Tr. 21,417.

8.145. Intervenors assert that the Applicants' failure to perform facility-specific surveys in Massachusetts to predetermine dose reduction factors (drfs) renders the SPMC provisions on sheltering inadequate. Specifically, they argue that the absence of facility-specific drfs deprives administrators of special facilities of information necessary to make an informed decision whether to shelter rather than evacuate. See SAPL PF 8.1.62.b.

8.146. The Applicants acknowledge that drfs are an important input in deciding whether greater dose savings are to be achieved by evacuation or sheltering. Tr. 21,553-54. However, the Applicants argue that the absence of preemergency drfs for each special facility does not mean that such information will not be available to administrators in the event of an actual emergency. The SPMC contains procedures for facilitating such a decision and for the distribution of KI should that be authorized by the Commonwealth. Appl. Reb. No. 6, *supra*, at 33-37.

8.147. If an administrator needs advice whether to shelter or evacuate his residents because of medical considerations, he may obtain that appropriate advice by asking the special-populations liaison, who has telephone access to personnel in the EOC with training in health physics. Tr. 21,548-49; Appl. Reb. No. 6, *supra*, at 33-37. Based upon a description of the facility's construction, a trained health physicist at the EOC could quickly calculate a drf for use by the facility administrator. This technique would have little effect on the accuracy or precision of the determination. Tr. 21,549.

8.148. Finally, the Applicants remain ready to sit down with all special facilities willing to do so and tailor the generic facility-specific plan to their needs. This would include an estimate of dose reduction factors for each specific institution if they should be requested to do so. Tr. 21,194, 21,204-05, 21,632. Thus, to the extent an administrator believes that preemergency specific drfs for his or her facility would be helpful in the event of an actual emergency, the availability of such information is totally within his or her control.

8.149. The supporting plans developed for use by the public and private schools contain detailed instructions for implementing a sheltering recommendation. Potential sheltering areas have been identified in each EPZ school building based on a preliminary assessment of each facility by a NHY planner, and the information provided in the facility-specific sections of each school plan. Basic sheltering instructions provided in the supporting plans include directions to close windows and doors, move children to interior areas, and turn off all HVAC systems during sheltering. Appl. Reb. No. 6, *supra*, at 44-45.

8.150. The SPMC is adequate in its compliance with FEMA Guidance Memorandum EV-2 (MAG Exh. 91), although it has only suggestive force in this proceeding. The SPMC contains information on the type of school and

age grouping of the students, whenever the name of the school suggests the age grouping. Tr. 21,239, 21,245. In addition, the age grouping for each school is shown in implementing procedure IP 2.10. Tr. 21,243. Although the time frames for accomplishing protective actions are not shown in the SPMC (Tr. 21,241), there is enough information available to the school officials so that they will be prepared to make appropriate decisions, with advice if needed, when called on to do so. We do not consider it necessary for each school to have further information on "time frames" as called for in the cited FEMA guidance document.

8.151. Although the Applicants assert that potential sheltering areas have been identified in Massachusetts EPZ schools, the particular witness questioned by the Attorney General did not know the details of how the sheltering capabilities were assessed. Tr. 21,423. We have no reason to doubt the adequacy of the methods used for identifying sheltering areas. We have no reason to believe, as the Attorney General suggests, that a health physicist is required to do such a job and no reason to suspect that the person assigned was not properly qualified.

8.152. School supporting plans contain detailed sheltering procedures. Should a school not have a supporting plan, similar sheltering instructions will be provided by School Liaisons. Appl. Reb. No. 6, *supra*, at 44-45.

8.153. According to the Applicants' estimates, it may take a School Liaison up to 1 1/2 hours to reach every school by phone to inform them about sheltering techniques. Tr. 21,362. See Finding 8.34, *supra*. The Board finds this to be an adequate procedure to be used as a backup technique for those schools that do not have supporting plans.

8.154. Appropriate plans have been developed by Applicants for use by schools in a radiological emergency. Appl. Reb. No. 6, *supra*, at 37-45. Intervenors have advanced no persuasive reasons to find otherwise.

8.155. Applicants let special-population liaisons know that assistance is available to them. The Board expects that if these people have not been previously trained in radiological effects or on how to choose between sheltering and evacuation, they would respond to this offer of assistance and be assisted in their choice. Tr. 21,290-91, 21,408-09, 21,413-14; Appl. Reb. No. 6, *supra*, at 36.

8.156. We find reasonable assurances that information and assistance helpful in evaluating and implementing the sheltering option for special populations within the EPZ will be both available and effectively communicated in the event of a radiological emergency at the Seabrook Station.

## F. School Contentions Based on the Exercise

8.157. The Attorney General advanced three contentions that addressed the handling of Massachusetts school populations in the context of the June 1988 Exercise. See MAG EX-9(A) and (B), MAG EX-10, and MAG EX-11(B)(2). These contentions have, in part, been addressed in Section 7, above. In support of these contentions, the Attorney General relied on the testimony of Dr. Harris (Harris Dir., ff. Tr. 26,156, *passim*) and Dr. Goble (Goble Dir., ff. Tr. 24,125, *passim*).

8.158. The fact that, for the most part, Massachusetts schools would not participate in the 1988 Exercise did not affect the ability to sufficiently exercise the plans. Tr. 22,605.

8.159. It is the view of FEMA witness Donovan that FEMA had really "stressed" the ORO with respect to the handling of the schools, their PARs, and their transportation during the exercise, presenting the ORO with a true "worst case"; and that ORO had performed admirably well. Tr. 22,393-94, 22,468-73, 22,576-86, 22,593-94.

8.160. Allegations that ORO is to be faulted for not taking protective actions at the time New Hampshire did was not a fault of ORO; rather the FEMA Control Cell precluded such actions, when requested, in order to create a "worst-case" scenario. Tr. 22,576, 22,588.

8.161. FEMA witness Donovan adequately explained why an alleged inconsistency in an EBS message issued by ORO affecting schoolchildren, if it was an inconsistency at all, was not significant, and did not constitute a deficiency. Tr. 22,460-61, 22,464, 22,476-78, 22,491-92. *See also* Tr. 22,475-76, 22,482-83.

8.162. The giving of a hard copy of an EBS message (even if partly erroneous) to the press at a news conference is proper and not an exercise inadequacy. This action was appropriate to preserve the credibility of the emergency exercise. Tr. 22,497-98.

## G. Rulings of Law

8.163. FEMA GMs describe the purpose for certain planning standards and evaluation criteria and offer methods by which emergency planners *may* meet the standards addressed in the GM. However, the particular methods set forth in FEMA GMs are not mandated by the NRC or FEMA, and a planning organization may choose to achieve the same purpose by a different approach. Tr. 18,819-21. Thus, FEMA GMs play the same role and have the same legal effect as the NRC Staff's regulatory guides.

8.164. Section 50.47(b)(12) of 10 C.F.R. only requires medical services for "contaminated injured individuals." Such people may require treatment

for traumatic injury and specialized handling for their radiation problem. The regulation assumes that hospitalization for most people who are contaminated (but not injured) would not be an emergency matter. *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-680, 16 NRC 127, 136-38 (1982).

8.165. Nothing in NUREG-0654, 10 C.F.R. § 50.47, or Annex E of Pub. L. No. 1332, requires any special planning for day-care facilities, nursery, or preschool facilities. In particular, there is no requirement for detailed, site-specific plans for each and every school or institution within a nuclear power plant's EPZ. *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), LBP-85-14, 21 NRC 1219, 1326-27 (1985), *aff'd*, ALAB-836, 23 NRC 479 (1986).

8.166. This Board has declared that official notice of state law is not a good concept in a federal proceeding such as this one. Tr. 21,378-79. Title 105 C.M.R. Ch. 170.010 was never accepted as an exhibit, and no findings can be made based upon it or on any other provision of Commonwealth law that is related to this provision. The Board has stated that if a party wishes to make proposed findings based upon Commonwealth regulations, the regulations should be offered and accepted as an exhibit.

8.167. The Commission's emergency planning rules do not require emergency planners to identify and make arrangements with hospitals whose staff is experienced in providing extraordinary, long-term medical treatments to radiologically contaminated injured individuals. Rather, the focus of the Commission's rules is that emergency plans need to make prior arrangements with medical facilities who have the capability to provide necessary, interim relief during the early stages of an emergency to isolate, stabilize, and evaluate such evacuees.

## H. Conclusions

8.168. In general, we are satisfied with the thoroughness of Applicants' planning effort. We are, however, concerned about the thoroughness of their efforts to find noninstitutionalized emotionally disturbed people. It is our understanding that Applicants are committed to continuing to update their plan in this area through contacts with concerned organizations.

8.169. Subject to satisfaction of conditions set out in Findings 8.34 and 8.132, the Board finds that adequate and implementable provisions have been made for special-needs populations in the Seabrook EPZ.

8.170. We further find that the conditions set out in Findings 8.34 and 8.132 are not of the type whose satisfaction need be the subject of further litigation.

## **9. MONITORING, RECEPTION, AND CONGREGATE CARE CENTERS**

9.1. In LBP-88-32, *supra*, 28 NRC at 699-724, we evaluated the state-developed "State of New Hampshire Radiological Emergency Response Plan" (NHRERP, Rev. 2), intended to serve evacuees from the New Hampshire portion of the Seabrook EPZ. Subject to several Board-imposed conditions, we concluded that the NHRERP (Rev. 2) satisfied the Commission's emergency planning criteria applicable to decontamination and reception centers. LBP-88-32, *supra*, 28 NRC at 724.

9.2. In this section, we deal with the specific challenges to the Applicant-developed "Seabrook Plan for the Massachusetts Communities" (SPMC) as that plan relates to monitoring, reception, medical facilities, and Congregate Care Centers intended to serve the Massachusetts portion of the Seabrook EPZ. As to this portion of the SPMC, Intervenors, led by the Massachusetts Attorney General, mount a broad assault on the plan, arguing that it provides no reasonable assurances that the EPZ populations will be adequately and/or timely transported, monitored, decontaminated, registered, and temporarily sheltered in the event of a radiological emergency at the Seabrook Station.

### **A. SPMC Evacuation Concept**

9.3. Many of the SPMC's implementing provisions directly or indirectly associated with transporting, monitoring, and sheltering general and special populations are dealt with at length and in detail elsewhere in this decision. However, at this juncture, we believe it useful to outline the SPMC's framework for evacuating the populations of the six separate communities that make up the Massachusetts portion of the Seabrook EPZ. Those communities are Amesbury, Merrimac, West Newbury, Salisbury, Newburyport, and Newbury (including Plum Island and the Parker River National Wildlife Refuge).

9.4. Should an evacuation of the Massachusetts portion of the Seabrook EPZ be ordered, the SPMC assumes, like the NHRERP (Rev. 2), that the vast majority of the general population will use privately owned vehicles to leave the area, and will not require temporary shelter or seek radiation monitoring. Rather, the vast majority of general evacuees will leave the EPZ at an early enough time or by way of a route that avoids the possibility of radiation contamination, and will proceed directly to privately identified temporary housing. In developing the SPMC staffing and equipment needs for those EPZ evacuees that can be reasonably expected to seek radiation monitoring and/or congregate care, the Applicants employed a planning basis that we have previously endorsed for the Seabrook EPZ as a whole. *See Finding 9.49, infra.* That planning basis assumes

that 20% of the total peak general population of the EPZ will seek such services in the event of a radiological emergency.

9.5. Contrary to its assumptions regarding general evacuees, the SPMC assumes that due to their specialized transportation and shelter needs, most if not all special populations (including hospital and nursing home patients, special-facilities residents, school, day-care and nursery children, transit-dependent individuals, and the homebound disabled) residing within the EPZ will require transportation out of the EPZ on NYH/ORO-provided buses, ambulances, or other specialized vehicles, and will require, at least on an interim basis, temporary shelter at an ORO-identified or ORO-sponsored facility. Thus, the SPMC undertakes to transport, monitor, and shelter 100% of the special-needs populations within the EPZ. *See* Finding 9.22, *infra*, and Section 8, above.

9.6. For all special-population evacuees and those general-population evacuees who desire monitoring for radiation contamination, the SPMC provides for the establishment of two reception centers to provide monitoring, decontamination, registration, and congregate care referral services. *See* Appl. Exh. 40, at 4-6.

9.7. One center, located at a Massachusetts Electric Company facility in North Andover, Massachusetts, is intended to serve evacuees from Amesbury, Merrimac, and West Newbury. A second reception center, intended to serve evacuees from Salisbury, Newburyport, Newbury (including Plum Island and the Parker River National Wildlife Refuge) is to be established at a Massachusetts Electric Company facility in Beverly, Massachusetts. *Id.* This second center is the designated facility for the transient beach population. Appl. Reb. No. 17, ff. Tr. 25,423, at 2-3. Under the SPMC as described at hearing, the combined monitoring capacity of both these centers was equal to approximately 30% of the summer and approximately 50% of the winter population in the Massachusetts portion of the Seabrook Station EPZ. *Id.* at 4-5.

9.8. Special populations requiring continuous medical supervision (i.e., all hospital patients and some nursing-home residents, special-facilities residents, or special-needs evacuees) are to be transported by ambulance directly to an MS-1 hospital where monitoring, and, if necessary, decontamination will be performed by trained hospital personnel. Following monitoring and any necessary decontamination, these evacuees will be assigned a bed at the monitoring MS-1 hospital or will be transported to another host hospital or facility. Appl. Reb. No. 6, ff. Tr. 21,049, at 52-53; Appl. Reb. No. 17, *supra*, at 27.

9.9. Evacuees from special facilities and others who might have difficulty processing through a monitoring trailer who do not require continuous medical supervision will be transported first to a reception center for personal monitoring in their vehicle, and then transported to their assigned dedicated Congregate Care Center. If contaminated, decontamination will be performed in a special vehicle located at the reception center. If decontamination cannot be performed at the

center, the special-facilities evacuee will be transported to an MS-1 hospital for further processing. Appl. Reb. No. 6, *supra*, at 52-53; Appl. Reb. No. 17, *supra*, at 26-27.

9.10. Upon arriving at a reception center, vehicles will be monitored for possible radiation contamination. If contaminated, the vehicle will be directed to a controlled parking site for subsequent decontamination. If uncontaminated, the vehicle will be directed to a separate, uncontrolled temporary parking site. Appl. Supp. Reb. No. 17, ff. Tr. 25,424, Attach. A, at 6-7.

9.11. Other than those special populations who will undergo monitoring while "in vehicle," evacuees are to proceed on foot to the center's monitoring trailers after parking their vehicle in the appropriate lot. Appl. Supp. Reb. No. 17, *supra*, Attach. A, at 3. Prior to entering the monitoring trailers, general evacuees will self-register at tables outside the trailers. Special-population evacuees will be registered using evacuation vehicle rosters generated when the vehicle is first loaded. Evacuees will then enter the monitoring trailers to be monitored and, if necessary, decontaminated. *Id.* at 10-11.

9.12. Once declared uncontaminated, evacuees will be released from the controlled portion of the monitoring trailers and permitted to exit to the uncontrolled areas of the center. From the monitoring trailers, evacuees are to walk to the registration area of the center to complete the registration process and, if necessary, obtain referrals to a congregate care facility.

9.13. To provide temporary shelter, the Applicants have identified and made arrangements with thirty facilities in and around Beverly and North Andover, Massachusetts, to provide space for use as Congregate Care Centers in the event of a radiological emergency at the Seabrook Station. These facilities, which will be filled in order of their availability, are to be staffed and administered by officials and volunteers of the American Red Cross. Appl. Reb. No. 6, *supra*, at 25.

9.14. In addition to twenty-eight Congregate Care Centers established for general evacuees, the SPMC calls for the establishment of two dedicated Congregate Care Centers for special-needs populations. While generally administered by ARC officials and volunteers, these centers will rely upon trained personnel accompanying most special populations to provide any necessary specialized care. *Id.*

9.15. One center, located at the Holy Cross College in Worcester, Massachusetts, is to serve all schoolchildren (public, private, day-care, and nursery schools) and their teachers or caretakers from the entire Massachusetts portion of the EPZ. The Holy Cross facility is to function as a short-term shelter until the children are reunited with their parents or guardians. Appl. Reb. No. 6, *supra*, at 60. The other special-needs population Congregate Care Center, to be located at the Shriners' Auditorium in Wilmington, Massachusetts, is to serve all remaining special populations not requiring continuous medical supervision,

including nursing home patients and staff, special-facility residents and staff, and special-needs individuals. *Id.* at 65. Should the capacity of the Shriners' Auditorium be reached, a large facility located in Westboro, Massachusetts, will act as a backup center for excess special populations. Tr. 18,733.

9.16. With varying degrees of vigor, a total of seven contentions was litigated with respect to the SPMC provisions regarding decontamination, reception, and congregate care facilities (and their associated equipment and staff). These are JI-51, and JI-53 through JI-58. As a general matter, these contentions principally question whether there are reasonable assurances regarding the availability of (1) the SPMC emergency response staging area, (2) adequate transportation resources to evacuate the EPZ in a timely manner, (3) adequate monitoring resources at the Beverly reception center, and (4) adequate Congregate Care Centers, particularly in the area of staffing.

## B. Haverhill Staging Area

9.17. Under the SPMC, the Massachusetts Electric Company facility located in Haverhill, Massachusetts, is to be used as a staging area for SPMC vehicles and personnel. *See Appl. Exh. 41*, at 384-404. JI-53 challenges the existence of "reasonable assurances" that this facility will, in fact, be available for that purpose in the event of a radiological emergency. JI-53 is based on the existence of local opposition to this proposed use of the Haverhill facility as evidenced by the issuance of a local cease-and-desist order prohibiting such use. Contentions Memo. at 75-76. *See MAG PF 9.1.26.*

9.18. Subsequent to its admission as a contention in this proceeding, the Massachusetts Courts invalidated the Haverhill Building Inspector's order that supported the contention. *Appl. Exh. 92(a)* and (b). However, in his proposed findings of fact, the Massachusetts Attorney General appears to argue that it is the specter of continued local opposition to the facility's proposed use, not the particular cease-and-desist order offered as "evidence" of that opposition, that should govern the resolution of this contention.

9.19. In ALAB-905, the Appeal Board noted that it would be "speculative" for a licensing board to entertain a contention based on ongoing but unresolved state court zoning proceedings. 28 NRC 515, 519 (1988). Moreover, in our unpublished Memorandum and Order of August 7, 1989, we held that it would be "doubly speculative" to consider threatened, but not yet commenced, state regulatory proceedings. Such is clearly the case here.

9.20. The prior zoning controversy that supported JI-53 has been resolved in a manner that rejects the thesis of that contention. The record is devoid of any evidence of any subsequent attempts to render the Haverhill facility "unavailable" for use as a staging area under the SPMC. In addition, we reject the Attorney General's proposition that the mere existence of local opposition,

ambiguous as to scope, depth, and permanence, to some proposed action renders a portion of an otherwise adequate emergency plan unacceptable. We find reasonable assurance that the Haverhill facility will be available for use as a staging area in the event of a radiological emergency at the Seabrook Station.

### C. Emergency Evacuation Vehicles

9.21. JI-55 raises the issue of whether there is reasonable assurance that sufficient numbers and types of emergency vehicles and drivers will be available in the event of a radiological emergency at Seabrook to implement the SPMC. Contentions Memo. at 77-82. *See MAG PF 9.1.56-62.C.* In a similar vein, JI-58 in part questions whether sufficient personnel and vehicles are under letters of agreement (LOAs) to implement the SPMC. Contentions Memo. at 86-87. *See MAG PF 9.1.132.A-134.*

9.22. Based on the most recent needs assessment, a total of 367 buses, 62 passenger vans, 86 ambulances, 31 evacuation bed buses, and 75 wheelchair vans are required to fully implement the SPMC. Appl. Reb. No. 6, *supra*, Attach. T. As evidence of arrangements that support a finding of reasonable assurance that sufficient transportation resources will be available in the event of a radiological emergency to satisfy these identified needs, Applicants introduced LOAs or Transportation Agreements between NHY/PSNH and twelve bus companies indicating the availability of 530 buses, 166 passenger vans, and 37 wheelchair vans (Appl. Exh. 41, at 11-20, 31-32, 33-42, 56-66, 77-86, 101-10, 111-13, 119-28, 164-73, 498-507, 538-47, and 698-706), eleven ambulance service companies indicating an availability of eighty-nine ambulances and ambulettes (with more current information indicating this number to be ninety-seven, Tr. 21,589), and forty-four wheelchair vans (Appl. Exh. 41, at 88-100, 129-39, 140-49, 175-84, 211-21, 446-416,<sup>55</sup> 471-81, 482-93, 592-601, 707-15, and 716-24), and three tow truck providers indicating the availability of eighteen tow trucks (Appl. Exh. 41, at 1-10, 21-30, and 634-42).<sup>56</sup> In addition to transportation resources subject to written agreements, the Applicants committed to acquire 35 school buses to be reequipped as evacuation bed buses, and to designate and train the necessary personnel to drive those buses. Appl. Reb. No. 6, *supra*, at 23-24.

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<sup>55</sup> The Board notes that Volume 2 of Applicants' Exhibit 41 is mispaginated, with page 449 followed by pages 410-49. For consistency, we cite to the pages of this exhibit as they are indicated on the document itself.

<sup>56</sup> In his proposed findings, the Attorney General characterizes Appl. Exh. 41 as uncorroborated hearsay not sponsored by any witness competent to authenticate the LOAs or transportation agreements. MAG PF 9.1.58.B-58.C. This eleventh hour objection is too late. Despite a clear opportunity to raise these objections in a timely manner (*see, e.g.*, Tr. 19,490, 19,492), no Intervenor interposed any such objections to the receipt of these documents into the record. Having failed to hear from Intervenors then, we are inclined not to hear them now. However, even if the proffered agreements were construed as technical hearsay, we believe there are sufficient indicia of reliability concerning their formation and terms to warrant their acceptance.

9.23. The written agreements, the majority of which are formal Transportation Agreements with transportation and road-service resource providers, set out the terms and conditions under which the committed personnel would receive training, and the committed transportation or road service resources would be made available in the event of a drill or an actual emergency. Appl. Exh. 41, *passim*.

9.24. The agreements, in the form of prepaid retainer contracts, specifically provide that:

[NHY/PSNH] hereby retains the Contractor to furnish the required manned vehicles as set forth in Schedule A which is attached hereto and forms a part hereof, for the [SPMC]. To support said plan, the contractor agrees, promptly after notification of a drill, exercise, or emergency, to make available all requisitioned vehicles and personnel for the Company's use, and will supply fuel, keys, certificates of registration, license plates, tags, etc., so that the vehicle can be placed in use promptly. All vehicles supplied by the Contractor will be in good operational condition and safe and fit for use, and any drivers thereof will be duly licensed as customarily required by the Contractor.

*See id.* at 634 (MOERP-130, "Scope," at 1).

9.25. Moreover, these 5-year agreements (*id.* at 638) provide a continuous mechanism through which the Applicants can monitor the general availability of transportation and road service vehicles. Under the terms of the agreement, a provider's right to its advance quarterly retainer payment is dependent upon the submission of invoices

detailing the type and total number of vehicles being made available to [NHY/PSNH], the available vehicles under prior commitment, the available vehicles *not* under prior commitment, vehicle year location, capacity, identification and plate numbers, and the names and social security numbers of the available drivers.

*Id.* at 636.

9.26. Based on a survey of the transportation and road service providers listed in the SPMC and a determination that the resources under written agreement satisfied the transportation needs identified by the SPMC, FEMA has found that there are sufficient emergency vehicles (and by implication, drivers) to satisfy the transportation needs identified in the SPMC.<sup>57</sup> Appl. Exh. 43C, at 17-18, 61-62, 64-65, 67. *See also* Tr. 18,952 (number of buses under written agreement are adequate to implement the SPMC and respond to the actual transportation needs determined at the time of an emergency).

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<sup>57</sup> Because its review was based on a prior transportation needs assessment, FEMA's finding does not appear to encompass the Applicants' commitment to acquire and rely upon thirty-one evacuation bed buses to service some evacuees. *See* MAG PF 9.1.61.C.

9.27. The Attorney General asks us to discount FEMA's finding on this issue for two reasons. First, the Attorney General asserts that FEMA's "finding" in large measure simply characterizes as adequate mere SPMC statements of resources without subjecting those statements to any meaningful analysis and independent verification. *See, e.g.*, Appl. Exh. 43C, at 61-62, 64-65, 67. Second, he argues that the survey upon which FEMA's finding is principally based is unreliable and flawed because the underlying FEMA survey failed to explore the issue of driver availability despite information suggesting a possible problem (Tr. 18,911-15), and because no competent witness could personally attest to the accuracy of the survey results. As set out below, we find that the Attorney General advances no basis to deny FEMA's finding the weight it is entitled to under the Commission's Rules of Practice.

9.28. The fact that FEMA references the SPMC-identified transportation needs does not detract from FEMA's ultimate finding that sufficient transportation resources are under written agreement to satisfy those needs. In addition, contrary to the Attorney General's assertion, the FEMA official, Mr. Donovan, who testified for the agency, personally reviewed the survey information to verify its accuracy against the resource numbers represented as available in the SPMC. Tr. 18,106-08, 18,831-33, 18,836. Finally, while FEMA did not go behind the written agreements to independently assess the human behavior issue of whether individual drivers would actually respond in the event of a radiological emergency (Tr. 18,913), both FEMA and the Applicants correctly point out that neither the planning standards nor the criteria of NUREG-0654 require such an inquiry.<sup>58</sup> And while indications of driver unavailability might trigger a need to go beyond the face of written agreements to independently assess driver availability (*Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-836, 23 NRC 479, 516-20 (1986)), in light of the scope of FEMA review criteria (Tr. 18,915-17), we do not believe that FEMA's failure to conduct an extraordinary review of driver availability in this case warrants a rejection of its affirmative finding on this issue.

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<sup>58</sup> Citing LBP-88-32, *supra*, 28 NRC at 693, the Attorney General maintains that this Board has previously concluded that the Applicants might not be able to rely on drivers where the LOA signatory could not predict the response of his drivers in an emergency. MAG PF 9.1.57.E. The Attorney General is simply wrong on this score. There we noted in connection with the testimony of one LOA signatory that:

at the time of the hearing, he could not remember if he had committed the 300 drivers listed in the LOAs he signed. More succinctly stated, he could not remember if he wrote in the figures that appear in the LOAs. Guadagna Reb., ff. Tr. 8117, at 3. We are therefore unsure whether the Applicants may rely on these 300 drivers. However, Mr. Guadagna further stated that he could not predict the response among his drivers. *Id.* Any assessment he could offer regarding his drivers' response would therefore be an unsubstantiated opinion.

As the quotation above makes clear, the Attorney General has linked the conclusion of one point with the facts of another.

9.29. We hold that detailed written agreements such as those proffered by the Applicants here are sufficient, in terms of their formality and the number of vehicles they cover, to support a finding of reasonable assurance on the issue of transportation resource availability in the absence of competent and probative evidence indicating that a particular provider cannot or will not comply with the terms of the agreement. We also have no difficulty finding that the Applicants have, in this case, sufficient vehicles under *contract* to satisfy the Commission's emergency planning requirements on that score. We now turn to the Attorney General's evidence suggesting that the number of vehicles the Applicants have under contract is not the number of vehicles available to respond in the event of a radiological emergency.

9.30. As evidence that particular providers cannot or will not comply with the terms of their LOA or transportation agreement, the Attorney General proffered the results of surveys of most transportation providers conducted by two of his employees. *See Mangan Dir., ff. Tr. 19,429, passim.* The stated purpose of these surveys was "to determine what the people that were running these companies believe their responsibilities to be."<sup>59</sup> Tr. 19,387-88. The information generated through these surveys destroys, the Attorney General argues, the factual basis upon which Applicants maintain that sufficient numbers of ambulances, buses, and tow trucks will be available in the event of a radiological emergency at the Seabrook Station to implement the SPMC in a timely and adequate manner.<sup>60</sup> MAG PF 9.1.58.

9.31. The Attorney General suggests, based on his survey of ten of the eleven ambulance providers, that at a certain point in time, it appeared that ten of eleven providers could deliver only fifty-eight of seventy-seven committed ambulances or their equivalent. *Mangan Dir., supra*, at 20-21. Specifically, six ambulances were unavailable due to then-existing prior contractual commitments. *Id.* at 12, 14, 16. Thirteen ambulances were unavailable due to changes in the business operation of the provider. *Id.* at 13-14. Adding the twelve am-

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<sup>59</sup> While the two employees who conducted these surveys may be experienced investigators, they have no background in emergency planning (Tr. 19,273-75), or human behavior (*Mangan Dir., supra*, at 3-6). Accordingly, their testimony was admitted solely as to the facts derived from their surveys. Tr. 19,247-49. To the extent their testimony can be characterized or is cited as offering an opinion on issues of emergency planning, human behavior, or the existence of reasonable assurances that transportation resources and personnel will or will not be available in the event of a radiological emergency, their testimony is entitled to and is given no weight by this Board. Tr. 19,249.

<sup>60</sup> While permitting information reflecting a particular company's historical experience regarding its drivers' reaction to emergencies (Tr. 19,259), the Board rejected the Attorney General's initial attempts to offer the investigators' views on drivers' response in the event of a radiological emergency (Tr. 19,262-64, 19,269). To the extent the Attorney General seeks to mount such a challenge (*see MAG PF 9.1.57.B-57.F*), his transportation provider survey is wholly inadequate as support. We note that, while taking FEMA to task for failing to probe driver availability, the Attorney General's investigators themselves made no attempt to conduct any structured survey of drivers and limited themselves to seeking the "impressions" of transportation provider officials. Such evidence is wholly inadequate to trigger any need to question a provider's ability to deliver the number of manned vehicles specified in their LOA or transportation agreement. *See LBP-88-32, supra*, 28 NRC at 693; *Limerick, ALAB-836, supra*, 23 NRC at 516-19.

bulances from the provider that the Attorney General did not contact results in an apparent availability of sixty ambulances to meet the SPMC-identified need for eighty-six such vehicles. *See Appl. Reb. No. 6, supra*, Attach. T. The investigators were also led to believe that a majority of those vehicles could not be counted on to drive into contaminated areas.<sup>61</sup>

9.32. The results of the Attorney General's survey point out one of the realities of emergency planning. Over time, needs change and the identities and/or capacities of companies or organizations identified to provide the resources necessary to satisfy those needs change with them. This is why emergency planning is a dynamic rather than static process, and, in the area of resource providers, subject to verification at least annually, if not quarterly. *See Tr. 18,916-17 and Finding 9.25, supra.* Indeed, we suspect that the Attorney General's survey itself is now dated.

9.33. While reliance on a provider might not be justified where prior contractual commitments result in significant numbers of ambulances being functionally unavailable for extensive periods of time, we do not view the number identified by the Attorney General's survey to be sufficiently significant to warrant a finding that there is no reasonable assurance that the transportation needs of the SPMC will be satisfied. In addition, the thirteen ambulances potentially unavailable at the time of the Attorney General's survey do not shake our confidence that sufficient vehicles will be available in the event of a radiological emergency. In our view, such eventualities are assumed under the Commission's emergency planning criteria, and they are the basis for the need to periodically monitor the viability of agreements, and thus do not provide a basis, at least in terms of the numbers at issue here, to find the SPMC deficient in this area.

9.34. Finally, several other factors led us to retain our confidence that sufficient ambulances will be available to implement the SPMC notwithstanding the results of the Attorney General's survey. Information subsequent to the Attorney General's survey suggests that a pool of ninety-seven ambulances, rather than a pool of eighty-nine at the time of the survey, now exists. *Tr. 21,589.* The Attorney General's own survey suggests that his availability projections may be conservative. One provider who had contracted to provide two ambulances from his fleet of four indicated that it "has agreed to make *all* ambulances available at the time of a disaster (emphasis in original)." Mangan Dir., *supra*,

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<sup>61</sup> We reject the Attorney General's argument regarding the availability of vehicles, both ambulances and buses, for use in contaminated areas. Not only does this argument touch in large measure on human behavior issues, it is outside the range of issues that this Board need address in determining whether transportation resources are adequate. While history is filled with examples of emergency workers, or volunteers, who push onward in the face of great personal danger, we know of no Commission rule or case law that requires the Applicants to establish that emergency workers and other personnel are willing to subject themselves to radiation contamination in the performance of their mission.

at 7. Another stated that it would provide a minimum of two ambulances and "might be able to provide additional ambulances." *Id.* at 8. Still another stated that it was reassessing its ability to participate due to reductions in its fleet size, and any new contract would be for less than the originally promised four ambulances. Yet, the Attorney General discounted this provider entirely. *Id.* at 18-19. Finally, should a radiological emergency occur and insufficient ambulances under written agreement prove available, there is an untapped source of vehicles either from companies located within the EPZ or through the Governor operating under his emergency powers (which the Commission's realism rule assumes he would exercise if necessary). Tr. 21,370, 21,386, 21,404.

9.35. Based on their survey, the Attorney General's investigators believe that at certain times, particularly during typical "school bus hours," significantly fewer buses will be available for use than the 367 identified by the Applicants as necessary to implement the SPMC. In addition, they believed that due to high driver turnover and/or difficulties in contacting drivers during "off-hours," particularly during the summer and on evenings and weekends, there is no assurance that sufficient numbers of trained drivers will be available to man the buses. Finally, the investigators noted that some company managers expressed concern that their buses or drivers might be asked to enter contaminated areas in connection with any evacuation. Mangan Dir., *supra*, at 36-37.

9.36. However, unlike the case with respect to ambulances, the investigators did not state a belief as to what the actual number of buses is likely to be. Their failure is both understandable and telling. The short answer to the Attorney General's concerns regarding bus availability is that the Applicants have already incorporated compensatory measures to overcome the possibility of bus unavailability by entering into written agreements that create a bus pool equal to 144% of the SPMC's projected need, and a passenger van pool equal to 193% of the SPMC's projected need. Compare Appl. Reb. No. 6, *supra*, Attach. T, with Appl. Exh. 41, *passim*.

9.37. More significantly, the Attorney General's investigators appear to have failed to recognize that a direct relationship exists between the availability of buses and drivers and the need for buses and drivers under the SPMC. Approximately half of the buses needed to implement the SPMC (188 of 367 buses) are committed to the transportation of school, day-care, and nursery-school children. Appl. Reb. No. 6, *supra*, Attach. T. The actual need for buses will be determined at the time of any emergency based on telephone contact with each affected school, day-care center, or nursery. *Id.* at 28. Should buses be unavailable because they are already transporting schoolchildren, not only is the need for buses less, the response time of the available buses and their

drivers is enhanced dramatically.<sup>62</sup> In addition, the times or hours (e.g., evenings, weekends, and summers) when drivers are, according to the Attorney General, the least available also correspond to the times when the need for those drivers and the buses they are to drive to transport schoolchildren is at its lowest.

9.38. The Attorney General further points out that the McGregor-Smith Bus Company, the single largest source of buses claimed by the Applicants, has refused to sign a Transportation Agreement with the Applicants, and argues from this that this source of buses should be eliminated from the Applicants' vehicle pool. MAG PF 9.1.60.I. *See* Mangan Dir., *supra*, at 24; Tr. 19,441-42.

9.39. We need not resolve at this juncture whether the McGregor-Smith Bus Company repudiated its commitment to act as a transportation provider (or was induced to do so due to inappropriate community or economic pressure brought about by the Attorney General's own improper identification of the company as an SPMC provider), or to act on the Attorney General's outstanding motion to strike the company's LOA which appears at Appl. Exh. 41, at 31-32. *See* Tr. 19,492-96. Transportation needs and the identity of providers counted on to satisfy those needs change over time. Tr. 18,916-17. Because, for example, bus needs are determined under the SPMC based on 100% of all schoolchildren notwithstanding the fact that school attendance is generally less than 100%, there is inherent conservatism in the SPMC-identified bus needs. Moreover, we note that even without the 120 McGregor-Smith buses, the Applicants still have more buses subject to a written agreement than is necessary to satisfy the transportation needs of the SPMC.

9.40. We find that the number of buses under written agreement, even absent the McGregor-Smith LOA, is sufficient to provide reasonable assurance that sufficient buses will be available in the event of a radiological emergency to implement the SPMC. We note, however, our understanding and expectation that the availability of buses, like all other vehicles, will be monitored and periodically updated to reflect present realities.

9.41. As to the availability of tow trucks, the Attorney General's investigators testified that their survey led them to believe that one provider who had committed to provide up to two tow trucks would not respond in the event of a radiological emergency due to a dispute regarding payment. Mangan Dir., *supra*, at 38. Even accepting this information as true, it is of no moment. The remaining sixteen tow trucks under transportation agreement provide, in our view, the requisite reasonable assurance that the SPMC's identified need for twelve such vehicles can be met. *See* Appl. Exh. 43C, at 67.

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<sup>62</sup> We note parenthetically that during nonschool hours, the projected evacuee load of each reception center is significantly less since only 20% rather than 100% of the school, nursery, and day-care special populations will seek monitoring and temporary shelter. *See* Findings 9.5, *supra*, and 9.54-9.55, *infra*.

9.42. As to the proposed use of evacuation bed buses, the Attorney General challenges the adequacy of the compensatory measure on both legal and factual grounds. The Board has already rejected the Attorney General's argument that the availability of these bed buses cannot be relied upon as a matter of law. *See* Findings 8.52-8.55, *supra*.

9.43. We also reject the Attorney General's argument that the 11% margin of reserve for bed buses (thirty-five acquired to satisfy an identified need of thirty-one) is inadequate in light of the SPMC's provision of an approximate 30% margin with respect to regular school buses. MAG PF 9.1.61.D. Unlike regular school buses, these bed buses will not be subject to prior, priority commitments. We find that thirty-five evacuation bed buses provide reasonable assurances that thirty-one such vehicles can reasonably be expected to be available in the event of an emergency.

9.44. Finally, the Attorney General argues that absent some evidence that the Applicants have purchased or have entered into written agreements providing for the requisite number of bed buses, there is no reasonable assurance that such vehicles will be available in the event of a radiological emergency. This challenge has merit. While the Applicants have solicited bids to furnish such buses (*see* Appl. Exh. 84, at 4, 5), the Applicants have yet to obtain by purchase or lease any vehicles to be used as evacuation bed buses. Tr. 12,179. Nor does the record reflect any letters of agreement with any resource providers to furnish evacuation bed buses in the event of an emergency. Appl. Exh. 41.

9.45. Subject to the acquisition or execution of written agreements ensuring the availability of the thirty-five evacuation bed buses, we find that there is reasonable assurance that sufficient emergency transportation vehicles will be available to implement the SPMC in the event of an emergency at the Seabrook Station.

#### D. Reception Centers

9.46. Two contentions (JI-56 (Bases A and B) and JI-57) challenge the existence of reasonable assurance that the monitoring and interim waste-handling procedures and resources contemplated under the SPMC for the Beverly and North Andover reception centers will prove adequate in the event of a radiological emergency at the Seabrook Station. Bases A and B of JI-56 focus on the ability of the centers to monitor within about 12 hours the numbers of evacuees that should be expected to make use of the centers.<sup>63</sup> *See* MAG PF 9.1.63-78.QQ. JI-57 raises the issue whether the SPMC contains adequate provisions for the interim handling of contaminated liquid and solid waste generated at

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<sup>63</sup> By Board ruling of January 26, 1989, Intervenors were barred from litigating under JI-56 the adequacy of the provisions of the SPMC relating to decontamination showers at the reception centers. *See* Tr. 19,141.

the reception center as a result of monitoring and decontamination activities. Contentions Memo. at 85-86.

9.47. In response to Contention 56 (Bases A and B), Applicants presented a panel of witnesses consisting of Joseph Bisson, Emergency Planner, Impell Corporation (Qualifications, ff. Tr. 25,423); Anthony M. Callendrello, Manager, Emergency Preparedness Licensing, New Hampshire Yankee (Qualifications, ff. Tr. 17,318); Robert Cotter, Emergency Planning Specialist, Aidikoff Associates (Qualifications, ff. Tr. 25,423); and Peter Littlefield, Manager, Radiological Engineering Group, Yankee Atomic Electric Company (Qualifications, ff. Tr. 25,423). Appl. Reb. No. 17, *supra, passim*. The Board finds that each of these witnesses was competent to testify with respect to the matters that each addressed.

9.48. In evaluating the adequacy of the SPMC's provisions for monitoring evacuees for possible contamination, we start with the requirements of NUREG-0654, Criterion J.12, which states:

*The offsite response organization shall describe the means for registering and monitoring of evacuees at relocation centers in host areas. The personnel and equipment available shall be capable of monitoring within about a 12-hour period all residents and transients in the plume exposure EPZ arriving at relocation centers.*

NUREG-0654, Rev. 1, Supp. 1, § II.J.12 (emphasis added). Also relevant, to some degree, is Criterion H, which requires that adequate emergency facilities and equipment to support the emergency response be provided. *Id.* § II.H.

9.49. In developing the SPMC, the Applicants used a planning basis (consistent with that generally recommended by FEMA) that assumed 20% of the peak population within the EPZ would report to a reception center in the event of a radiological emergency at the Seabrook Station. Because this planning basis was not adequately challenged, we concluded in LBP-88-32, *supra*, 28 NRC at 712-15, that it was appropriate for use with respect to the New Hampshire portion of the Seabrook EPZ. In an unpublished Order of January 26, 1989, we subsequently concluded that this finding was applicable to the entire Seabrook EPZ, including the Massachusetts portion of the EPZ.

9.50. Based on a review of the SPMC, FEMA has found that its provisions with respect to registration, monitoring, and decontamination equipment and staff at each reception center are adequate. Appl. Exh. 43C, at 44-47, 72-74.

9.51. As is the case with most of FEMA's findings on the SPMC, the Attorney General first attempts to characterize the FEMA finding as unworthy of any presumptive weight. He urges the Board to find FEMA's "finding" on the SPMC's monitoring resources to be nothing more than the product of an uncritical acceptance of mere assertions of monitoring loads and resources in the plan which have been neither subjected to any analysis nor evaluated against

any consistent or clear review standards on the part of FEMA. MAG PF 9.1.64. This all-too-familiar drumbeat has been rejected as hollow elsewhere (*see, e.g.*, Finding 9.28, *supra*, and Sections 1, 3, and 11 generally) and is similarly rejected here.

9.52. We thus turn to the Attorney General's second avenue of attack, which is an attempt to erode any support for the factual assumptions and numerical calculations relied upon by the Applicants to identify the monitoring resources that must be provided under the SPMC. Here the Attorney General mounts a wholesale assault on the three figures developed by the Applicants which, when taken together, formed the basis for the SPMC monitoring resources at issue here: (1) evacuee monitoring load, (2) hourly monitoring capacity, and (3) vehicle parking capacity. We deal with each of these critical figures in turn below.

## E. Evacuee Monitoring Load

9.53. The number of evacuees a reception center is reasonably expected to service, or "monitoring load," is of critical importance since it is against this load that a center's equipment and personnel needs necessary to satisfy NUREG-0654, Criterion J.12, are determined. To determine the applicable evacuee monitoring load, the Applicants first estimated the peak population to be evacuated from the Massachusetts portion of the Seabrook EPZ during both the summer and off-season months for each reception center. The Applicants next multiplied the peak summer and off-season population (less the number of special-facility and special-needs, school and day-care, and transit-dependent populations) by 20%, the planning basis we have previously found appropriate for the Seabrook EPZ. To this number the Applicants added back 100% of the three excluded categories of evacuees since the SPMC assumes all of these NHY/ORO-transported evacuees will be monitored at a reception center. The Applicants then distinguished between those evacuees who would be monitored while remaining in their vehicle ("in-vehicle" load) and those evacuees who would be monitored through a monitoring trailer (trailer load). The largest number for either center during either season was then used as the planning basis for both centers. Appl. Reb. No. 17, *supra*, at 2.

9.54. In determining the peak summer evacuee load of the Beverly center, the Applicants discounted the transient beach population by 50% (10,121) to account for day trippers who were either already considered as part of the EPZ permanent population or who could be reasonably expected to evacuate to their homes rather than a reception center. Using this same rationale, the Applicants similarly discounted "vehicles in transit" (122.5 vehicles carrying 294 evacuees), and eliminated EPZ employees from their monitoring-load calculations. *Id.* at 3; Tr. 25,900-03. In addition, because the peak summer population occurs

on a weekend when neither schools nor day-care centers would be in session, the Applicants' peak summer evacuee load did not separately consider these categories of evacuees beyond their inclusion as part of the permanent resident population. Appl. Reb. No. 17, *supra*, at 4, 7.

9.55. Based on the analysis and assumptions above, the Applicants selected the Beverly reception center, with an off-season total monitoring load of 12,830 (trailer load, 10,712; in-vehicle load, 2118) as the governing planning basis. By way of comparison, the summer evacuee load of the North Andover reception center was estimated to be only 8076 (trailer load, 6981; in-vehicle load, 1095). *Id.* at 4-5.

9.56. The Massachusetts Attorney General advances essentially three arguments for the proposition that the Applicants have incorrectly assessed the trailer monitoring load of the governing Beverly reception center. In summary, those arguments are that the Applicants improperly: (1) used outdated population figures instead of more current data indicating a higher permanent resident population, (2) assumed that only 31% of the beach vehicles (and thus the beach population) should be allocated to the Massachusetts portion of the EPZ, and (3) excluded beach day trippers and EPZ employees from their monitoring-load calculations. MAG PF 9.1.78.BB-78.FF.

9.57. In support of his attack on the population estimates that formed the basis for the Applicants' monitoring-load forecast, the Attorney General offered the testimony of Dr. Colin High. In summary, Dr. High testified that the Applicants had underestimated the peak trailer monitoring load for the Beverly reception center by 2456 evacuees. Tr. 27,980. Compare Appl. Reb. No. 17, *supra*, at 5, with High Dir., ff. Tr. 27,974, at 7.

9.58. As we understand the parties' respective analyses and arguments, there is really no significant dispute as to the estimated total population within the EPZ on a peak summer weekend.<sup>64</sup> While one might spar over the necessity to use newer town census data and the proper allocation of beach populations between Massachusetts and New Hampshire, neither of these factors is a significant contributor to the discrepancy between the Applicants' and Dr. High's trailer monitoring-load estimates. Indeed, both these arguments were raised in connection with the SPMC evacuation time estimates and have already been

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<sup>64</sup> On cross-examination, Dr. High explained that his monitoring-load calculations differed from the Applicants' due to his use of different assumptions in four areas. First, he used newer town clerk census data reflecting a larger resident EPZ population. This produced a "small increase" in the monitoring load. Second, he assigned 40% of the transient EPZ beach population to the Massachusetts portion of the EPZ while the Applicants had assigned 31%. This resulted in "some" increase. Third, he included non-EPZ residents who worked in the EPZ, on the assumption that the Applicants' calculation included this category. This produced an additional 3293 evacuees. Fourth, he included 93% of the beach transient population in calculating the Beverly monitoring load while the Applicants included only 50% in their calculations. This was the major contributor to his higher monitoring-load calculation, accounting for over 10,000 additional evacuees. Tr. 27,986-94. However, he generally acknowledged that as a practical matter, the latter two categories accounted for all of his additional monitoring-load evacuees. Tr. 27,991, 27,993-94.

rejected in that context. *See Findings 2.38–2.41 and 2.44–2.46, supra.* In addition, the ETE models assumed that approximately 50% of the transient beach population were day trippers. *See Tr. 27876; NHRERP, Vol. 6, at 2–12.* Dr. High does not appear to question this assumption. The real dispute is over how the day-tripper portion of the transient beach population and EPZ employees should be accounted for in determining the trailer monitoring load of the Beverly reception center.

9.59. As noted above, the Applicants had excluded EPZ resident day trippers and employees because they had already been considered as part of the permanent EPZ population. It excluded non-EPZ resident day trippers and employees because it assumed they were unlikely to require congregate care. Thus, under the Applicants' approach, 20% of the former category would go to a reception center while none of the latter category would do so.

9.60. In Dr. High's view, there is no rational reason to treat nonresident day trippers any different from resident day trippers in calculating the reception center monitoring loads. They are within the EPZ, hear the same EBS broadcasts, and receive the same evacuation instructions. Common sense, Dr. High argues, suggests that non-EPZ resident day trippers and employees will react in a manner similar to their EPZ-resident counterparts, and thus should be considered as part of the evacuating population bound for a reception center. High Dir., *supra*, at 5–7; Tr. 28,005–06, 28,010–17, 28,022. *But see* Finding 3.59, *supra*. From this logic, the Attorney General argues that NUREG-0654, Criterion J.12 requires the Applicants to demonstrate the capacity to *monitor* in about 12 hours all of the evacuating public that would use a reception center. In LBP-88-32, we held that the Applicants could properly use a planning basis that assumed that 20% of the total EPZ population would make use of the reception centers. 28 NRC at 714–15. Thus, according to the Attorney General, 20% of both the non-EPZ day trippers and employees should also be considered as part of a reception center's monitoring load.

9.61. On its face, the Attorney General's argument and the logic of Dr. High's analysis seem unassailable. However, while we agree with the Attorney General that non-EPZ day trippers must be considered in determining each reception center's monitoring load, we do not find the numbers or impact of these uncounted evacuees to be as significant as the Attorney General suggests.<sup>65</sup> Our prior conclusion that a monitoring planning basis of 20% is appropriate for the Seabrook EPZ is not so inflexible as to ignore possible variations among categories of evacuees so long as, at a minimum, the overall planning basis for

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<sup>65</sup> The Attorney General argues that we should either use the Applicants' population figures employed to determine ETEs or find that those estimates are unrealistic. Because this argument incorrectly assumes that the purposes of ETE and monitoring-load calculations are the same, we reject it. It ignores the behavioral differences between an evacuating public (whose universal goal is to leave the area) and that portion of that evacuating public expected to arrive at a reception center (who may have different reasons to make this site their evacuation destination).

each reception center is satisfied. For example, during the summer months, the SPMC itself adjusts monitoring loads to take into account the fact that 100% of certain categories of evacuees will flow through a reception center. The Attorney General argues that all day trippers and employees should be treated similarly, yet he advances a proposition that essentially requires that we treat these evacuees dissimilarly in terms of the human behavior factors that underlie one's use of a reception center.

9.62. Under the SPMC, reception centers provide three services: monitoring, decontamination, and referral to temporary shelter. Similarly, to the extent an individual has a choice, an evacuee will go to a reception center for two reasons: to be monitored for possible contamination and/or to obtain temporary shelter. We hold that the applicable monitoring-load planning basis includes as subsets evacuees who use a reception center (1) for monitoring services only, (2) for both monitoring and congregate care services, and (3) congregate care services only. In the context of the Attorney General's instant argument, EPZ-resident day trippers and employees have no choice. They cannot evacuate to their homes since they are within the EPZ. Thus, the 20% of this group contains evacuees from all three subsets of the planning basis. Non-EPZ-resident day trippers and employees, on the other hand, do have a choice. Since their homes are outside the EPZ, they have no need (and thus no motivation) to seek congregate care through a reception center. It is safe to assume that those day trippers and employees who had already planned to return to their non-EPZ homes at the end of the day will not make use of a reception center for that purpose. Thus, this group would contain evacuees only from the first subset of the planning basis. Treating the two groups similarly, as the Attorney General argues we must, we are led to the conclusion that non-EPZ-resident day tripper and employees will use reception centers at a rate below that of their EPZ-resident counterparts because of their different reasons for such use.<sup>66</sup>

9.63. The difficulty rests with calculating the factor by which we should discount the number of non-EPZ day trippers and employees to account for their lower usage rate. Under our construction of the elements making up the applicable planning basis, both the Applicants' (total discount) and the Attorney General's (no discount) suggestions are of no assistance. Clearly the proper discount is more than zero and less than 100%. As a practical matter, we believe that the number of non-EPZ day trippers and employees who would

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<sup>66</sup>The Applicants' monitoring calculations assume that 20% of all beach transients other than day trippers will go to a reception center. We believe that this assumption is conservative. Many beach transients who do not qualify as day trippers stay for periods of a month, a week, or less. Given the accident scenario employed by the Attorney General to develop his case, we believe that many of these beach transients would not seek temporary shelter at a reception center but would instead simply cut their vacation short and evacuate to their permanent non-EPZ homes. Indeed, given the Attorney General's suggestion that bus and ambulance drivers would not enter contaminated areas, it is likely that he would agree.

not go to a reception center because of their absence of a need for congregate care is likely to be substantial. Nonetheless, to be conservative, we believe that it is reasonable to assume that only 25% of non-EPZ-resident day trippers and employees will fall in the third category (needing neither monitoring nor temporary shelter) of the planning basis. That is, the non-EPZ-resident day trippers' and employees' reception center usage rate will be 75% of that usage rate (20%) of EPZ-resident day trippers and employees.

9.64. However, Dr. High also recognized that the transient beach population must be reduced by some factor to account for EPZ residents who are already considered as part of the permanent EPZ population. *See* High Dir., *supra*, at 6; Tr. 28,033. Based on data from NHRERP, Vol. 6, Attach. M, Dr. High initially determined that the proper reduction factor was 7%. *Id.*; Tr. 27,991-92, 28,005, 28,007-10. As noted above, Dr. High himself admitted that it would not be appropriate to consider all day trippers since some portion of that group are EPZ residents who have already been considered. He admitted that his original discount of 7% was based on his misreading of data contained in the NHRERP. Tr. 28,033. He went on to acknowledge that for the Massachusetts portion of the EPZ, the proper discount would be at least 7.3% for beach community residents *plus* some additional, unknown percentage for nonbeach EPZ communities. Tr. 28,034.

9.65. In his proposed findings, the Attorney General notes that the proper discount could be as much as 15%, but that neither the Applicants' ETE information nor LBP-88-32 discounted the beach population on this basis. From this and in light of the absence of evidence indicating precisely what that figure should be, the Attorney General argues that this Board should make no discount in the beach population.

9.66. Despite the Attorney General's urging that we accept Dr. High's testimony except on the proper discount for beach community residents, we adopt as our starting point Dr. High's testimony that 7.3% of the transient population at the beach is made up of beach community residents. In addition, we believe that it reasonable to assume that residents from nonbeach EPZ communities, at a minimum, make up a similar percentage of the transient beach population. Thus, we hold that the transient beach population should be discounted by 15% to account for permanent EPZ residents already considered in the monitoring-load calculation.<sup>67</sup>

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<sup>67</sup> We believe this discount to be extremely conservative. The permanent nonbeach EPZ population is far greater than the permanent beach EPZ population. *See* Appl. Supp. Reb. No. 16, ff. Tr. 28,135, Attach. B. Thus, assuming that the motivation to go to the beach on a hot summer weekend is generally the same throughout the EPZ, the greater pool of beachgoers from the nonbeach towns should result in greater numbers at the beach in comparison to the much smaller beach town population. However, in arriving at our 15% discount rate, we take no credit for this.

9.67. Applying our findings above, we start from the number of total evacuees from which Dr. High's extra 2456 evacuee monitoring load is derived: 12,280. Discounting this number by 15% to control for double-counting of EPZ residents results in a total of 10,438 uncounted evacuees. Of this number, the 20% planning basis indicates that 2088 would normally go to a reception center. However, as we have found, it is reasonable to assume that at least 25% of this number would forego seeking service at a reception center because they have no need for congregate care shelter. Reducing the 2088 evacuees by 25% produces a final additional monitoring load of 1566 over and above the 10,712 that the Applicants have already planned for. Accordingly, we find that the appropriate trailer monitoring load for planning purposes should be 12,278 evacuees, with the average hourly evacuee flow being 1023.

#### F. Hourly Monitoring Capacity

9.68. Under a static approach focusing on what currently exists, an assessment whether the hourly monitoring capacity of the governing Beverly reception center is sufficient to provide reasonable assurances that NUREG-0654, Criterion J.12, will be satisfied turns on two factors: the number of evacuees each monitoring station can reasonably process in an hour and the number of monitoring stations at each center. However, under a dynamic approach similar to that underlying emergency planning generally, an assessment of hourly monitoring capacity is a two-step process. First, one determines how many monitoring stations are necessary to satisfy Criterion J.12 by dividing the hourly monitoring load by the number of evacuees one monitoring station can process in an hour. Second, one determines whether there are any impediments to a successful implementation of a requirement that the requisite number of stations (and staff) be available in a timely manner. As is clear from our discussion below, we adopt the dynamic approach.

9.69. At the outset, the Attorney General argues that we should employ a static approach in evaluating the monitoring capabilities of the governing Beverly reception center. He urges us to ignore the Applicants' commitment to amend the SPMC to add a two-station (four-person) monitoring trailer to the seven-station (fourteen-person) monitoring trailer currently available for use at each reception center. MAG PF 9.1.75-75.A. The Attorney General points out that the Applicants' panel did not know whether the trailers had been ordered; did not know whether the trailers, when they eventually are acquired, would come equipped for monitoring or would then have to be retrofitted for that function (Tr. 25,438); could not state where the additional monitoring trailer would be located at each center; could not explain what the flow path would be between the new trailers (which have no decontamination facilities) and the old ones (with decontamination facilities) (Tr. 25,439-40); and could not commit that the

additional monitoring stations would be available for use prior to full-power operation (Tr. 25,438).

9.70. In the Attorney General's view, the absence of implementing details regarding the "what" and the "when" of the proposed additional monitoring stations renders the Applicants' commitment a mere illusion — "[in]sufficiently developed to permit the board to make its 'reasonable assurance' finding." *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1104 (1983).

9.71. The Attorney General's reliance on *Waterford* is misplaced. As that decision recognized, at this juncture, our task is not to assess what is, but rather, to determine what needs to be and whether there is reasonable assurance that what is necessary can be acquired or performed in a timely manner. See *Waterford*, ALAB-732, *supra*, 17 NRC at 1104, citing 46 Fed. Reg. 61,134, 61,135 (Dec. 15, 1981). Thus, where commitments to amend an emergency plan are "sufficiently detailed and concrete" to support a predictive finding (i.e., reasonable assurances) "that they can and will be implemented in the event of an emergency," a Board may make the requisite finding and leave to the Staff the duty of ensuring implementation of that commitment. *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), LBP-82-100, 16 NRC 1550, 1563, 1578 (1982). See *Waterford*, ALAB-732, *supra*, 17 NRC at 1105.

9.72. We do not find the Applicants' commitment here so ethereal that it requires rejection. The Applicants have committed that the additional monitoring stations will be similar in configuration, operation, staffing, and capabilities as that of the seven existing monitoring stations. Appl. Reb. No. 17, *supra*, at 12-13. The existing monitoring stations and proposed staffing levels have been described in detail by the Applicants, and their capabilities and limitations fully litigated by the Intervenors. Thus, at least for our purposes here, we believe that the record underlying the Applicants' commitment is sufficiently detailed and concrete as to the nature of their proposal to justify our reliance upon it.

9.73. We are also untroubled by the absence of specific information regarding when the additional monitoring stations will be acquired. In seeking our approval of the SPMC as amended by the instant commitment, the Applicants do more than simply ask the Commission to trust their good intentions. This commitment is part of the *quid pro quo* underlying any acceptance of the plan in connection with the issuance of a full-power operating license for the Seabrook Station. As such, timely satisfaction of this commitment, and the acquisition of any additional monitoring stations that we find necessary, becomes a condition to the full-power operation of the Seabrook Station. We will require, however, that the Applicants develop procedures to ensure a controlled pathway from the additional monitoring stations to the existing decontamination facilities should the additional monitoring stations be located in a trailer or separate area without their own decontamination facilities and staff.

9.74. The Applicants assumed the continuous operation of each monitoring station, and a 70-second average monitoring time per evacuee (60 seconds to frisk and 10 seconds to position evacuees and perform related tasks) to maintain the 918-evacuees/hour flow rate it determined was necessary to satisfy the requirements of NUREG-0654, Criterion J.12. Tr. 25,641; *see* Appl. Reb. No. 17, *supra*, at 6, 19; SPMC, IP 2.9, § 5.4.3; Appl. Supp. Reb. No. 17, *supra*, Attach. A, at 2.

9.75. In contrast to the SPMC's 60-second frisk rate, it is FEMA's policy to consider a 90-second frisk rate to be the lowest acceptable time estimate for monitoring with hand-held instruments. MAG Exh. 63, at 1-2. However, due to the SPMC's proposed use of the more sensitive Aptec probe, the Applicants sought FEMA's acceptance of a shorter frisk time estimate. Tr. 18,615, 18,658, 18,660. Based on the technical justification submitted by the Applicants, FEMA concluded that a 60-second frisk rate using the Aptec probe produced the "same degree of sensitivity" as a 90-second frisk rate using a standard GM pancake probe, the type of probe that was the basis for FEMA's normal 90-second standard. Tr. 18,621. Accordingly, in evaluating the SPMC, FEMA employed the 60-second frisk rate.

9.76. The Attorney General vigorously disputes the 60-second frisk rate. However, in making his case, the Attorney General offered no contrary expert testimony. Rather, he based his objections to the 60-second frisk rate solely on his reading of one of the guides cited by the Applicants in their technical justification.

9.77. Focusing on language contained in "Guidelines for Radiological Protection at Nuclear Power Stations," INPO Guidelines #85-004 (February 1988) to the effect that a standard frisk should be performed using a pancake GM detector moved at less than 2 inches per second (*see* Appl. Reb. No. 17, *supra*, Attach. A, at 4), the Attorney General makes what at best can be described as a hypertechnical and unsupported argument that the Applicants used an incorrect baseline probe movement rate to norm and thus justify its frisk rate using a Bicron Meter and Aptec 126B probe. Because of this, the Attorney General urges us to reject the Applicants' faster frisk rate assumption, and determine the average frisk rate based on a probe movement rate of only 2 inches per second.

9.78. We find the Attorney General's objection to the Applicants' proposed probe movement rate to be without merit for two reasons. The basis of the Attorney General's argument, INPO Guideline #85-004, was admitted into the record solely for historical purposes. Tr. 25,882-89. We specifically noted at the time that any attempt to cite the reference for any other purpose would be viewed as fraudulent. Tr. 24,885, 25,887-88. We find that the Attorney General has so attempted, and would reject this objection to the 60-second frisk rate for this reason alone. However, the attack on the technical justification for a faster movement rate lacks merit for a more basic reason.

9.79. The Attorney General's myopic reading of the Applicants' technical justification ignores the sentence that immediately follows the citation to the INPO guidance. It is this latter sentence that provides the justification for both FEMA's and our ultimate acceptance of the faster movement rate. "Reference 2.10 acknowledges that the 1.75" diameter pancake GM detector is the accepted device which applies to the rate of two inches per second." Appl. Reb. No. 17, *supra*, Attach. A, at 4. Reference 2.10, in turn, memorializes a telephone conversation between an NYH official and the official responsible for FEMA's review of the SPMC.

9.80. We find, as has FEMA, that the Applicants' use of a probe movement rate of 3 inches per second is reasonable and well supported by uncontradicted expert opinion and technical assessments.

9.81. In both his cross-examination and proposed findings, the Attorney General mounts an extensive attack on the 60-second frisk rate based on his estimate of the number of linear inches the probe passes in order to monitor the "average" person. *See Tr. 25,656-70.* Based on this estimate, the Attorney General argues that a 60-second frisk rate would require a movement of the Aptec probe "at the unjustifiable rate of very nearly five inches per second." MAG PF 9.1.78.Q. While this is greater than the 3-inch/second rate assumed by the Applicants in developing their average frisk time estimate, it is less than the unchallenged conclusion of the Applicants' expert that the Aptec probe moved at a scan rate in excess of 6 inches per second would yield the same results as the standard probe moved at 2 inches per second. Appl. Reb. No. 17, *supra*, Attach. A, at 24. Also, we believe that any extra time spent monitoring some evacuees will be offset by shorter time necessary to monitor other evacuees, a significant number of which will be children.

9.82. Moreover, we find that the monitoring drills conducted as part of the June 1988 FEMA/NRC Graded Exercise for Seabrook support our conclusion that the Applicants' 60-second frisk rate is an appropriate measure against which to assess the adequacy of the SPMC monitoring resources. The two 20-minute monitoring drills that were part of the 1988 exercise resulted in an average monitoring rate of 54.7 evacuees per hour per monitoring location (compared to the 51-evacuee/hour average used by the Applicants in determining the SPMC monitoring resource needs) with a 98.7% success rate in locating hidden radioactive sources. Appl. Reb. No. 17, *supra*, at 20 and Attachs. B and C.

9.83. The Attorney General attempts to eliminate the results of the monitoring drills from our consideration by characterizing the drills as unreliable, inadequate, unrealistic, and subject to manipulation. *See* Sneider Dir., ff. Tr. 24,974, *passim*. We reject this characterization as based on misunderstanding and incorrect assumptions by a nonexpert observer of portions of the drills. We find the Attorney General's entire attack on the usefulness of the

monitoring drills in assessing the reasonableness of the Applicants' 60-second frisk rate to be without merit.

9.84. In the absence of expert testimony or technical studies to the contrary, of which the Attorney General offers none, we find that the Applicants' use of a 60-second frisk rate to be reasonable, technically justified, and adequately verified through simulated monitoring drills.

9.85. The parties are in agreement that the overall estimate of individual monitoring time must include both the time necessary to physically perform the actual body scan plus hand-carried items and the time necessary to position each evacuee for monitoring. In estimating the overall average monitoring time per evacuee, the Applicants added 10 seconds to account for the time necessary to position each evacuee, monitor any accompanying bags, and perform related tasks. Tr. 25,641. *See* MAG Exh. 64, at 5; Appl. Reb. No. 17, *supra*, at 6; Appl. Supp. Reb. No. 17, *supra*, Attach. A, at 2.

9.86. Ms. Sneider, the Attorney General's witness on what should be used as "a fair and honest calculation" of overall monitoring rates suggested that 73 seconds (60 seconds to frisk, 10 seconds to position evacuees and hand out clean tags, and 3 seconds to monitor personal items) should be used for purposes of determining monitoring capability. Sneider Dir., *supra*, at 13. However, in his proposed findings, the Attorney General appears to challenge both the Applicants' estimate and that of his own witness as too short because, *inter alia*, it does not account for questions by evacuees following their body scan, or the effect of evacuee congestion. *See id.* at 5-6; Tr. 25,483-504, 25,630-45. Because of this, the Attorney General argues that an average of 15 seconds should be added to the average scan time to arrive at the overall monitoring-time estimate.

9.87. We are unpersuaded by the Attorney General's argument on this point. In the first place, the feared congestion should not occur since the flow of evacuees to the monitoring stations is controlled at the entrance to the monitoring trailers. Tr. 25,485. Thus, to the extent the number of evacuees at any particular time exceeds the capacity of the monitoring trailers, the effect will be reflected in the creation of lines waiting to enter the trailers rather than congestion in the trailers. In addition, we reject the Attorney General's proposition that evacuees are likely to engage monitors in extensive discussions following their body scan. To the extent some evacuees will ask monitors some questions, we conclude that the short period required to respond will either overlap with the time it takes for the next evacuee to be positioned for monitoring or is reflected in the Applicants' overestimation of the in/out positioning time by 200%. *See* Tr. 19,817. *See also* Sneider Dir., *supra*, at 13 (5 seconds is a good estimate of time necessary to move evacuees in and out of a monitoring station).

9.88. The Attorney General also argues that the average monitoring time should reflect at least a few seconds to monitor hand-carried articles such as

purses, small overnight bags, and umbrellas. There is no dispute that many evacuees will indeed be carrying such articles. Most women will have their purses and, given the SPMC's instructions to do so, most evacuees will have a bag of clothes or a small suitcase with them. *Sneider Dir.*, *supra*, at 7; *see SPMC, Plan at 3.5-9* ("Prior to evacuation, the general public will be directed, in EBS messages, to take a change of clothing with them to the Reception Center"); *see also MAG Exh. 116* (EBS issued in Exercise: "Pack enough clothing for several days" and "strongly recommend[ing]" that evacuees "go to their designated reception center"); *Appl. Exh. 40* (the calendar); *cf. IP 2.9, §§ 5.6.4E, 5.6.5.C* ("Inform [evacuees] to bring nothing larger than an overnight bag to the Monitoring Trailer"). Applicants admit that they would frisk both sides and the bottom of small overnight bags and small suitcases. Tr. 25,671-72. However, rejecting the testimony of his own witness, who suggested 3 seconds to frisk personal items (*see Finding 9.86, supra*), the Attorney General urges us to add an additional 10 seconds to the average monitoring time to account for all the purses, small suitcases, and umbrellas that can reasonably be anticipated.

9.89. Not only do we hold the Attorney General to the estimate of his own witness that the monitoring of personal items would require an average of 3 seconds per evacuee, but also we note that this period of time is already reflected in the excess 5 seconds in the Applicants' average in/out time. We conclude that the Applicants' estimate of 70 seconds as the average time to move an evacuee through the monitoring process is reasonable and adequately supported in the record.

9.90. The Attorney General next challenges the Applicants' assumption regarding how many minutes per hour each monitoring station will be available for use.<sup>68</sup> In calculating the hourly monitoring capacity of each reception center, the Applicants assumed that each monitoring station would operate continuously. *Appl. Reb. No. 17, supra*, at 6, 21-22. The Attorney General advances two reasons why we should reject the Applicants' assumption.

9.91. First, the Attorney General points out that both FEMA and the SPMC itself contemplate that the staff performing the monitoring functions will be provided a 10-minute break each hour. *MAG Exh. 63*, at 1; *IP 2.9, § 5.2.9(A)(2)*. Because the SPMC as currently written does not provide for the availability

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<sup>68</sup>In connection with this issue, SAPL notes that since the SPMC provides that a monitoring/decontamination worker will be assigned to attend to an injured person, the arrival of several such injured persons would significantly reduce the achievable monitoring rate through the trailer. SAPL PF 9.1.109. SAPL's point is unclear. We do not believe that evacuees requiring immediate medical attention would pass unnoticed at the vehicle monitoring station, or that such evacuees could make their way on foot to the monitoring trailer in great numbers. Moreover, we do not read the SPMC procedures to mean that each injured evacuee would have an individual emergency worker assigned to watch over them. SAPL also argues that monitoring and decontamination activities might be slowed or curtailed due to the need to change wastewater tanks. SAPL PF 9.1.109. We are not told how the monitoring process can be slowed due to the absence of wastewater holding tanks. In any event, the factual predicate for SAPL's concern is lacking. *See Finding 9.126, infra*.

of backup staff to operate the monitoring stations during these breaks (*see* IP 2.9, Step 5.2.9), he argues that there are no reasonable assurances that each monitoring station will be staffed during this 10-minute break. Second, the Attorney General notes that the SPMC assumes that the monitoring stations will have to be periodically monitored and, perhaps, decontaminated (*see* IP 2.9, § 5.2.14), and that the Applicants acknowledged that the pathway to a monitor found to be contaminated will also be monitored and, if necessary, decontaminated (Tr. 25,712-31). Yet, the Applicants' hourly operation estimate does not account for any downtime associated with these periodic monitoring and possible decontamination efforts. Based on these two factors, the Attorney General argues that the monitoring stations will operate for significantly fewer minutes each hour than assumed by the Applicants.

9.92. The Attorney General's first argument has been rendered moot by the Applicants' commitment, set out below, to increase the number of available staff in connection with the addition of two more monitoring stations to each reception center. As we have already held, we can and do rely on this commitment to amend the SPMC. *See* Finding 9.73, *supra*.

9.93. The Monitoring/Decontamination Leader establishes a rotation of staff to ensure that Monitoring/Decontamination Personnel assigned to monitor evacuees inside the trailer receive a 10-minute break after 50 minutes of monitoring. Initially, this was to be accomplished through the use of excess personnel outside the trailer. However, because the four monitoring locations that are to be added to each trailer place new demands on personnel available to establish a rotation, four personnel (in excess of the four to staff the additional monitoring locations) will be assigned to each trailer to ensure that the Monitoring/Decontamination Leader can establish a rotation without compromising activities outside the trailer. Appl. Reb. No. 17, *supra*, at 21-22.

9.94. We find the Attorney General's second argument equally unpersuasive. The personal dosimeters (i.e., direct-reading pocket dosimeters) used by Monitoring/Decontamination Personnel can be read within the time allowed for evacuees to walk up to or away from a monitoring location. Therefore, no additional time need be allocated for dosimetry checks. *Id.* at 22.

9.95. Contrary to Intervenors' testimony, it is not necessary to allocate time for Monitoring/Decontamination staff assigned to monitoring locations in the trailers to perform self-monitoring. "Controlled" and "uncontrolled" areas are identified for the monitoring areas of the trailers. Monitoring/Decontamination Personnel stand in the "uncontrolled" area facing evacuees at the monitoring locations, which are part of the "controlled" area. Monitoring/Decontamination Personnel are not in physical contact with evacuees in the "controlled" area. Therefore, they are unlikely to become contaminated while performing monitoring. Moreover, only clean evacuees are allowed to step into the "uncontrolled"

area and so, if by chance they brush against Monitoring/Decontamination Personnel, there will not be a transfer of contamination. *Id.* at 22-23.

9.96. It is also not necessary to allocate time for Monitoring/Decontamination Personnel to hand out clean tags (SPMC, IP 7.9, Step 5.4.3 and Attach. 3), as asserted by Intervenors. The clean tags can be handed to evacuees during the time allocated for them to walk away from the monitoring station. Appl. Reb. No. 17, *supra*, at 23. The Attorney General's only witness on monitoring time estimates, albeit a nonexpert, is in agreement. Sneider Dir., *supra*, at 13.

9.97. Finally, Ms. Sneider testified that in her view, 1 minute per hour would be lost for each monitoring station to perform decontamination activities. *Id.* at 14. See SAPL PF 9.1.109. The Attorney General once again asks us to discredit his own witness on this point in favor of a new theory, wholly unexplored when Ms. Sneider testified, that her estimate failed to take into account the impact such activities would have on the flow path to the station and thus was too low by 6 minutes. MAG PF 9.1.78.Y. Not only do we reject the logic of the Attorney General's argument, we hold him to the testimony of his own witness. We accept Ms. Sneider's estimate on this point and conclude that each monitoring station will operate 59 minutes per hour. However, since each monitoring station processes two evacuees at a time, the net effect of this lost minute is a reduction in the hourly evacuee monitoring rate for each station from 102 to 101.

9.98. In light of our determination that the hourly trailer monitoring load is 1023 evacuees and given our conclusion that each monitoring station can effectively process 101 evacuees per hour, compliance with NUREG-0654, Criterion J.12, requires the availability of ten monitoring stations capable of processing twenty evacuees at a time.

9.99. We will require that the Applicants acquire, position, and make arrangements to staff a total of ten monitoring stations (capable of processing twenty evacuees at a time). However, because the Applicants' peak monitoring load occurs during the off-season while the Attorney General's peak monitoring load occurs during the summer, the Applicants need only have nine monitoring stations available should full-power operation begin during the off-season. We require the full complement of ten monitoring stations to be available by the first July and August of full-power operation. In addition, since we have found that an additional 131 evacuees should be added to the Applicants' hourly monitoring load, we will further require that the Applicants provide for at least six registration tables (including appropriate staff) to ensure the efficient and timely processing of this additional load through the registration

process.<sup>69</sup> Subject to satisfaction of the conditions identified above, we find that the monitoring resources (both in terms of equipment and personnel) available at each reception center provide reasonable assurances that members of the evacuating public reasonably expected to use the services of those centers will be monitored in about 12 hours.

9.100. In its proposed findings, SAPL's principal challenges to the reception centers focused on the decontamination staffing and procedures. First, SAPL argues that the SPMC assigns an unreasonable number of additional duties to the two emergency workers responsible for remonitoring evacuees after they undergo a decontamination shower. See SAPL PF 9.1.74. Second, SAPL argues that there are insufficient personnel assigned to perform decontamination activities should more than two evacuees require decontamination every minute. See *id.* 9.1.74.a.

9.101. We note that the monitoring functions are staffed so that if any one activity becomes overloaded, management of the facility can move persons from one job to another to relieve temporary overload, and the procedures are flexible enough to create a "hot area" where people can await decontamination if the facility becomes overloaded. Tr. 19,066-67, 19,071-72, 19,082-85. However, given our finding that the trailer monitoring load will be higher than Applicants initially estimated, we believe that there is some merit to SAPL's concerns. We require that the Applicants identify and assign at least one additional individual to each reception center to assist in the decontamination process.

## G. Parking Facilities

9.102. Our conclusion that the equipment and staff assigned to the monitoring trailers at each reception center, as modified above, is sufficient to satisfy the requirements of NUREG-0654, Criterion J.12, does not end our inquiry. As Intervenors correctly perceive, otherwise adequate monitoring resources can be rendered inadequate if any barriers or impediments exist or are reasonably likely to develop in the event of an emergency which impair or hinder the efficient and effective use of those resources.

9.103. Because of concerns over what, if any, impact the flow of vehicles through the reception centers might have on actual utilization of each center's monitoring resources, we requested the Applicants to address the issue of parking facilities at the ORO reception centers. In response, Applicants offered a panel consisting of Joseph Bisson, Emergency Planner, Impell Corporation (Quali-

<sup>69</sup> Given the almost unnecessary conservatism in the Applicants' estimate of average registration period (see Finding 9.122, *infra*), we believe that six registration tables provide reasonable assurances that the registration process will not adversely impact on the ability to effectively process (i.e., monitor, decontaminate, register, and refer) 1023 evacuees per hour.

fifications, ff. Tr. 25,423), and Anthony M. Callendrello, Manager, Emergency Preparedness Licensing, New Hampshire Yankee (Qualifications, ff. Tr. 17,318). Appl. Supp. Reb. No. 17, *supra, passim*. The Board finds that these witnesses were competent to testify with respect to the areas they addressed.

9.104. In calculating the minimum parking requirements for each center, the Applicants multiplied the average hourly evacuee flow rate by each evacuee's average stay time and divided that product by the average number of evacuees per car. *Id.* at 1. As the average number of evacuees per car, the Applicants used 2.6. *Id.*, Attach. A, at 2. As the evacuee flow rate, the Applicants used 918 evacuees per hour (*id.*), the rate it determined necessary to satisfy the requirements of NUREG-0654, Criterion J.12, based on Applicants' calculation of the trailer monitoring load. See Finding 9.55, *supra*.

9.105. In arriving at the average general evacuee stay time, the Applicants identified eight distinct steps in the arrival/monitoring/registration/exit process. The Applicants then either conducted a walkthrough of the centers to establish the average time needed to complete each step or used, in the case of monitoring and registration activities, the planning-basis estimates established elsewhere in the SPMC for those activities. The steps and the estimated time required for each center is set out below.

Step	Activity Time, seconds	
	Beverly	N. Andover
Drive to vehicle monitoring	22	29
Vehicle frisk	60	60
Park/walk to monitoring trailer	228	203
Individual monitoring	70	70
Walk to reception center	17	48
Register at reception center	300	300
Return to parked car	92	132
Drive to exit	34	51
TOTALS:	823	893

Based on this table, Applicants assumed the average stay time per evacuee to be 0.229 hour at the Beverly center and 0.248 hour at the North Andover center. Appl. Supp. Reb. No. 17, *supra*, Attach. A, at 2-3.

9.106. In calculating the maximum number of parking spaces for noncontaminated vehicles available at each center, the Applicants divided the area designated for such parking by 250 square feet, the minimum space necessary, according to the Applicants, to park one car. Tr. 25,956-57. However, in estimating the space available for parking, the Applicants took no credit for portions committed to storage by the landlord. Tr. 25,917, 25,956.

9.107. Using the formulas described in Finding 9.104, *supra*, the Applicants determined that the area designated for noncontaminated cars at the North Andover reception center had a 182-car capacity to satisfy that center's identified need for a 88-car capacity lot. Similarly, the Beverly reception center was determined to have a 180-car capacity to satisfy an identified need for a 81-car-capacity lot. Appl. Supp. Reb. No. 17, *supra*, at 2 and Attach. A, at 5.

9.108. The Attorney General advances four arguments why the limited capacity of designated parking lots for noncontaminated cars will restrict the flow of evacuees into the monitoring trailer, thereby operating as a barrier to the full use of the available monitoring resources. MAG PF 9.1.78.LL-78.PP.

9.109. First, the Attorney General notes that the designated parking lots at both centers are used extensively by the owner, the Massachusetts Electric Company, for storage of telephone poles, transformers, large cable spools, and miscellaneous other items. See MAG Exhs. 122 and 123 (photographs of the reception centers); Adler Reb., ff. Tr. 28,198, at 2-3. Because of this, he argues that there is no reasonable assurance that the parking lots can and will be cleared of these items quickly enough to ensure their full use in the event of a fast-breaking accident. See MAG PF 9.1.78.LL.

9.110. As pointed out above, the Applicants did not consider areas committed to storage in assessing parking lot capacities. Indeed, the Attorney General's own witness appears to recognize this fact. Adler Reb., *supra*, at 2-3. Thus, the factual predicate for the Attorney General's argument is lacking. Nonetheless, we note that the potential availability of such uncounted parking space adds conservatism to the Applicants' identified parking capacity. Dr. Adler recognizes this also, concluding that if these spaces were cleared, additional parking capacity would result. *Id.* Moreover, since the areas in question appear to involve the interim short-term rather than permanent long-term storage of potential obstacles, we are confident that the facility owners have the knowledge, equipment, and experienced personnel necessary to efficiently move such items if necessary. MAG Exhibits 122 and 123 reveal that equipment necessary to remove or rearrange stored items is already present at the sites. And since the need for parking spaces will not develop until sometime after the initiation of an evacuation of the EPZ, and since the areas in question, at least as shown by MAG Exhibits 122 and 123, do not appear to be as cluttered as the Attorney General intimates, we believe that sufficient time will exist to clear, on an *ad hoc* basis, these areas to increase the area available for parking. We require, however, that the Applicants identify existing procedures designed to ensure that the parking areas are cleared of obstacles in a timely manner to the extent that stored items are, in the event of an emergency, located in areas counted on to provide parking space. If such procedures do not currently exist, we require that the Applicants develop such procedures.

9.111. Second, the Attorney General argues that the Applicants have underestimated the numbers of vehicles that will arrive at each center by using incorrect population figures and assumptions (High Dir., *supra*, at 7), and by using a vehicle occupancy figure of 2.6 rather than 2.35, the latter reflecting the Attorney General's calculation of the average occupancy rate based on its population figures and the varying occupancy loads reflected in NHRERP, Vol. 6, at 5-7. We have already addressed the Attorney General's monitoring-load argument and have concluded that the average hourly monitoring rate should be increased to 1023. *See* Finding 9.67, *supra*. If it were necessary, we would reject the Attorney General's suggested 2.35 average vehicle occupancy rate in favor of the Applicants' 2.6 average vehicle load. To the extent the Applicants' use of the higher 2.6 occupancy rate may underestimate the number of cars, we believe and so find that this consequence is easily outweighed by the Applicants' overestimate of the parking needs by ignoring the fact that significant numbers of evacuees will arrive by bus. Appl. Supp. Reb. No. 17, *supra*, at 2. However, for the purposes of determining the effective parking capacities of the reception centers' parking areas, we will accept *arguendo* the Attorney General's proffered 2.35 average vehicle load figure.

9.112. Third, the Attorney General argues that the Applicants have overestimated the number of vehicles that could be efficiently parked in the parking lots. MAG PF 9.1.78.MM. In support, the Attorney General offered expert testimony that concluded that the Beverly reception center could accommodate no more than 100 noncontaminated cars at one time and no more than 110 noncontaminated cars could be accommodated at the North Andover reception center at any one time. Adler Reb., *supra*, at 4.

9.113. We find that the Attorney General's parking expert, Dr. Adler, is competent to testify as an expert in parking efficiency. However, we note that Dr. Adler appears to adopt a different approach to parking capacities here than he employed in estimating the parking capacities of the EPZ beach areas. Tr. 28,264-69. While we accept his explanation that high-turnover parking areas require more space than other types of parking areas (*see* Tr. 28,270-71), we are inclined to view his ultra-conservatism regarding the parking capacity of the reception center lots with some degree of skepticism. Still, assuming *arguendo* the correctness of his lower-capacity figures, this portion of the Attorney General's argument becomes irrelevant should we conclude that a parking capacity of 100 cars is sufficient to maintain an average hourly monitoring load of 1023 evacuees. And because the Applicants' formula for determining the minimum parking needs of each reception center (Appl. Supp. Reb. No. 17, *supra*, at 2 and Attach. A, at 5) is based on but three variables, two of which we have already determined or assumed (average vehicle load and average hourly monitoring load), the adequacy of parking at the North Andover and Beverly reception centers turns on whether the Applicants have properly and reasonably

calculated the average evacuee stay time. On this point, the Attorney General mounts a vigorous challenge to the Applicants' stay-time estimates.

9.114. In rebuttal to the Applicants' stay-time estimate, the Attorney General offered the testimony of Dr. Ortwin Renn, a social psychologist with experience in assessing individual perceptions and responses to risk sources, including nuclear energy. Renn Dir., ff. Tr. 28,062, Attach. A; Tr. 28,063.

9.115. Dr. Renn testified that the Applicants' stay-time estimates were, in his opinion, unrealistically short, primarily because the Applicants' estimates did not account for wait lines that will develop between steps and delays occasioned by activities not reflected in the Applicants' eight steps. Renn Dir., *supra*, *passim*. Excluding any consideration of wait lines, Dr. Renn testified that a realistic stay time would be 22 minutes and 23 seconds for the Beverly center and 24 minutes and 5 seconds for the North Andover center with a minimum 25-minute stay time for both centers being the prudent planning basis. *Id.* at 29. However, Dr. Renn also offered his view that the overall wait time could reach 16-18 hours. *Id.* at 28.

9.116. We need not explore each of the numerous variables of the detailed and complex analysis employed by Dr. Renn to arrive at his stay-time estimates. On cross-examination, Dr. Renn acknowledged that but for three variables not considered under the Applicants' formula, his analysis resulted in a stay-time estimate less than that used by the Applicants. Tr. 28,095. Those three variables are time spent by evacuees waiting in lines, undergoing decontamination, and using the bathrooms.

9.117. Notwithstanding his view that the development of waiting lines, particularly at the registration/shelter referral tables, is inevitable, and should be built into any stay-time model (Renn Dir., *supra*, at 6-19), Dr. Renn's "prudent estimate" of average stay time for planning purposes essentially discounted all wait time. *Id.* at 29. While it would be unreasonable to assume that no lines will develop, we do not believe that waiting lines will add significantly to the average stay time of evacuees. Thus, this factor can reasonably be eliminated from the average stay-time calculation. The Applicants have committed to restructuring the registration/shelter referral process to eliminate one evacuee step and thus save time (Tr. 25,588-90), and have overestimated the registration time, the principal source of Dr. Renn's wait times, by as much as 250% (Tr. 25,596-600).<sup>70</sup>

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<sup>70</sup>Dr. Renn offered his view that parallel processing (i.e., the processing of up to six registration units by one registrar at a single time) does not mean that all six registration units could be processed within the Applicants' assumed 5-minute registration process. Rather, based on unspecified research, he argued that the registration processing time should be increased per group by adding one-third of the time to process a single individual for each additional individual processed in parallel. Renn Dir., *supra*, at 16. While it is reasonable to assume that some increase in processing time will occur the larger the group to be processed, we find Dr. Renn's one-third theory to be unconvincing. When pressed for the basis of his theory, he could cite but two studies in areas of questionable applicability. Tr. 28,075-80.

9.118. Dr. Renn further argues that any realistic stay-time model must consider time associated with personal decontamination efforts. Renn Dir., *supra*, at 19-21. In Dr. Renn's view, the average stay time should include 131 seconds per evacuee (or 168 seconds per registration unit) to account for time spent undergoing decontamination or waiting for a member of one's registration unit to undergo decontamination. *Id.* at 21.

9.119. The assumptions underlying Dr. Renn's opinions regarding times associated with decontamination activities are wholly outside his area of expertise. See Tr. 28,084. Because his decontamination time estimates in large measure are based solely on his personal, nonexpert assumptions, we are inclined to discount his testimony on this issue as unpersuasive for this reason alone. However, we find Dr. Renn's views on the need to account for decontamination activities in developing stay-time estimates unavailing for a more fundamental reason.

9.120. The stay-time estimates of concern here relate to the capacity of reception center parking areas for uncontaminated vehicles. A separate controlled parking area, the capacity of which is unchallenged by any Intervenor, is provided at each reception center for contaminated cars. We agree with Applicants' suggestion that it is reasonable to assume that the vast majority of contaminated individuals will arrive at the reception centers in contaminated vehicles. See Tr. 28,084-85. Dr. Renn himself acknowledged that he had no reason to challenge this assumption. Tr. 28,084. Thus, time associated with decontamination activities is simply irrelevant to stay-time estimates affecting parking needs for noncontaminated cars.

9.121. Finally, Dr. Renn faults the Applicants' stay-time estimate for failing to consider "such simple things as going to the bathroom." Renn Dir., *supra*, at 22. In his view, a realistic evacuee stay-time estimate should include an average of 144 seconds based on an assumption that at least 80% of all evacuees will use a bathroom for an average of 3 minutes each. *Id.* at 23.

9.122. While we agree that it is reasonable to expect that a number of evacuees will require the use of a restroom during their stay at the reception centers,<sup>71</sup> we conclude that the impact of such activities on an evacuee's average stay time will be insignificant and thus need not be considered. First, Dr. Renn's estimates are no more than speculations since they appear to be based solely on personal "guesstimates." Second, since only one member of a registration unit need participate in the registration process, much of the time committed to these activities could occur "in parallel" with the registration process. Third, given the Applicants' excessive conservatism in estimating average registration times, even the individual who participated in the registration process should be

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<sup>71</sup> We note that no contention or proposed finding of fact or conclusion of law challenged the adequacy of restroom facilities at either reception center.

able to use a bathroom without unduly delaying the registration unit's scheduled departure from the reception center.

9.123. We find that Applicants' stay-time estimates, which exceed those of the Attorney General after eliminating times allocated for activities rejected above, are reasonable. In determining the minimum necessary parking capacity of the Beverly and North Andover reception centers, the Applicants properly used an average evacuee stay time of 0.229 hour and 0.237 hour, respectively.

9.124. The Attorney General's assertion that the parking areas for noncontaminated vehicles have insufficient capacity to maintain the minimum average hourly monitoring load is a fragile web having strength only if *each* of its strands is securely fastened. As is clear from our discussion above, they are not secure even though we adopt or assume many of the Attorney General's supporting arguments. We find that both reception centers have sufficient parking areas to maintain the monitoring load necessary to satisfy NUREG-0654, Criterion J.12.

## H. Interim Waste Handling

9.125. As noted in Finding 9.46, *supra*, JI-57 raises the issue of whether the SPMC contains adequate provision for the handling of contaminated wastewater and materials.<sup>72</sup>

9.126. Notwithstanding the possibility of direct discharge of wastewater into the local sewer system, contaminated liquid waste will be directed to holding tanks for subsequent disposal by a licensed contractor with recognized expertise in the handling and disposal of such liquid waste. Tr. 19,064, 19,088, 19,100-02, 19,119-20. See Appl. Exh. 41, at 417-435 (MOERP 57). Moreover, notwithstanding the absence of any record support for the proposition that monitoring (as opposed to decontamination) would be adversely affected by brief delays in switching holding tanks, we note that the holding tanks are planned to be plumbed for continuous flow, and thus should not interrupt the decontamination process. Tr. 19,098-99.

9.127. As to the handling of contaminated solid wastes, the relevant SPMC provisions call for normal, well-established health physics procedures (Tr. 19,064-65, 19,087-89) similar in kind and detail to those already found adequate by this Board in connection with the NHRERP. Tr. 19,064-65.

9.128. FEMA has found the SPMC to be adequate in this respect (Appl. Exh. 43C, at 78-79), and no direct evidence supporting this contention was elicited during the hearing that warrants this Board to reject the FEMA finding.

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<sup>72</sup> SAPL PF 9.1.114 appears to touch on both the credibility of Mr. Donovan and the possible need to shield wastewater tanks. We are unsure of what SAPL seeks through this proposed finding. If it believes that the tanks should be shielded, it fails to so argue. If it is simply to argue that Mr. Donovan is not a credible witness, we reject it.

9.129. SAPL attacks the FEMA finding on the ground that it did not determine whether there were any legal impediments to the receipt and disposal of waste material by the waste contractor. SAPL PF 9.1.128. As SAPL's argument focuses on the final storage of waste material rather than its interim handling during an emergency, it is beyond the scope of this hearing. *See* LBP-88-32, *supra*, 28 NRC at 723.

9.130. We find that the SPMC procedures for handling liquid and solid waste generated as a result of monitoring and decontamination activities at the reception centers satisfy the Commission's emergency planning requirements applicable to such wastes.

## I. Congregate Care Facilities

9.131. In addition to the Shriners' Auditorium, Westboro facility, and the Holy Cross College, discussed in Section 8, above, the Applicants have made arrangements to use twenty-seven other facilities in and around either Beverly or North Andover, Massachusetts, to provide space for use as Congregate Care Centers for general evacuees in the event of a radiological emergency. *See* Finding 9.14, *supra*.

9.132. The identification, inspection, and selection of Congregate Care Centers was carried out primarily by NHY personnel. Appl. Reb. No. 6, *supra*, at 71. *See also* Tr. 18,724-25. Certification of two of the centers currently listed in the SPMC was provided by Mr. Robert Saydlowski of the American Red Cross (ARC) in August 1987, while the balance of the facilities were certified by Mr. Michael R. Lewis or Mr. Roger Paddock of NHY, both ARC-trained Shelter Managers, between August 1987 and December 1988. Appl. Reb. No. 6, *supra*, at 71; Tr. 21,056.

9.133. Should it become necessary to activate the Congregate Care Centers, the SPMC contemplates that these facilities will be administered and initially staffed by ARC officials and volunteers. Appl. Reb. No. 6, *supra*, at 69. While ARC shelter planning guidance indicates that staffing levels may vary depending upon the size and nature of the facility, at a minimum, the SPMC looks to the ARC to provide a Shelter Manager for each Congregate Care Center, and perhaps one or two assistants. In all, the SPMC relies upon the ARC to provide approximately sixty to ninety volunteers to initiate operation of the thirty Congregate Care Centers identified in the plan. *Id.* at 72.

9.134. Four contentions, in whole or in part, challenge the adequacy of the procedures and provisions of the SPMC related to congregate care and emergency medical facilities. These contentions are JI-51, JI-54, JI-56 (Base C), and JI-58. However, as focused by Intervenors' witnesses and refined by their proposed findings, several of these contentions overlap with disputed portions of the SPMC dealt with elsewhere in this decision. Thus, JI-51, JI-56 (Base C),

and JI-58 have already been addressed in Section 8, above, to the extent they focus on the specific adequacy and specialized staffing needs of congregate care facilities intended to serve special populations. Here we address Intervenors' generic concerns regarding the adequacy of the Congregate Care Centers relied upon by the Applicants to meet the temporary shelter needs of general evacuees. Those concerns focus on three areas: staffing, maximum shelter capacities, and timely availability.

9.135. The Attorney General's principal challenge to the adequacy of the SPMC Congregate Care Centers, founded on JI-54, is the plan's reliance on the American Red Cross to administer and staff those facilities. Specifically, he notes that the ARC has not entered into a LOA with the Applicants and has not engaged in any preplanning on how it will staff these facilities. Since the record is devoid of any details on what the *ad hoc* ARC response to a radiological emergency at the Seabrook Station would be, and since the SPMC provides for no compensatory measures to augment the ARC's response should it prove inadequate, the Attorney General asserts that there can be no reasonable assurances that the congregate care facilities can be adequately staffed. Contentions Memo. at 77. See MAG PF 9.1.28.A-28.E.

9.136. The ARC's preferred approach is to participate with state and local governments in the development and testing of emergency plans that rely upon that organization to provide mass care services to evacuees. Appl. Reb. No. 6, *supra*, at 220; Tr. 18,765. However, as noted elsewhere, after initial steps to develop an emergency plan for the Seabrook Station, the Commonwealth and the local communities that make up the Massachusetts portion of the Seabrook EPZ subsequently declined to complete the emergency response planning process. Because of this, there was no governmental planning process in which the ARC could participate.

9.137. Due to a memorandum of understanding between the Massachusetts Chapter of the ARC and the Commonwealth regarding planning relative to a radiological emergency at the Seabrook Station, the Massachusetts Chapter of the ARC also declined to work directly with the Applicants in developing the SPMC.<sup>73</sup> Tr. 18,727-28, 18,764, 19,146, 21,053-54. Apparently, since the Commonwealth would not participate with the Applicants in planning for a possible radiological emergency at the Seabrook Station, the local chapter of the ARC believed that any participation on its part would violate that memorandum of understanding. Tr. 18,766.

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<sup>73</sup> The local chapter's refusal to participate in the Applicants' emergency planning process would appear to conflict with the National ARC Emergency Response Plan for disasters within the Commonwealth of Massachusetts. As set out and incorporated by the Commonwealth's own "Massachusetts Comprehensive Emergency Response Plan" (CERP, June 15, 1984), the ARC Emergency Response Plan provides that the organization "will cooperate and coordinate with all agencies, public and private, at the local, state and national levels, whose activities are directed toward the alleviation of disaster-caused suffering and needs." Appl. Reb. No. 6, *supra*, at 196.

9.138. Due to the absence of ARC participation in the Applicants' planning process and the absence of any detailed information on the nature of its response, FEMA initially expressed concern on the lack of detail regarding any ARC response and thus the inability to assess the adequacy of that response. Tr. 18,770-72. In his Interim Report in May 1988, Mr. Donovan noted that "[t]he American Red Cross is not prepared to set up, staff and operate the Congregate Care Centers." Tr. 18,775-76.

9.139. In addition, the National ARC itself recognizes that the absence of planning will necessarily affect the quality of its response in the event of a radiological emergency at the Seabrook Station. In a letter dated September 10, 1987, Elbert Brown, Vice President/General Manager, American Red Cross Eastern Operations Headquarters, advised Edward A. Brown, Chairman and Chief Executive Officer of NHY, that

[T]he public authorities in Massachusetts have not undertaken a planning process in which the Red Cross can participate. There should be no doubt that without the close cooperation of Red Cross and government activities within the framework of a tested response plan, Red Cross relief efforts will be negatively affected.

Appl. Reb. No. 6, *supra*, at 70.

9.140. Intervenors do not take issue, nor could they, with the assumption that the ARC will respond to a radiological emergency notwithstanding the absence of a LOA. As the Commission made clear in *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-87-5, 25 NRC 884, 888 (1987), a licensing board may rely, as we do here, on the ARC's historical practice, organizational policy, and congressional mandate requiring the provision of aid in any radiological or natural disaster. See Appl. Reb. No. 6, *supra*, at 70-71.

9.141. Rather, the thesis of the Attorney General's argument here is that, in the absence of any preplanning on the part of the ARC and evidence in the record as to how the ARC would respond, this Board cannot indulge in the Applicants' unsupported "hope" that the ARC response will, in fact, be adequate. As the Attorney General construes the Commission's emergency planning requirements, in a situation such as this, there must be some compensatory measures on the part of the Applicants and reflected in the SPMC to augment a possible inadequate ARC response. Thus, stripped to its essence, the question posed by the Attorney General is whether it is reasonable for the Applicants and this Board to conclude that Congregate Care Centers will be adequately and timely staffed to meet the needs of an evacuating public simply because the ARC commits to provide those resources. For the reasons set out below, we answer the question in the affirmative.

9.142. While the Attorney General argues to the contrary (*see* MAG PF 9.1.53), we do not believe that the Commission's *Shoreham* decision is limited solely to an ARC *willingness* to respond in the event of a radiological emergency. Under the applicant-developed plan at issue in *Shoreham*, like the SPMC here, the local chapter of the ARC was "relied upon to provide substantial assistance in caring for evacuees . . ." CLI-87-5, *supra*, 25 NRC at 887. In part based on the apparent existence of an agreement between the local chapter of the ARC and the utility (LILCO) to provide the necessary assistance in the event of an emergency, the *Shoreham* Licensing Board found reasonable assurances that the congregate care needs of Shoreham evacuees would be met. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-85-31, 22 NRC 410, 416-17, 420 (1985). Following that decision, the local ARC, under new leadership, sent a letter to LILCO denying the existence of any such agreement, and characterizing any prior ARC commitment as simply a "statement of the policy of the Red Cross." *Shoreham*, CLI-87-5, *supra*, 25 NRC at 887.

9.143. In responding to a motion to reopen the *Shoreham* record to litigate the impact of this subsequent letter to LILCO, the Commission accepted the movant's characterization of the critical issue as, *inter alia*, whether, in light of the letter, there was "indication of the willingness or ability of [the] ARC to provide assistance 'as required under the plan' [emphasis added]." *Id.* at 885. The Commission further recognized that FEMA had concluded that the letter "raise[d] many questions concerning [the ARC's] participation in a Shoreham incident," and, as a result, rendered certain aspects of the Shoreham emergency plan inadequate. *Id.* at 888.

9.144. Nevertheless, the Commission denied that portion of the motion to reopen based on the postdecision ARC letter. In addressing the question whether the ARC letter adversely impacted on the question of the ARC's "willingness or ability" to respond, the Commission concluded that:

We find no implication in the letter that for Shoreham, ARC is disavowing its general policy. The Licensing Board found the earlier letter to provide reasonable assurance that the Red Cross will perform the duties that [the utility] relies upon the Red Cross to perform in the Shoreham emergency plan. [Citation omitted.] The new letter does not appear to erode this reasonable assurance finding. Indeed, the ARC letter states that the earlier letter relied upon by the Board was "a statement of the policy of the Red Cross in *any* radiological, or natural disaster."

*Id.* at 888 (emphasis in original).

9.145. This leads us to conclude that the Commission has found that an ARC commitment to respond to an emergency, whether or not documented in a written LOA, is sufficient, for the purpose of any finding of reasonable assurance under its emergency planning requirements, to conclude that an ARC response will not only be forthcoming, it will be adequate and effective.

However, we do not read *Shoreham* as standing for the proposition that any ARC commitment will, as a matter of law, always be viewed as adequate for the purposes of demonstrating compliance with the Commission's emergency planning requirements. Rather, the more reasonable construction of *Shoreham*, and the one that we apply in the instant case, is that the Commission has authorized its adjudicatory boards to apply a rebuttable presumption that an ARC commitment will be adequate. Thus, the dispositive question is whether an intervenor has advanced any factual basis to warrant a rejection of that presumption in a particular case.

9.146. The Attorney General suggests three bases why any presumption that an ARC response would be adequate should not be applied in this case. We find each of those bases, discussed below, to be unpersuasive, and thus conclude that the Attorney General has failed to establish any grounds to discredit the presumed adequacy of the ARC response with respect to a radiological emergency at the Seabrook Station.

9.147. FEMA's early concerns regarding its difficulties in assessing the specifics of any ARC response offer no support to the Attorney General.<sup>74</sup> As it explicitly noted in its Plan Review (Appl. Exh. 43C, at 6), FEMA relied on the *Shoreham* presumption that the ARC will effectively prepare and staff Congregate Care Centers. Thus, rather than being evidence defeating the presumption, the FEMA finding in fact applies and reasonably relies upon that presumption.<sup>75</sup>

9.148. Similarly, the Attorney General's citation of the ARC's concerns regarding the quality of its response in light of the absence of any state-sponsored preplanning does not defeat the *Shoreham* presumption. The ARC letter cited by the Attorney General simply recognizes the obvious; that its response to a radiological emergency at the Seabrook Station would be enhanced if there were a state planning process in which it could participate. We do not read the ARC letter to suggest that its response would be inadequate in the absence of a state-developed emergency plan. Indeed, the national leadership of the ARC reaffirms the organization's commitment to provide mass care services in the event of a radiological emergency at the Seabrook Station. Appl. Reb. No. 6, *supra*, at 69-70 and Attach. Q.

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<sup>74</sup> The Attorney General also cites FEMA's shifting positions on this issue as evidence that FEMA failed to apply any consistent and meaningful standard in evaluating the SPMC. As we make clear in Section 1, we view the evolution of FEMA's ultimate position on the SPMC to reflect the type of ongoing, critical analysis that supports rather than weakens the Commission's grant of presumptive weight to its findings on emergency plans. We note, however, that while FEMA findings are entitled to deference, they are not binding on the Commission with respect to ultimate issues of reasonable assurances under the Commission's own emergency planning requirements. See *Shoreham*, CLI-87-5, *supra*, 25 NRC at 888.

<sup>75</sup> Because FEMA's finding is itself based on a presumption, we do not afford it any independent presumptive weight on this issue. Rather, we view FEMA's finding as evidence that FEMA found no reason from the face of the SPMC or based on its own detailed understanding of its provisions to reject the application of the Commission's *Shoreham* presumption in this case.

[T]he humanitarian mission of the Red Cross requires that in the event of a nuclear accident and evacuation, the Red Cross will provide mass care services to the extent of its abilities and will cooperate with public and private organizations, including New Hampshire Yankee, to meet the needs of evacuees and disaster workers . . . .

. . . . the Red Cross will maintain its status as an independent voluntary body dedicated to performing the disaster preparedness and relief obligations entrusted to it by the Congress of the United States and will cooperate with all private and governmental bodies and agencies . . . .

. . . . I hope that my comments and the several citations of Red Cross administrative regulations make it clear that, in the event of a nuclear accident at the Seabrook plant, *the American Red Cross will fulfill its humanitarian responsibilities to the citizens of Massachusetts and New Hampshire by providing appropriate mass care services in cooperation with public and private organizations.*

*Id.* at 70-71 (emphasis added).

9.149. Far from constituting evidence supporting the Attorney General's position that the ARC cannot be relied upon to provide appropriate mass care services, we view the ARC letter, from a level and with language of far more weight and focus as that found acceptable by the Commission in *Shoreham*, as an assurance that both the Applicants and the citizens of Massachusetts could continue to look to the ARC for such services in the event of a radiological emergency at the Seabrook Station. Not only does this conclusion flow from the language of the letter itself, it is consistent with one of the underlying premises of the Commission's "realism" rule.

The rule recognizes — as did Congress when it enacted and re-enacted the provisions of Section 109 of the NRC Authorization Act of 1980 — that no utility plan is likely to be able to provide the same degree of public protection that would obtain under ideal conditions, i.e., a state or local plan with full state and local participation, but that it *may* nevertheless be adequate.

Evaluation of the Adequacy of Off-Site Emergency Planning for Nuclear Power Plants at the Operating License Review Stage Where State and/or Local Governments Decline to Participate in Off-Site Emergency Planning, 52 Fed. Reg. 42,078, 42,082 (1987) (emphasis in original).

9.150. Finally, the fact that the Civil Defense Director for the Town of Amesbury questions the ability of the ARC to recruit sufficient volunteers to fully staff Congregate Care Centers in an area-wide emergency (*see Tr. 16,840-47, 16,863-65*) does not lead us to conclude that the presumed appropriate ARC response is not applicable to emergencies in northeastern Massachusetts. While the Amesbury Civil Defense Director based his views on his experience with his local ARC chapter's response to area-wide emergencies, and thus is entitled to some consideration, he acknowledged that he was no expert on the ARC's ability

to supplement its resources from other areas. Tr. 16,840-44, 16,863-65. We do not believe that his experiences with and views on the success of his local ARC chapter to recruit volunteers on an *ad hoc* basis justify a generalized finding that the local and regional chapters of the ARC in northeastern Massachusetts, working together and in conjunction with other volunteer organizations and state and local governments, is somehow less reliable than other chapters of the ARC throughout the United States. Moreover, nowhere in his testimony does the Amesbury Civil Defense Director assert that members of the public in need of emergency mass shelter care were left unserved due to an absence of a full complement of ARC volunteers.

9.151. Even absent a presumption that a promised ARC response will be appropriate, based on the record here, we would find reasonable assurances that such is the case with respect to the SPMC. The absence of implementing detail regarding the nature of an ARC response to a radiological emergency at the Seabrook Station is one of the Commonwealth's own making. Having obtained the ARC's silence, it now asks us to penalize the Applicants for that silence. This we decline to do. To the extent there are any ambiguities regarding the specific nature of a Seabrook-specific ARC response, we resolve those ambiguities against the Commonwealth and in favor of the Applicants for the reasons set out below. Moreover, we find that the SPMC provides an adequate planning/response framework through which the ARC's existing, state-coordinated general emergency response plans provide sufficient reasonable assurance that in the event of an emergency, the staff necessary to open and initially staff the SPMC Congregate Care Centers will be available.

9.152. The ARC is one of the most, if not *the* most, experienced organizations in the United States, if not the world, in setting up and staffing mass shelter facilities in emergency situations. Indeed, the ARC has in the past and continues presently to participate with the Commonwealth of Massachusetts, local governments, and other volunteer organizations within the state to develop and coordinate plans to open and staff congregate care facilities throughout the state in the event of numerous types of disasters, including nuclear war. *See* Appl. Reb. No. 6, *supra*, Attach. J.

9.153. In addition, while there are no Seabrook-specific response plans on the part of the ARC, it is certainly schooled in the provision of shelter care necessitated by a radiological accident at a commercial nuclear power plant. Not only is the ARC generally relied upon throughout the United States to assist in local nuclear power plant emergency preparedness, we take notice of the fact that the ARC *and* the Commonwealth of Massachusetts have in the past and continue presently to engage in planning and coordination activities with respect to the Pilgrim, Yankee (Rowe), and Vermont Yankee nuclear power plants, three facilities whose EPZs are located in whole or in part within the Commonwealth. And in developing its Radiological Emergency Response Plan (RERP) for those

facilities, the Commonwealth acknowledged that while radiological emergencies are specialized kinds of emergencies,

they have much in common with both natural disasters and emergency situations caused by man. Many of the emergency response functions which must be carried out (warning, coordination of emergency services, etc.) are common to all emergencies.

Appl. Exh. 55, at 5. Thus, the ARC's response plans and procedures already developed and tested with respect to other emergencies, including those applicable to other nuclear facilities within the Commonwealth, are applicable to any radiological emergency at the Seabrook Station.

9.154. The ARC has sixteen Chapters in northeastern Massachusetts, seventeen additional Chapters in the eastern portion of the Commonwealth, for a total of sixty-two Chapters throughout the Commonwealth. Appl. Reb. No. 6, *supra*, at 73. We are confident that these local Chapters, once notified of a need to respond and consistent with their obligation to respond, can provide the sixty to ninety volunteers initially needed to open the congregate care facilities. To the extent additional volunteers are necessary, the ARC itself has both a policy and a practice of recruiting additional necessary staff from the ranks of the evacuees and other sources of personnel. *Id.*, Attach. S, at 2, 7, 17-18; Tr. 20,974.

9.155. Moreover, to the extent the Attorney General seeks compensatory measures, we find that the Commonwealth has already created the mechanism through which a possible inadequate ARC response will be augmented. Under the Commonwealth's own Comprehensive Emergency Response Plan, applicable to every type of major disaster within the Commonwealth except, if the Attorney General is to be believed, a radiological emergency at the Seabrook Station, a written framework already exists to augment, coordinate, and focus the resources of not only the ARC, other volunteer organizations, and the federal government but also those of the Commonwealth itself and affected local governments. Appl. Reb. No. 6, *supra*, Attach. J. In situations where recourse to the Commission's "realism" rule is necessitated by the inaction of the state or local units of government, a board can (and we do) rely upon that rule to conclude not only that the relevant governments will respond with their available resources, but that they will also initiate any preplanned procedures and exercise any existing agreements to ensure the availability of whatever resources are necessary.

9.156. In connection with JI-51, the major focus of which has already been addressed in Section 8, above, the Attorney General advances two arguments regarding shelter size and availability which, in his view, defeat any finding of reasonable assurances that such facilities are adequate. First, he argues that some facilities relied upon in the SPMC to provide congregate care should be rejected as inadequate *per se*. Second, the Attorney General argues that there is

no assurance that the SPMC congregate care facilities will be available for use as shelters in a timely manner.

9.157. As we read the Attorney General's first argument, he urges the Board to reject as inadequate *per se* any Congregate Care Center that contemplates the sheltering of more than 1000 evacuees. Under the SPMC, both the Shriners' Auditorium and the Westboro shelter, for example, are counted on to house up to approximately 1484 and 2063 evacuees respectively. Appl. Reb. No. 6, *supra*, at 66-67.

9.158. In support of this proposition, the Attorney General identifies no specific difficulties resulting from the use of such large facilities which might act as a barrier or impediment to the provision of the minimum sheltering services *required under the Commission's emergency planning regulations*. Rather, this objection is founded on his characterization of the ARC criterion for shelters as requiring not only a 40-ft<sup>2</sup>/person minimum space allocation but also imposing a 1000-person ceiling on the number of evacuees per facility. MAG Exh. 63, at 3.

9.159. While no ARC regulation was shown to exist that prohibits the use of mass care shelters with a capacity over 1000 people (Tr. 19,187-90), it is apparently not the current policy of the ARC to house more than 1000 persons in any one facility.<sup>76</sup> Tr. 18,726-27. As a recognized expert in the staffing and administration of emergency shelters, the policies of the ARC are entitled to some deference in evaluating the adequacy of proposed shelters under the Commission's emergency planning requirements. However, the record reflects that the ARC has on occasion housed more than 1000 people in a single facility. Tr. 19,148-49. More significantly, the Commission's emergency planning requirements impose no minimum or maximum limits on the capacities of proposed congregate care facilities. Because neither the Commission's emergency planning standards nor the ARC's actual practice incorporates a rule rejecting shelters with a capacity of more than 1000 people, we decline to author such a rule here.

9.160. This does not mean that the ARC policy is wholly irrelevant to our task. Since the ARC staff and volunteers are expected to administer the SPMC shelters, it is important that the NHY/ORO-identified shelters correspond to the maximum extent practical to standards and policies to which the ARC is familiar. In its finding that the SPMC Congregate Care Centers expected to house more than 1000 evacuees were adequate, FEMA took the position that the intent of the ARC policy would be satisfied by establishing management structures within a large facility whereby separate managers are assigned responsibility for no more

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<sup>76</sup> We note that in its training guide for Shelter Managers the ARC does not reference such a policy as one of the factors to consider in selecting a good shelter. Appl. Reb. No. 6, *supra*, Attach. S, at 3-4.

than 1000 persons. In effect, one large facility becomes the common home of two or more Congregate Care Centers. Tr. 18,735-36.

9.161. We find the FEMA approach to be a reasonable accommodation of the ARC capacity policy, and elect to apply it in this case. Accordingly, we find that the SPMC shelter sites intended to serve significantly more than 1000 evacuees are adequate subject to the staffing and administration of separate but common situs subcenters satisfying the ARC capacity policy.<sup>77</sup>

9.162. The Attorney General's second argument attacks the assumption by Applicants that one can rely upon the actions of landlords to make designated shelter space within their facility available for use in a timely manner.

9.163. Because the NHY-identified shelters, which range from hotels to aircraft hangers, are routinely committed to uses other than that of a temporary mass shelter, the SPMC relies on individual landlords to clear the space within their facility necessary to provide shelter care. This is consistent with the procedures generally used through the country (Tr. 19,154), and FEMA contacted all Congregate Care Center landlords to ensure that they understood what was expected of them (Tr. 19,158-59). Nonetheless, because only nine of the twenty-five designated Congregate Care Centers had plans for clearing necessary space (Lonergan Dir., ff. Tr. 19,605, *passim*), there is no assurance that these "industrial" sites would be cleared in a timely and adequate manner. See Sikich-2 Dir., ff. Tr. 20,232, *passim*.

9.164. After reviewing the Attorney General's evidence on this point, we are forced to admit that it enhances, rather than weakens, our confidence that the necessary space will become available as needed. First, even where Congregate Care Centers are to be located at "industrial" sites, the space allocated for use is in areas that will require, if not already empty, only the movement of such items as tables, chairs, desks, beds, and similar items. Lonergan Dir., *supra*, *passim*; Tr. 19,618-20; Appl. Exh. 62. And even where space clearing required the movement of equipment, vehicles, aircraft, and the like, the Attorney General's own survey establishes that each landlord not only knew what had to be moved, they also had the available manpower to accomplish that task. Lonergan Dir., *supra*, at 7, 11, 14. Significantly, when queried whether landlords knew what needed to be moved, the Attorney General's own witness acknowledged that "a good portion of [site landlords] had pretty good ideas as to what it was about." Tr. 19,623.

9.165. It does not appear that the Attorney General's challenge as to congregate care space availability extends to the Shriners' Auditorium, the Westboro facility, or the Holy Cross College School Host Center. If it did,

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<sup>77</sup> Of course, should the ARC engage in preemergency planning with respect to the Massachusetts portion of the Seabrook Station and determine that it can administer and staff these large-capacity facilities as a single congregate care facility, the purpose of this condition and thus the condition itself, evaporates.

such a challenge would be unsuccessful. The LOAs between NHY and those facilities provide for their availability upon request. Facility officials have stated that even if a special event were in progress when such a request was made by the ORO, the facilities could be emptied and readied for at least partial utilization within 1 to 2 hours. Appl. Reb. No. 6, *supra*, at 69; Appl. Exh. 41, at 299-316.

9.166. This time frame is consistent with the evacuation time estimates we have already found reasonable for special facilities and populations within the EPZ, i.e., the facilities would be available to receive the first evacuees sent there by the time those evacuees were transported from the EPZ, processed at a Reception Center, and forwarded to the facilities. See Appl. Reb. No. 6, *supra*, at 69.

9.167. In light of the above and given the fact that not all shelters need to be available immediately, we find that reasonable assurances exist that space designated for use as Congregate Care Centers will be made available for use in a timely and adequate manner.

9.168. The Attorney General has advanced no persuasive arguments and/or has identified no significant impairments or institutional disabilities that lead us to conclude that the SPMC-listed congregate care facilities are inadequate as to their planned number, capacity, or staffing. Under the response framework of the SPMC, we find that there are reasonable assurances that sufficient and adequate Congregate Care Centers will be available to meet the temporary shelter needs of evacuees in the event of a radiological emergency at the Seabrook Station.

#### J. Rulings of Law

9.169. The mere existence of local opposition, ambiguous as to scope, depth, and permanence, to some proposed action does not render a portion of an otherwise adequate emergency plan unacceptable.

9.170. Detailed written agreements such as those proffered by the Applicants in this case are sufficient, in terms of their formality and the number of vehicles they cover, to support a finding of reasonable assurances on the issue of transportation resource availability in the absence of competent and probative evidence indicating that a particular provider cannot or will not comply with the terms of the agreement.

9.171. Our holding in LBP-88-32, *supra*, 28 NRC at 714-15, applying a monitoring planning basis of 20% for the Seabrook EPZ is not so inflexible as to ignore possible variations among categories of evacuees so long as, at a minimum, the overall planning basis for each reception center is satisfied. Since reception centers provide three services: monitoring, decontamination, and referral to temporary shelter, it is proper to evaluate and consider differences

in a particular group's motivation to go to a reception center in determining that group's expected reception center usage rate.

9.172. In assessing an emergency plan prior to the grant of a full-power license, a licensing board's task is not to assess what is, but rather to determine what needs to be and whether there is reasonable assurance that what is necessary can be acquired or performed in a timely manner. Where commitments to amend an emergency plan are "sufficiently detailed and concrete" to support a predictive finding (i.e., reasonable assurances) "that they can and will be implemented in the event of an emergency," a Board may make the requisite finding and leave to the Staff the duty of ensuring implementation of that commitment. *Waterford*, LBP-82-100, *supra*, 16 NRC at 1563, 1578, *aff'd*, ALAB-732, 17 NRC 1076, 1105 (1983).

9.173. The Commission has authorized its adjudicatory boards to apply a rebuttable presumption that an American Red Cross commitment to respond to an emergency, whether or not documented in a written LOA, is sufficient, for the purpose of any finding of reasonable assurance under its emergency planning requirements, to conclude that an ARC response will not only be forthcoming, it will be adequate and effective. See *Shoreham*, CLI-87-5, *supra*, 25 NRC 884.

## K. Conclusions

9.174. Subject to the timely satisfaction of conditions set out in Findings 9.45, 9.73, 9.99, 9.101, and 9.110, we find that there are reasonable assurances that there will be available adequate equipment, facilities, procedures, emergency response personnel, and transportation vehicles to implement the SPMC in the event of a radiological emergency at the Seabrook Station.

9.175. The conditions set out in Findings 9.45, 9.73, 9.99, 9.101, and 9.110 are not of the type requiring further adjudication, but rather, are implementing details that can be and are left to the NRC Staff.

## 10. COORDINATION OF GOVERNMENTAL RESOURCES AND RESPONSE

### A. Background

10.1. Contentions JI-61 through JI-63 raised issues as to the coordination between and among the Offsite Response Organization (ORO) and New Hampshire and Massachusetts state and local governments. Contentions Memo. at 87-93. Contention JI-27 raised similar issues. *Id.* at 37-39.

10.2. FEMA found that the SPMC adequately addresses the organization interface with the Commonwealth under various modes of operation.

Appl. Exh. 43C, at 6-7 (FEMA Review and Evaluation of SPMC). We address the Massachusetts Attorney General's challenge to FEMA's finding below after the various modes of the SPMC have been explained.

10.3. The Board agrees with the Massachusetts Attorney General that, in this proceeding, the issues of governmental response present unique emergency planning concerns. The Board must make a judgment as to the overall adequacy of the emergency response under circumstances where Massachusetts Commonwealth and local governments have decided not to participate in planning.

10.4. The Board rejects, however, the proposed finding of the Massachusetts Attorney General that the Commonwealth and local governments decided not to participate in planning solely because "in their view, no plan would adequately protect the public." MAG PF 10.1.1.A. At the outset of this phase of the proceeding the Massachusetts Attorney General explained that the Commonwealth decided not to participate in emergency planning because, in the case of the fast-breaking serious accidents included within the planning spectrum, and given large summer transient beach populations, limited egress and ingress to the beaches, meteorological site conditions, and the absence of sheltering for those on the summer beaches, no plan could meaningfully reduce the profile of risk presented in the Seabrook EPZ. The Massachusetts Attorney General acknowledged that the slow-paced and less-serious accidents are not the thrust of his concern.<sup>78</sup>

10.5. Yet when pressed by the Board to explain why the Commonwealth and local governments would not participate in planning when substantial dose avoidance to the public could be realized in the case of slowly developing accidents by planning, we were never provided with a responsible explanation. We were told simply that the Commonwealth does not engage in emergency planning for Seabrook. We conclude from the very long evidentiary record in this case that a principal reason, perhaps the most important reason, for the refusal of the Commonwealth and local governments in the EPZ to participate in emergency planning for the Seabrook Station is to further a litigation strategy intended to defeat the application for an operating license. This conclusion is material to the proceeding because it brings into question the credibility of the Massachusetts Attorney General's claims that virtually every detail of the SPMC is defective. Even accepting the Massachusetts Attorney General at his word that planning for the fast-breaking serious accident with a peak summer population is futile, by ignoring the advantages of planning in the case of a slowly developing accident he weakens his argument that coordination between the governments and Applicants' ORO is pointless and must await the very moment of an accident. In our view, the very moment that operation of the Seabrook Station becomes

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<sup>78</sup>Contentions Submitted in Response to the Seabrook Plan for the Massachusetts Communities, April 11, 1988, at 1, 2, & n.1.

near at hand, the rational governments of the Commonwealth and the EPZ communities will participate in a high degree of interaction, communication, and coordination with the ORO.

10.6. Moreover, the Board does not accept the proposition by the Massachusetts Attorney General that the Commonwealth is unprepared for an emergency at Seabrook because it is ignorant of the provisions of the SPMC. The Commonwealth, through its appropriate constitutional officer, the Attorney General, has availed itself of its rights under section 189a of the Atomic Energy Act to examine, probe, test, and challenge all aspects of emergency planning for the Seabrook Station, including the provisions of the SPMC. The Commonwealth has had extensive discovery of the foundations of radiological emergency planning for Seabrook — not only of the Applicants, but of the NRC and FEMA as well. During more than 100 days of evidentiary hearings, the Attorney General has examined sworn witnesses presented by the Applicants and FEMA. More than 50 of the hearing days were devoted to the SPMC and the FEMA graded exercise of the SPMC. No other radiological emergency plan has been studied as carefully and as thoroughly as the SPMC has been studied by the Commonwealth of Massachusetts. In addition the Commonwealth has employed experts to study the SPMC and advise them on its details. Many Assistants to the Massachusetts Attorney General who have participated in this proceeding have demonstrated their broad and detailed knowledge of the details of the SPMC.

10.7. The Attorney General promotes the notion that this information is accepted by his office for litigation purposes only, and that it is not available to the Commonwealth's emergency decisionmakers. This is a litigation-inspired artifice — both legally and factually deficient. Legally, the Commonwealth departments of government have at least constructive knowledge of the information gathered by the Attorney General in this proceeding. Factually the Assistants to the Attorney General, as noted, are virtually saturated with knowledge about the SPMC. They would not withhold that knowledge from the Commonwealth decisionmakers in the event of a radiological emergency.<sup>79</sup> As a factual matter, the Attorney General has no record foundation for the suggestion that information about the SPMC has stopped in his office.

## B. Attorney General's Case

10.8. In any event, for whatever reason, Commonwealth and local EPZ governments have not recently trained, drilled, or exercised to respond to a ra-

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<sup>79</sup> True, their collective mastery of the SPMC will fade after this litigation is concluded. On the other hand, once the litigation is over and the licensing of Seabrook is near at hand, the emergency decisionmakers of the Commonwealth will satisfy their preference for planning and will accept the SPMC or update their own site-specific Seabrook plans.

diological emergency at Seabrook. Tr. 23,631-32. To compensate for this lack of planning, the Applicants have put forward a utility-authored plan, the SPMC, which is designed to be compatible with the organizational structure of the utility's ORO. *See generally*, SPMC Procedures. The SPMC contemplates, under certain "modes," described *infra*, interaction, communication, and coordination between and among ORO and the Commonwealth and local EPZ governments in an actual emergency. *See* SPMC § 3.1, at 3.1-2. This coordination was not demonstrated, except by a limited simulation, in the June 1988 Exercise with ORO and governmental officials (Tr. 22,929-34), because the governments refused to participate in the June 1988 Exercise. Within this context, the Board must determine whether the SPMC reasonably assures that adequate protective measures can and will be taken in a radiological emergency at Seabrook. 10 C.F.R. § 50.47(a)(1).

10.9. The Attorney General's principal witness with respect to these contentions was Charles D. Jones. Jones Dir., ff. Tr. 23,397, *passim*. Mr. Jones specifically limited his testimony to JI-27(A), JI-61, and JI-62. Tr. 23,413. From January 1985 to April 1988 Mr. Jones was Director of the Illinois Emergency Services and Disaster Agency (IESDA). Prior to that he served in a public relations capacity. Jones Dir., *supra*, Attach. 1.

10.10. Mr. Jones testified that the ORO Liaisons will not be able to function effectively in SPMC Mode 1 or Mode 2 Partial Response, because they do not know enough about how Massachusetts operates to interpret the SPMC to Massachusetts officials and personnel. *Id.* at 16-17. As we note below, Mr. Jones actually had little information on this subject.

10.11. The overriding theme of Mr. Jones' testimony was that the SPMC, as a utility-authored plan and without advance coordination with state and local governments simply was not good enough, mostly because such a plan is inherently inadequate. *Id., passim*; Tr. 23,449. This view, if we understand it correctly, is not in accord with the Commission's standard for utility-sponsored radiological emergency plans. As the Commission noted in the Statement of Considerations underlying the final "realism" rule:

The rule recognizes — as did Congress . . . — that no utility plan is likely to be able to provide the same degree of public protection that would obtain under ideal conditions, i.e. a state or local plan with full state and local participation, but that it *may* nevertheless be adequate. [Emphasis in original.]

Evaluation of the Adequacy of Off-Site Emergency Planning for Nuclear Power Plants at the Operating License Review Stage Where State and/or Local Governments Decline to Cooperate in Off-site Emergency Planning. 52 Fed. Reg. 42,078, 42,082 (Nov. 3, 1987).

10.12. The State of Illinois, of course, cooperates fully with utilities in radiological emergency planning as two members of this Board observed in the *Byron* and *Braidwood* proceedings. *See also* Jones Dir., *supra*, at 3-4. In fact, according to Mr. Jones, Illinois state and local governments have been involved in the radiological emergency response "planning, and the training and exercising process from day 1." Tr. 23,448. Thus it was understandable why Mr. Jones would give a failing grade to a radiological emergency response plan designed to be implemented without advance state or local government participation. However, he has no special expertise and no experience in assessing the quality of a radiological emergency response plan formulated without contribution by the governments. *E.g.*, Tr. 23,510.

10.13. Mr. Jones overstated his qualifications and experience to testify as he did in his prepared testimony. His statement that he "brought to completion the development of disaster preparedness plans for all nuclear power plants located in Illinois, i.e., seven sites with multiple reactors" suggests far more involvement with those emergency plans than was actually the case. These plans were essentially complete before Mr. Jones became Director of the IESDA. His actual responsibility was authoring the public information sections of the plans. While this experience does provide familiarity with the planning process, it does not qualify Mr. Jones to provide to this Board the conclusionary advice contained in his testimony, as we discuss below. Tr. 23,399-403, 23,434, 23,510.

10.14. Mr. Jones performed poorly when queried by the Board as to his expertise and experience to assess public skepticism of utility-authored emergency plans. He clearly has no such experience but would not readily admit that fact, preferring to be evasive. Tr. 23,504-07, 23,510. *But see* Tr. 23,511. *See also* Tr. 23,400-02, 23,413-15, 23,477, 23,516-17. *Compare* Tr. 23,519-20 with Tr. 23,498-99.

10.15. Mr. Jones concedes that he has had no experience with any utility-generated plan other than his familiarity with the SPMC gained in preparation of his testimony. Tr. 23,510. He spent only 2 to 4 hours "looking at" the SPMC, not reading it in detail, but he feels he understands it. Tr. 23,409.

10.16. Mr. Jones also suggested that fear of radiation and skepticism of the nuclear industry would lead to confusion, a refusal to listen to governmental authority and a situation of "every person for themselves," at least in Mode 2 Partial. Tr. 23,453-55. However, he has no expertise as to these issues of human behavior. Tr. 23,511-13. Mr. Jones does not claim to have gained any expertise on the human factors aspect of his testimony from his experience in Illinois. Rather, he states, it was derived from "the confusion surrounding Three Mile Island, and evacuation or not evacuation, or evacuation of pregnant women and children or not, the hydrogen gas bubble or not. That's the foundation." Tr. 23,455. Mr. Jones did not reveal any special insight into the

public response following the Three Mile Island accident, and his testimony, cited above, provides no foundation for his views.

10.17. Mr. Jones admitted to having no knowledge as to what training the SPMC Liaisons, in fact, had. Tr. 23,418-19. In view of the fact, presented to him by Applicants' counsel, that the Commonwealth had spent millions of dollars litigating the SPMC, he admitted that it was not fair to assume that Massachusetts officials would not be familiar with the SPMC. Tr. 23,431. He could make no prediction as to the degree of familiarity they would have. Tr. 23,445. He sees the issue as whether the SPMC would work. Tr. 23,431.

10.18. Mr. Jones at first claimed that there is no state emergency plan that is specific to Seabrook (Jones Dir., *supra*, at 10), a view he gained from the media. Tr. 23,427. He later acknowledged that more than one such state plan existed: the Massachusetts Bay Transportation Authority Plan, the Nuclear Incident Advisory Team (NIAT) handbook, and the Massachusetts Comprehensive Emergency Response Plan. Tr. 23,516-22. However, he questions their effectiveness because of their age. Tr. 23,523.

10.19. The Board concludes that Mr. Jones' analysis of the effectiveness of the SPMC should be afforded very little weight.

10.20. The Massachusetts Attorney General also relies upon the testimony of Dr. T. Michael Carter. Carter Dir., ff. Tr. 27,546, *passim*. As noted in Finding 7.68, *supra*, Dr. Carter is a sociologist qualified in the field of human factors and behavioral response to emergency situations. He is a consultant to the National Weather Service. He claims no expertise in the area of radiological emergencies — his experience is weather related, particularly hurricanes.

10.21. Dr. Carter stated that the June 1988 FEMA Graded Exercise revealed that the coordination between ORO and the State of New Hampshire was less than optimal because of what he believed to be inconsistent messages between adjacent jurisdictions. The State of New Hampshire had closed its beaches before ORO made its first public announcements, and those announcements, when finally made, did not say what had been done at New Hampshire beaches or give a recommendation for the Massachusetts beaches. In addition, the State of New Hampshire acted on, and gave out, recommendations on schools before the ORO informed the public of that fact or explained the situation in Massachusetts. Dr. Carter believes that this would cause parental concern in Massachusetts. Carter Dir., *supra*, at 24-26.

10.22. Missing from Dr. Carter's analysis is any sense that he appreciates the difference between exercising an emergency plan and executing one during an emergency. Mr. Donovan of FEMA, who directed the 1988 exercise, explained that the situation alluded to by Dr. Carter was heavily influenced by the FEMA control cell. FEMA would not permit the ORO to recommend a protective action for children similar to the New Hampshire action even though

the ORO communicated to the FEMA control cell that it would have made such a recommendation. Tr. 22,576-79.

10.23. Dr. Carter did not appreciate the fact that FEMA from time to time deliberately inserted stress and frustration into the exercise by creating artificially spontaneous scenarios. Tr. 22,466-72. His experience with hurricanes is not analogous to FEMA's approach to exercising radiological emergency plans.

10.24. The Town of Amesbury offered testimony, admitted by stipulation, by the Chairman of its Board of Selectmen concerning Amesbury's emergency response planning and resources. Morrissey Reb., ff. Tr. 23,938, *passim*. While stating that Amesbury has refused to engage in planning specifically for Seabrook, the witness testified that Amesbury has a "strong," "well-prepared" civil defense force that has received ample funding, significant training, and direct mutual-aid experience, and a permanent Emergency Operations Center (EOC). *Id.* at 2, 4. According to the witness, Amesbury's refusal to engage in Seabrook planning has had no detrimental effect on the town's other emergency planning efforts. *Id.* at 4.

10.25. Amesbury's level of preparedness for nonradiological emergencies does not in itself demonstrate that the town officials are familiar with the SPMC.<sup>80</sup> According to the Massachusetts Attorney General, even if the town were familiar with the plan, there is no evidence that Amesbury officials have the resources to implement, or are capable of implementing, the SPMC in a radiological emergency. In the view of the Chairman of Amesbury's Board of Selectmen, Mr. Morrissey, "no emergency plan can be formulated to safely evacuate the Town if . . . a radiological accident occurs." This is an opinion totally without expert support. It is, rather, a political decision arrived at by a vote of the Town Meeting and the Selectmen in 1986. *Id.* at 2.

10.26. Given this high level of preparedness by Amesbury, it is reasonable to assume that its best-efforts response to any Seabrook-related emergency would be well equipped and competently directed. The Board's views in this regard are supported by the testimony of Mr. Clark, the Director of Amesbury Civil Defense. He appeared under subpoena for cross-examination by Applicants' counsel, and demonstrated a highly professional and knowledgeable approach to civil defense. Tr. 16,750-897.

10.27. The Board agrees with and adopts Applicants' proposed finding (10.1.16) that despite the fact that these contentions involve numerous questions about the state of the Commonwealth's plans, capabilities, resources, and information, the Attorney General did not offer as a witness even one Commonwealth official who is involved in emergency planning or response. Similarly,

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<sup>80</sup> However, the Town of Amesbury has been an active participant in this proceeding, and its Selectman, William Lord, in addition to legal counsel, has represented the town. Necessarily some familiarity with the provisions of the SPMC has been attained by Amesbury.

the Attorney General did not offer even a single document relating to state or local emergency plans or resources. Applicants, on the other hand, provided extensive documentation as to the plans, capabilities, and resources of the Commonwealth and the six EPZ communities. *E.g.*, Appl. Exhs. 44, 48, 51, 55-60; *see also* Appl. Reb. No. 21, ff. Tr. 23,537, Attachs. A-E, G-Q.

10.28. The Massachusetts Attorney General, however, counters that he had no obligation to offer any witnesses, since Applicants have the burden of proof on all issues. He notes that Applicants themselves never sought, by subpoena or otherwise, to present any Commonwealth emergency planning officials as witnesses. He states that Applicants instead offered a stack of outdated, unexercised, Commonwealth-rejected draft plans, and claimed that such "plans" demonstrated the capability for an adequate response. *See, e.g.*, Tr. 23,428. *See MAG PF 10.1.16.*

10.29. The Attorney General confuses overall burden of proof with the burden of proceeding with the evidence on particular matters. Clearly the best source of information concerning the Commonwealth's plans, capabilities, and intentions reposes with the Commonwealth's officials. Similarly, if Commonwealth papers offered by Applicants into evidence were, as the Massachusetts Attorney General states, outdated, unexercised, and rejected, it had access to this forum to explain those matters.<sup>81</sup> These are the Commonwealth's contentions, placed into issue by the Massachusetts Attorney General. He has had full opportunity to rebut the presumption of the emergency planning rule and the Board's ruling that, in the absence of coming forward with evidence to the contrary, the Board will infer with respect to each relevant issue, that the Commonwealth's response to a radiological emergency at Seabrook will be adequate. Tr. 15,319, 15,487-88, 15,508-09.

### C. Applicants' Case

10.30. Applicants offered the testimony of a panel of witnesses consisting of: Anthony M. Callendrello, Manager, Emergency Preparedness Licensing, New Hampshire Yankee (Qualifications, ff. Tr. 17,318); Catherine M. Frank, Emergency Planner, Impell Corporation (Qualifications, ff. Tr. 23,530); and John G. Robinson, Director of Environmental Engineering, Yankee Atomic Electric Company (Qualifications, ff. Tr. 23,531). Appl. Reb. No. 21, ff. Tr. 23,537, *passim*. The Board finds these witnesses competent to testify with respect to the areas they addressed.

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<sup>81</sup> Presumably the Commonwealth papers received into evidence were obtained from the Commonwealth through discovery. If the Commonwealth produced "outdated" papers but not those superseding the outdated papers, it cannot be heard to complain that the record is stale.

10.31. In particular, the Board notes that Messrs. Callendrello and Robinson between them have at least 26 years of experience working directly with Commonwealth officials in emergency planning for nuclear power plants. Tr. 23,598-602. In addition, Mr. Robinson — whose ORO position is as liaison to the Massachusetts Department of Public Health — is one of the individuals whom the Commonwealth has designated to be called upon to respond to a radiological emergency at the other power plants in the state, albeit not with respect to Seabrook. *See* Appl. Exh. 59, at 21; Tr. 23,602.

#### D. Commonwealth's Existing Capabilities

10.32. Applicants' panel explained in detail the existing capabilities in the emergency planning area of the Commonwealth of Massachusetts. Appl. Reb. No. 21, *supra*, at 1-23. The Commonwealth's Comprehensive Emergency Response Plan (CERP), Rev. 1, 6/15/84, Applicants' Exhibit 57, provides the structure of the state emergency response organization and outlines the responsibilities of state and local governments in responding to an emergency. Appl. Reb. No. 21, *supra*, at 2.

10.33. The CERP, page ONE-70, addresses the purpose of the Hazard-Specific Supplements to the CERP:

The procedures set forth above in Part One of this Plan represent a standardized response to the full range of disasters to which the Commonwealth is known to be vulnerable, and are sufficiently generalized to be effective in the event of undefined emergency situations. The Hazard-Specific Supplements included in this Attachment are intended to amplify the general procedures and responsibilities of Part One proper.

Appl. Reb. No. 21, *supra*, at 2.

10.34. Hazard-Specific Supplement No. 6 (pages ONE-96 through ONE-99 of the CERP) establishes that “[b]asic responsibility and authority for dealing with any type of accident involving nuclear materials is assigned by law to the Department of Public Health and exercised through its Radiation Control Program” and that

Coordinating the preparation and execution of contingency plans of local governments and State agencies so as to carry out the recommendations of the Commissioner of Public Health is the responsibility of the Secretary of Public Safety and, under Chapter 639 of the General Laws, is carried out through the Massachusetts Civil Defense Agency.

Appl. Exh. 57, at 105, 106; Appl. Reb. No. 21, *supra*, at 3-4.

10.35. In addition, this Supplement identifies, at ONE-98, response by Commonwealth NIAT:

The Department of Public Health in cooperation with the Massachusetts State Police, operated [sic] a well-tested system of responses to the threat or occurrence of nuclear incidents. This response, led by the Radiation Control Program of the Department of Public Health, is conducted by Nuclear Incident Advisory Teams (NIAT), with assistance from the State Police on both initial alerting and emergency response.

Appl. Exh. 57, at 107.

10.36. The CERP establishes the formal organization, responsibilities, and interfaces on state and local levels for emergency response within Massachusetts. Development of the Commonwealth's Radiological Emergency Response Plan (RERP Appendix 3 to Hazard-Specific Supplement 6 of the CERP) was initiated in 1975 to provide guidance to state and local officials for responding to radiological emergencies at Pilgrim, Yankee (Rowe), and Vermont Yankee nuclear power plants. Appl. Reb. No. 21, *supra*, at 4.

10.37. The RERP was developed as an appendix to the Massachusetts CERP to reflect

the fact that radiological emergencies at nuclear facilities are specialized kinds of emergencies. However, they have much in common with both natural disasters and emergency situations caused by man. Many of the emergency response functions which must be carried out (warning, coordination of emergency services, etc.) are common to all emergencies.

RERP, 4/86, Appl. Exh. 55, at 5.

10.38. Guidance in the 1975 RERP included provisions for evacuation, reception centers, and incorporation of American Red Cross response for all three plants. Appl. Reb. No. 21, *supra*, at 4.

10.39. A substantial upgrade to the RERP was undertaken in 1979 incorporating the 10-mile plume exposure and 50-mile ingestion pathway planning zone guidance from NUREG-0396 and expanding sections on warning and communication, coordination of emergency operations, public information, and accident assessment. *Id.* at 4-5.

10.40. Local communities were recipients of copies of the RERP as well as area and local plans in December of 1979. The RERP became effective December 31, 1979. *Id.* at 5. A section of the RERP contains plans for the Seabrook Station. Appl. Exh. 55, at 5.

10.41. The 1979 RERP was considered by the Massachusetts Civil Defense Agency (MCDA) to "form an excellent base for the Seabrook area work," and was projected to "progress in coordination with officials of the State of New Hampshire, with whom Massachusetts (and Vermont) have been working closely on plans for the Vermont Yankee nuclear power station. Appl. Reb. No. 21, *supra*, at 5-6.

10.42. Planning by the Commonwealth, in conjunction with the utility, for the Massachusetts communities in the Seabrook plume exposure EPZ was

initiated early in 1982. A prototype local plan was completed in October 1983. Later in 1983, MCDA established a task force to revise and complete local plans. During 1984, emergency planning coordination meetings were attended by representatives of Seabrook Station, FEMA, NRC, Massachusetts, and New Hampshire. Late in the year, revised local plans and a revision of the RERP were submitted to FEMA Region I for technical review. *Id.* at 6.

10.43. By mid-1985, emergency planning committees composed of public safety officials and members of the public were established in the Massachusetts EPZ communities. Planning assistance to state and local officials was provided by personnel under contract to the Commonwealth. Work continued on the development of the Seabrook-specific state plan, the Area 1 MCDA plan, and plans and implementing procedures for all six EPZ communities and two host communities. These plans were sufficiently advanced that the Commonwealth Secretary of Public Safety requested that FEMA perform a technical review of them in February 1986. FEMA and NRC representatives performed that review and presented their findings to the Commonwealth in April 1986. The State, Area I, and local plans were all revised to incorporate the results of the technical review. Appl. Reb. No. 21, *supra*, at 6-7.

10.44. During the period when these plans were undergoing development, other activities were also progressing. Training of Area I and local responders was ongoing, and at the time the Governor called a halt to all Seabrook-related activities, at least 500 persons including municipal Civil Defense, Department Heads, School and Special Facility, Fire, Police, Emergency Medical Services, and Public Works personnel had received some training. Training was also conducted for approximately 100 Essex County Sheriff's Department Deputies. All six Massachusetts EPZ communities are within Essex County. Further, NYH provided substantial equipment to state and local responders to improve their communication, emergency management, and radiological monitoring capabilities.

10.45. The formal Town Meeting vote by the Town of Amesbury on November 18, 1985, to refuse to participate in completing their local radiological emergency response plan led MCDA to authorize development of a state compensatory plan for nonparticipating communities. A draft of the plan was developed to "define and establish response of the Commonwealth of Massachusetts for radiological emergencies at the Seabrook Station in [sic] behalf of one or more municipalities when municipal response is unable to function or is impeded or impaired by natural or man-made disasters or other conditions." Appendix 5, Compensatory Response Plan, Area I, MCDA/OEP, Radiological Emergency Response Support Plan for Seabrook Nuclear Power Station, 1986, at 1. To provide the capability to respond in support of any of the six Massachusetts communities, Attachments 5-A through 5-F of this plan contain information summaries for each of the six communities.

10.46. Following the accident at Chernobyl, the Governor of Massachusetts ordered a halt to all Seabrook-related implementation activities on April 29, 1986. MCDA halted contractor planning activities on June 13, 1986. The Governor announced his refusal to allow any further state or local planning for Seabrook Station on September 20, 1986. Appl. Reb. No. 21, *supra*, at 7-8.

10.47. The Commonwealth of Massachusetts has been prepared to respond to a radiological emergency for over a decade. A structured state response organization is in place and has been trained and tested in response to simulated emergencies at Pilgrim, Yankee (Rowe), and Vermont Yankee nuclear plants. Between 1982 and the present, the Commonwealth organization has participated in twelve FEMA graded exercises for these plants. Facilities and equipment in place to support response to these plants are equally available to support a coordinated response with the New Hampshire Yankee Offsite Response Organization during an emergency at Seabrook Station. *Id.* at 8-9.

10.48. In addition, Executive Order No. 144 was issued by Governor Dukakis on September 27, 1978, "as a necessary preparatory step in advance of actual disaster or catastrophe and as part of the comprehensive plan and program for the Civil Defense of the Commonwealth." Executive Order No. 144, Attach. B to Appl. Reb. No. 21, *supra*. The Order further establishes that:

Each secretariat, independent division, board, commission and authority of the Government of the Commonwealth (hereinafter referred to as agencies) shall make appropriate plans . . . for maintaining or providing services appropriate to the agency which may be required on an emergency basis. Each agency shall make appropriate plans for carrying out such emergency responsibilities as may be assigned by this Order or by subsequent Order . . . and for rendering such additional emergency assistance as the Secretary of Public Safety and the Civil Defense Agency and Office of Emergency Preparedness may require.

The Order also directs the promulgation and issuance of a Comprehensive Emergency Response Plan which constitutes "official guidance for operations for all agencies and political subdivisions of the Commonwealth in the event of an emergency or natural disaster." *Id.*

10.49. The CERP, at pages One-13 through ONE-25, assigns "responsibilities for specific State agencies with clear-cut emergency roles and responsibilities . . . under the provisions of Executive Order 144." Appl. Exh. 57, at 21. Eleven executive-office-level agencies and twenty-eight division, department, or commission-level organizations are identified. "Responsibilities are further developed, and procedures for carrying them out, are detailed in the Functional Annexes to this State Plan." *Id.* at 18.

10.50. Moreover, actions the Commonwealth would take to protect the public in the event of a radiological emergency at Seabrook Station are identified in Massachusetts Attorney General's Answers to NRC Staff's Third Set of Interrogatories and Requests for Production of Documents, 12/19/88. At pages

2 through 7 of that document, the Attorney General describes the anticipated responses of eleven state agencies or departments. Appl. Reb. No. 21, *supra*, at 10-26.

10.51. In cross-examination the Massachusetts Attorney General attempted to demonstrate limitations to the Commonwealth preparedness and capabilities, as we note below.

10.52. Since June 1986, there has been no planning or updates by the Commonwealth of site-specific radiological emergency response plans for Area I and the six Massachusetts towns in the Seabrook EPZ. Tr. 23,617-19.

10.53. A draft plan for Newburyport was prepared in October 1983. It was intended to be a model plan for other communities as well. Tr. 23,626-28. The Massachusetts Attorney General asserts that the age of the plan renders the "model" plan suspect and inadequate. He does not explain why age alone would have that effect. He also flatly misrepresents the record when he alleges that the drafter of the model plan had his work rejected by Applicants and that there was apparent incompetence in the drafting of the plan. *Id.*; see MAG PF 10.1.20.B.

10.54. Four months of training in radiological response were provided to Area I and Seabrook EPZ local officials and responders. This training ended in March 1986, and no radiological training, drill, or exercises for Seabrook have been provided for government officials since that date. There have been general disaster drills since then and exercises for the other nuclear sites covered by the Commonwealth RERP, however. Tr. 23,631-32.

10.55. As noted above, in 1986, Massachusetts had begun to draft a compensatory plan for Massachusetts EPZ municipalities near Seabrook who were unable or unwilling to respond. The plan was usable in 1986 and some portions of the plan are still current. The draft plan has not been updated, tested, drilled, or exercised since that date. Tr. 23,632-34.

10.56. The SPMC has modified certain provisions and procedures from those appearing in the 1986 draft compensatory government plans. Traffic control points have changed very little, but the modifications include some revised traffic control points. Tr. 23,633. There are small changes in access control points (Tr. 23,655, 23,657), and a change of the location of reception centers. Tr. 23,694.

10.57. The draft compensatory plan of 1986 is not today readily available to most of those in the State Police command structure. The plan is not available at all to any of the Troopers in their vehicles. Tr. 23,657-58.

10.58. Applicants' witness, Mr. Robinson, suggested that it would be an adequate response to a Seabrook emergency for State Police to "generally follow the procedures that they use in everyday course of business" (Tr. 23,636), even though Massachusetts State Police north of Boston, and west 50 miles, have not participated in nuclear preparedness drills and exercises. Tr. 23,638-39.

State facilities and equipment identified for other nuclear sites would not be immediately available for a Seabrook emergency, due to the distance from those plants. Tr. 23,643.

10.59. Applicants' panel testified that state and local officials will generally follow the SPMC by utilizing provisions in the SPMC for determining and implementing protective actions, implementing traffic control, use of reception and host facilities, monitoring/decontamination facilities, and transportation operations. It is not necessary for state or local officials to insert themselves into the ORO and follow the specific mechanics of all SPMC procedures. Tr. 23,916-18, 23,990-24,016. The argument by the Massachusetts Attorney General that state and local officials will not be able to follow the SPMC in those modes not intended for them to follow is a tautology. MAG PF 10.1.21. It was first rejected by the Board at the contention screening stage, and we reject it now.

10.60. There is no conceptual difference between the Commonwealth's responding to a radiological emergency at Seabrook and its responding to a radiological emergency at any of the other three nuclear plants for which it does have specific plans. The response would be handled under the same state plan that has been exercised about twelve times at the other nuclear plants. The same emergency responders, including high-level officials of the Department of Public Health and Civil Defense Agency would operate their posts. The same people would constitute the NIAT teams in responding at Seabrook. Tr. 23,634-35.

10.61. Although the Applicants have made a substantial good-faith attempt to secure and retain the cooperation of the Commonwealth in emergency planning, the position of the Commonwealth has been, since September of 1986, that no state or local planning will be undertaken for an emergency at Seabrook. Appl. Reb. No. 21, *supra*, at 24 and Attach. F; Tr. 23,669. The Attorney General's response to this point includes the allegation, unproven either way in this proceeding, that the six local EPZ governments independently reached their own position with respect to Seabrook planning. MAG PF 10.1.23. But in any event, the matter is irrelevant to the issue of whether the Applicants have made a good-faith effort to secure and retain the cooperation of the relevant governments.

#### E. Modes of the SPMC

10.62. Because it incorporates and expands upon the emergency planning in place prior to state and local withdrawal, the SPMC constitutes an outgrowth of the Commonwealth's identification in 1986 of the need for a compensatory response plan for nonparticipating Massachusetts communities. State-level withdrawal from the planning process dictated that the utility-sponsored plan would have to incorporate the capability to compensate for response actions of both state and local levels of government as well as to commit all necessary

resources and accommodate any degree of governmental response. "To ensure a smooth integration, this plan has been developed to be consistent with the Commonwealth of Massachusetts Radiological Emergency Response Plan (RERP) which is currently used for the operating nuclear power plants located in, or within 10 miles of, the Commonwealth's boundaries . . ." (SPMC, at 1.2-2), and "in particular with the generic sections A and B which describe the Statewide radiological emergency response program" (*id.* at 1.3-1). Appl. Reb. No. 21, *supra*, at 25-26.

10.63. Mode 1 through Full Mode 2 implementation represents a spectrum of response integration as described in the SPMC at 1.1-2:

The compensatory actions which are delineated in this plan can range from supporting requests for augmented personnel and resources to performing emergency response actions or implementing the total response in place of those organizations.

The SPMC provides Mode 1 and Mode 2 levels of operation to allow for integration of Massachusetts and ORO resources in response to an emergency at Seabrook Station. As noted, the Commonwealth participated extensively in radiological emergency preparedness in support of the two nuclear power plants in the state as well as for one in the State of Vermont. During a Seabrook Station emergency, this preparation will provide the basis of a planned Mode 1 response. The fundamental concepts of emergency classification, protective action decisionmaking, and public notification are well understood by personnel from the Massachusetts Civil Defense Agency and Department of Public Health, and guidance is available to them in the Commonwealth's CERP. This statement is supported by Massachusetts Attorney General's Answers to NRC Staff's Third Set of Interrogatories and Requests for Production of Documents, 12/19/88, at 4, 5, and 6, respectively, which *states*:

Because there are presently no specific emergency plans for responding to a Seabrook emergency, . . . DPH NIAT members would respond to an emergency by relying on previous training and experience in handling emergencies at other nuclear power plants.

The MCDA would, upon authorization, utilize *ad hoc* measures as determined by the Director or his designee. MCDA would look to the CERP for guidance . . . rely on professional experience . . .

10.64. Therefore it is expected that during an emergency, Massachusetts officials will have the capability to evaluate the situation rapidly and implement those actions that are in the best interests of their citizens. The decisionmaking exercised by the Commonwealth determines the ORO's level of response. Appl. Reb. No. 21, *supra*, at 28.

10.65. Standby Mode is instituted to provide Massachusetts with the option for response implementation using resources of its own that the Commonwealth

deems adequate. During Standby, the ORO continues to perform accident assessment analyses in concert with the Seabrook Station onsite Emergency Response Organization (ERO) and the State of New Hampshire. The ORO maintains a state of readiness during this mode by having personnel report to their assigned locations to enable rapid support of the Commonwealth's response. No authority is required to implement Standby Mode. *Id.* at 28.

10.66. In Mode 1, the ORO responds to requests for resources to support the Commonwealth's planned response. This action is consistent with the stated position of the Commonwealth that it will utilize whatever resources it feels are necessary to protect the public health and safety. The Commonwealth's response, and that of local communities, is not *ad hoc* under Mode 1 operation. Mode 1 recognizes that state and local officials will respond to the extent possible to protect the public and anticipates that such response will be in accordance with the established emergency response plans of the Commonwealth and the local communities where such plans exist. These plans all demonstrate that decisionmaking structures are in place. *Id.* at 28-29.

10.67. It was asserted that the Commonwealth's response, if it uses Mode 1, will be *ad hoc* in nature; however, if the Commonwealth is following some plan (the Commonwealth's or the SPMC), using predefined resources, including NYH's, this would not be an *ad hoc* response. Tr. 23,979.

10.68. In Mode 2 operation the plan is that the ORO would be authorized by the Commonwealth to take responsibility for specific functions, which may include the following: activation of public notification system and broadcast of Emergency Broadcast System (EBS) messages, recommending protective actions to the public for both plume and ingestion exposure pathways, recommending recovery and reentry actions to the public, directing traffic, performing access control, and removing obstructions (including private vehicles) from roadways. Once authorization is granted, for any or all areas of implementation, the necessary activities are carried out by the ORO. Appl. Reb. No. 21, *supra*, at 32.

#### F. 1988 FEMA Graded Exercise

10.69. The FEMA graded exercise assumed a Mode 2 operations status. Objective 37 of the exercise was met. This objective required that the ORO demonstrate the capability of utility offsite response organization personnel to interface with nonparticipating state and local governments through their mobilization and by providing advice and assistance. Appl. Exh. 43F, at 240-42.

10.70. During the exercise of the SPMC, FEMA staffed a Control Cell with controllers playing the role of the Governor of Massachusetts and other state officials. Tr. 21,738. However, the role of the government players was very

limited. They informed the ORO liaisons that the Commonwealth and local communities would not respond to the emergency. The FEMA Control Cell would not commit any state or local resources or personnel to assist in the ORO response. However, legal authority was granted by the simulated state official for ORO to appropriately respond. Therefore it was appropriate to assume a Mode 2 operations status. Appl. Exh. 43F, at 241-42 (Exercise Report). Thus there was no government response, simulated or otherwise, for FEMA to grade.

10.71. The Attorney General invites the Board's attention to the fact that actual communication and coordination among state and local government officials and ORO were not demonstrated in a qualifying, "full participation" exercise. *See* Tr. 22,929-32. Local Massachusetts government EOCs did not participate and were not involved in initial notification procedures. The Commonwealth did not deploy representatives to the local government EOCs. Local EOCs were not available for local liaisons to go to. Actual communication with the command structure in the Commonwealth, including with the Governor or his representatives, did not occur. Instead Applicants were forced to do that through a FEMA Control Cell. Tr. 22,931. The briefing process, including information on the status of ORO and protective action recommendations, between ORO and Commonwealth officials was simulated and was not actually demonstrated by these officials in the exercise. The actual process of requesting legal authority to implement ORO activities did not occur (Tr. 22,932), although Applicants recognized this as a "long procedure" involving the determination of the government's response. Massachusetts school districts did not participate in the exercise. *See* Tr. 22,929-32; MAG PF 10.1.32.A – B.

10.72. FEMA found that protective action decisions and implementation of these decisions were coordinated effectively with all appropriate organizations. Appl. Exh. 43F, at 203 (Exercise Report).

10.73. The Attorney General, however, would have the Board find that the FEMA review of the SPMC did *not* include an evaluation of Mode 1 or Mode 2 "partial" of the SPMC, the primary modes that should have been, but were not, evaluated to measure the communication and coordination among ORO and the governments. MAG PF 10.1.2.B, *citing* Appl. PF 1.20; MAG PF 10.1.2.A.; Jones Dir., *supra*, at 7, 9.

10.74. Moreover, according to the Attorney General, the FEMA review of the June 1988 Exercise did not include an evaluation of whether Mode 1 or Mode 2 Partial could be implemented. FEMA did not even simulate coordination and deployment of state and local resources as part of the emergency response. Appl. PF 1.20; Appl. Exh. 43F, at 242. The Attorney General contends further that no coherent rationale is provided for FEMA's abdication of its responsibilities to verify the implementability of the SPMC by exercise, under modes requiring a coordinated response. MAG PF 10.1.2.C, *citing* 44 C.F.R. § 350.9.

He complains that FEMA never reviewed the adequacy of any governmental response capabilities at all during the exercise. MAG PF 10.1.2.C.

10.75. The Attorney General would have us conclude that FEMA's limited simulation of government response does not demonstrate the adequacy of the response of ORO and the governments in an actual emergency; further that FEMA participation in the exercise cannot measure the adequacy of response by those government officials who did not so participate. MAG PF 10.1.32.C.

10.76. The NRC Staff explains,<sup>82</sup> however, that FEMA's objective (Objective 37) was only to demonstrate the ORO's capacity to interface, i.e., to provide advice and assistance to the Commonwealth and the Massachusetts EPZ communities. Tr. 21,666-67; Appl. Exh. 43F, at 240 (Exercise Report). FEMA's witness, Mr. Donovan, would not accept the premise of the Attorney General that exercising the SPMC in Mode 2 ignored Mode 1 and Partial Mode 2. The mode designations are merely convenient labels for a response pattern after a series of decisions have been made. The SPMC modes are not a conscious means to force the governments or responders to fall into one category or another. Tr. 22,384-93. In any event it was not possible to evaluate the actual response capabilities of the local governments themselves (under Mode 1 and Mode 2 Partial) because they refused to participate. As Mr. Donovan succinctly explained, FEMA "made no conjecture on something we cannot observe." Tr. 22,389.

10.77. FEMA's decision to exercise the SPMC assuming the nonparticipation of the governments was conservatively sound. Obviously, in an actual emergency, with government participation, the response would be better. Tr. 18,432, 18,442, 18,444-45, 18,459-61, 18,471-72, 22,389. The Massachusetts Attorney General's criticism of FEMA for not evaluating some kind of response of state and local governments is frivolous given the often-repeated refusal of the Commonwealth and Massachusetts EPZ communities to participate in radiological emergency planning for Seabrook.

## G. ORO Liaison Functions

10.78. Liaison functions are an important part of the SPMC's compensatory provisions. Liaison functions are specifically designed to establish and maintain immediate communication with state and local organizations, thereby enhancing the coordination of emergency response activities and compensating for the lack of Seabrook-Station-specific planning and training by state and local responders. Appl. Reb. No. 21, *supra*, at 36.

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<sup>82</sup>NRC Staff's Supplemental Proposed Findings of Fact and Conclusions of Law with Respect to SPMC and Exercise Contentions, at 36-37, August 31, 1989. See citation correction contained in letter from NRC Staff Attorney Sherwin Turk to the Board, dated September 11, 1989.

10.79. State Liaison functions are divided among three liaisons: two who are expected to establish communications and coordinate joint ORO/MCDA activities at Emergency Operations Centers at Framingham (State) and Tewksbury (Area I), and one who is expected to establish communications and coordinate joint ORO/Massachusetts Department of Public Health activities. These State Liaisons will report to the two MCDA EOCs and to the appropriate MDPH office. *Id.*

10.80. Major responsibilities of the Local EOC Liaisons are to: establish communications with the Local EOC Civil Defense Director/Senior Local EOC Official, or other local official as listed in SPMC, Appendix H, New Hampshire Yankee Offsite Response Communications Directory; apprise the local EOCs of current event classification and plant conditions; request the status of local community response capabilities; explain the capabilities of the ORO (SPMC at 2.1-22); and provide such additional services for local emergency workers and institutionalized individuals who cannot be evacuated. SPMC at 2.1-23. The Local EOC Liaison will report to the local community EOC and function from that location, thereby eliminating the need for communications by the local governmental responders to equivalent ORO personnel. SPMC § 3.5, at 3.5-2 explains the issuance of extra dosimetry to the Local EOC Liaisons for use by the local community's emergency workers. Appl. Reb. No. 21, *supra*, at 37.

10.81. State and Local EOC Liaisons are issued copies of the SPMC, including Appendix M, NHY Offsite Response Emergency Resource Manual, and Appendix J, NHY Offsite Response Traffic Management Manual, for their reference in advising government officials on the capabilities of the ORO. These volumes, as well as appropriate maps and sample EBS messages, are taken to the state or local offices by the Liaisons for use by them and by local officials in integrating response to an emergency. These materials contain the Seabrook EPZ-specific information in the unlikely event they are otherwise unavailable because of state and local nonparticipation in the planning process. *Id.* at 37-38.

10.82. The Massachusetts Attorney General points to these liaison activities as evidence itself of the *ad hoc*, unplanned response contemplated by the SPMC. MAG PF 10.1.37. Thus we have again the familiarly circular argument that: (1) since the Commonwealth refuses to plan, exercise, or train for an emergency at Seabrook, (2) the SPMC sets up a liaison procedure to compensate for the Commonwealth's refusal to prepare, (3) which liaison procedure then becomes evidence of the Commonwealth's failure to prepare and the SPMC's respective deficiency. With this quality of analysis, we understand better why the Massachusetts Attorney General needed additional pages of proposed findings to present his case.

10.83. Local and State EOC Liaisons are available to state and local governments to explain both the roles assigned to these organizations in the SPMC and the capabilities for expanded response. By using SPMC Tables

2.2-1 and 2.2-2, Liaisons can explain which local and state government levels correspond to the command and control functions of the NHY Offsite Response Organization. Appl. Reb. No. 21, *supra*, at 38.

10.84. No state or local emergency response personnel are required to communicate or coordinate actions with individual counterparts in the utility organization because the contact point at each state or local EOC is the ORO Liaison. The SPMC, however, does not preclude such one-to-one communication. Rather than being either cumbersome or time-consuming, as alleged by Intervenors, such communications by the Commonwealth or local communities for specific assistance would require contact with, at most, approximately ten ORO personnel other than the Liaisons. The presence of Commonwealth representatives at the EOC or the EOF further enhances communications between organizations. *Id.* at 39.

10.85. Knowledge of the overall structure, function, operation, and available resources of the SPMC is ensured through the training required for State and Local EOC Liaison positions. All Local and State EOC Liaisons receive a total of approximately 15 hours of classroom training in: Emergency Plan Overview, Emergency Management, Transportation, Procedure Checklists, Tabletop, Protective Action Decisionmaking, and Communications. Local EOC Liaisons receive an additional hour of training in Staging Area Operations. State Liaisons to the Department of Public Health receive Dose/Accident Assessment, Dosimetry Recordkeeping, and EOC Operations, totaling an additional 7 hours of training. State Liaisons to the Civil Defense Agency receive EOC Operations training (1 hour) in addition to the 15 hours all Liaisons receive. In addition, a guidance document has been prepared detailing the anticipated Commonwealth response to an actual emergency, based on the information supplied by the Commonwealth and local communities during discovery. Copies of the state and local plans and other guidance material cited will be placed in the ORO EOC and the Staging Area for reference. Training on this detailed anticipated response will be conducted for appropriate positions in the ORO, including State and Local EOC Liaisons. *Id.* at 39-40.

10.86. Drills and walk-throughs in which State and Local EOC Liaisons have participated also provide for ORO personnel significant training on the overall functions of the ORO. FEMA has found that the Liaisons adequately demonstrated their ability to interface with nonparticipating state and local governments through their mobilization and by providing advice and assistance during the 1988 Graded Exercise. *Id.* at 40; Appl. Exh. 43F, at 240-42 (Exercise Report).

## H. Miscellaneous Findings on Coordination

10.87. SPMC contemplates that even in Mode 2, the government will continue to provide normal services in such areas as security, law enforcement, fire, and public health. Appl. Reb. No. 21, *supra*, at 41-46.

10.88. The SPMC assigns no responsibility to local rescue agencies to effect evacuation of individuals from institutions in the event of an emergency at Seabrook Station. The SPMC provides adequate resources and personnel to accomplish evacuation without reliance on local resources. If large-scale evacuation of individuals is removed as a local-level responsibility, local rescue agencies will not be called upon to perform any services except those falling within their normal capabilities. *Id.* at 47.

10.89. Mutual-aid agreements among communities to provide assistance to the six communities in the Massachusetts segment of the EPZ are not limited to agreements among these six communities or with New Hampshire EPZ communities. For example, aid is available, assuming in specific instances that the resources are not otherwise engaged, to the six Massachusetts communities in the case of fire from additional communities such as Haverhill, Rowley, Groveland, Georgetown, Methuen, Ipswich, Andover, Boxford, Lawrence, North Andover, and Middleton, all of which are outside the Seabrook plume EPZ. *Id.* at 48-49 and Attach. I. *See also* Tr. 25,578-81.

10.90. The SPMC does not rely on the use of the Commonwealth's communication systems, laboratory facilities, or government-owned or operated local EOCs; nevertheless, extensive facilities of these types are available. Appl. Reb. No. 21, *supra*, at 51-57.

10.91. The SPMC has been drafted with a view to coordination with the various local governments. *Id.* at 57-59.

10.92. There is no need for communication between ORO and its contracted support organizations as to the mode in which the plan is operating, because these organizations remain under the command and control of ORO. *Id.* at 59-60.

10.93. To clarify the definition of "support organization," 2.0 of the SPMC will be revised to remove the reference to local governmental organization functions under the heading "Support Organizations." *Id.* at 59.

10.94. The SPMC has provisions for coordination with the Massachusetts State Police in the event of an emergency, based upon April 1986 procedures. *Id.* at 60-63; Tr. 23,655.

10.95. IP 2.14 will be revised to direct the Offsite Response Director to inquire specifically whether MDPH and MCDA intend to dispatch representatives to the Offsite Response EOC. Appl. Reb. No. 21, *supra*, at 62.

10.96. SPMC has adequate provisions to ensure coordination to the extent necessary with ORO and the State of New Hampshire. *Id.* at 63-66.

## **I. Rulings of Law and Conclusions on Coordination**

10.97. There is reasonable assurance of adequate coordination between ORO and state and local responders in all modes of the SPMC.

10.98. No lack of state or local resources has been shown to exist, let alone one that could prevent there being reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at Seabrook Station.

10.99. In the event of an emergency at Seabrook Station, the Commonwealth and its political subdivisions will follow the utility plan by either (1) delegating authority to ORO for a full Mode 2 response by ORO; (2) responding pursuant to their best efforts, which may be to follow their own plans, while calling upon the ORO for resources as needed, as contemplated in Mode 1; or (3) some degree of partial response and partial delegation, pursuant to Mode 2 Partial.

## **11. MISCELLANEOUS EXERCISE CONTENTIONS WITH RESPECT TO SPMC**

11.1. Contention MAG EX-2 alleges that the New Hampshire Yankee Offsite Response Organization (ORO) did not attempt to demonstrate that it could muster the appropriate vehicles and personnel for the timely and proper evacuation of patients from Massachusetts EPZ hospitals, nursing homes, and other special facilities. It also alleges that the exercise failed to test the preparedness of the bus, ambulance, and wheelchair van companies for the evacuation of patients. Contentions Memo. at 94.

11.2. Similarly, Contention MAG EX-21, Basis B, alleges that the scope of the exercise was insufficient because only one of the ambulances relied on by the NHY ORO to transport contaminated injured persons was tested.

11.3. Because of the alleged infirmities outlined in his contentions, the Attorney General asserts that the June 1988 Seabrook Exercise was inadequate because it was not a "full participation" exercise under the requirements of 10 C.F.R. Part 50, Appendix E, § IV.F.1, and interpreted by the Commission in *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-903, 28 NRC 499 (1988), and *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-900, 28 NRC 275 (1988). MAG PF 11.1.1.A-1.G.

## A. Background

11.4. A radiological emergency preparedness "exercise" is a test of the implementability of a licensing applicant's radiological emergency response plan. The Federal Emergency Management Agency (FEMA) requires exercise participants to demonstrate the implementation of a plan in order to judge the overall adequacy of a plan. These demonstrations are evaluated against "exercise objectives" based on the offsite planning standards contained in 44 C.F.R. § 350.5. FEMA's exercise objectives are contained in Guidance Memorandum (GM) EX-3, "Managing Pre-Exercise Activities and Post-Exercise Meetings," and its amendment, issued on March 7, 1988. Donovan Dir., ff. Tr. 21,653, at 2; *see also* Tr. 21,713, 22,243, 22,255-56.

11.5. The requisite parameters, i.e., "scope" of a prelicense or qualifying exercise, are enunciated in 10 C.F.R. Part 50, Appendix E, § IV.F.1, which requires "[a] full participation exercise which tests as much of the . . . emergency plans as is reasonably achievable without mandatory public participation." "Full participation" includes testing the major observable portions of the on-site and offsite emergency plans and mobilization of State, local and licensee personnel and other resources in sufficient numbers to verify the capability to respond to the accident scenario." *Id.*, n.4.

11.6. Prior to the exercise, those components of the major observable portions of the plans found to be impacted by external influences are (and here were) reviewed and discussed by the Applicants' and FEMA's representatives to ensure that these components would be demonstrated to the extent reasonably achievable or necessary to test their ability to be implemented. Appl. Reb. No. 23, ff. Tr. 22,702, at 17.

11.7. The "extent of play" represents FEMA's best judgment as to what is required to demonstrate the adequacy of the plan. Tr. 21,722-23. The expected demonstrations are defined by extent-of-play agreements between FEMA and the exercise participants outlining the manner in which a particular response function will be demonstrated. Donovan Dir., *supra*, at 2 and Attach. A.

## B. The June 1988 Seabrook Exercise

11.8. With respect to FEMA's evaluation of the exercise, FEMA presented its witness Mr. Richard W. Donovan. As we have found above, Mr. Donovan is thoroughly competent to give testimony concerning FEMA's involvement with the SPMC. Mr. Donovan, who ran the June 1988 graded exercise for FEMA, has 15 years' experience in directing radiological emergency plan exercises (Tr. 21,858) and has directed over sixty such exercises over that time period (Tr. 22,671).

11.9. With respect to the Attorney General's contentions (and other Intervenor contentions, as we discuss in Section 12, *infra*), the Applicants presented a panel of witnesses consisting of: John W. Baer, Emergency Planning Specialist, Aidikoff Associates (Qualifications, ff. Tr. 22,695); Anthony M. Callendrello, Manager, Emergency Preparedness Licensing, New Hampshire Yankee (Qualifications, ff. Tr. 17,318); and George R. Gram, Executive Director of Emergency Preparedness and Community Relations, New Hampshire Yankee (Qualifications, ff. Tr. 22,694). Appl. Reb. No. 23, *supra, passim*. We find these witnesses well qualified to give the testimony they presented.

11.10. Development of the extent of play for the Seabrook exercise involved the design of exercise activities that would demonstrate, test, and verify the capability of particular offsite emergency response functions relied upon in the offsite response plans for Seabrook Station. The extent of play for the exercise was designed to conform with FEMA guidance which states: "The degree of demonstration of individual exercise objectives should test the *workability* of that aspect of the plan." (Emphasis added.) GM EX-3 Amendment, at 3. Appl. Reb. No. 23, *supra*, at 12.

11.11. FEMA's view is that response functions should be demonstrated to the extent reasonable and feasible. FEMA assumes that responders know how to perform those functions which are among their normal daily duties and, therefore, an adequate demonstration of those functions does not require an extensive deployment of resources. Tr. 22,404-05. It is more important to perform an extensive evaluation of emergency-specific response functions, which involve procedures and duties with which the responders would not be familiar on a normal daily basis and which would not be performed if it were not for the emergency or exercise. *Id.* FEMA witness Richard Donovan stated in cross-examination:

In the areas where response functions are done day-to-day by persons such as the ability to drive a bus from A to B; the transport of medical persons by ambulances. In this regard we assumed that these people know how to do their job. They're functioning every day in that area. And therefore an adequate demonstration of those functions does not require extensive deployment of resources. We are testing the tools. We are testing the process. We are testing the mechanism. If a person's emergency response assignment is something that is called for only by the exercise, and day-to-day their job is completely different than what they do in their emergency assignment and then we ask for a more extensive demonstration to verify that the people are trained and the people fit into the response organization as called for by the response plan. . . . But in MS-1 hospitals the ambulance drill is part of that component where we transported an injured contaminated person. The Agency's guidance is very clear that one ambulance, one victim, one hospital is all that's necessary to meet the needs of the exercise. In most cases they leave it to the judgment of the regional staff, because we're the ones who are in the best position to know what the plan calls for, with whom in that plan are identified to be responders. And of that set of responders, how many perform their

emergency functions on a daily basis and how many only perform their emergency functions as part of the exercise or drill or training program.

Tr. 22,405-06.

11.12. FEMA, during its preexercise evaluation of the SPMC, conducted a survey of transportation resource providers. Appl. Reb. No. 23, *supra*, at 26-27 and Attach. H.

11.13. FEMA guidance with respect to the proper evaluation of the availability of buses and training of drivers focuses on preexercise evaluation of the availability and training of these resources. *Id.* at 24 and Attach. C.

11.14. Participants in the development of the extent of play for the Seabrook exercise determined that the ability to implement protective actions for special facilities (hospitals, nursing homes, day-care centers, etc.) within the EPZ would be demonstrated by performing the following functions:<sup>83</sup>

- the protective action decisionmaking process;
- the initial notification of all companies providing special transportation resources;
- notification of special facilities by contact with participating facilities or by simulated contact of nonparticipating facilities by calls to the NHY Control Cell;
- the assignment of transportation resources to meet the identified requirements; and
- the extension of that process into the field by the deployment of a representation of resources.

*Id.* at 25-26.

11.15. During the exercise, the capability of the ORO to coordinate and integrate with the bus, ambulance, and van functions was demonstrated. As a result of the declaration of an Alert, ORO personnel initially contacted all bus, wheelchair van, and ambulance companies under agreement with NHY for resource support during an emergency at Seabrook Station to determine available transportation resources. Concurrent with the notification process, Special-Population Liaisons contacted participating special facilities or, in the alternative, made simulated contact of nonparticipating special facilities by calling the NHY Control Cell to determine their specific transportation requirements at the time of the event. Transportation resources were assigned accordingly.

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<sup>83</sup> The June 1988 Seabrook Exercise was a large event. During the 2 days of the exercise, 1525 persons participated as players in the three offsite organizations; 338 persons simulated evacuees, and 274 NHY controllers, 151 FEMA evaluators, and 40 NRC observers participated. Notwithstanding the fact that FEMA put more evaluators in the field for the Seabrook exercise than for any other previous exercise, the availability of evaluators did influence the number or sequencing of events that could reasonably be observed. Appl. Reb. No. 23, *supra*, at 22. The Board recognizes that the 1988 Seabrook exercise was the most extensive exercise evaluation ever conducted by FEMA, and that FEMA's resources are not unlimited. The Board further finds that FEMA's allocation of evaluators and efforts was reasonable.

Special vehicle dispatch personnel at the ORO Staging Area filled out dispatch forms for all of the assignments for special vehicles included in Appendix M of the SPMC for the entire Massachusetts portion of the 10-mile EPZ. Thus, the major functional elements of the plan pertaining to the notification, allocation, and deployment of transportation resources for special-needs populations were demonstrated. *Id.* at 27-28.

11.16. In line with the foregoing, on the day of the exercise, three (3) wheelchair vans were mobilized to the ORO Staging Area for Massachusetts. At the Staging Area, they received assignments (previously selected with FEMA) to evacuate patients from special-care facilities (two nursing homes and one elderly housing unit). Upon completing the transport of simulated patients to Reception Centers for monitoring and subsequently to host facilities, the NHY Controller directed the drivers of the vans to proceed back to the ORO Staging Area for further assignments. *Id.* at 28.

11.17. Similarly, one ambulance was assigned to support evacuation for special populations in Massachusetts. The ambulance was dispatched to the ORO Staging Area where an assignment was received to evacuate a patient from Amesbury Hospital and transport that patient to the host facility, Deaconess Hospital. After completion of this assignment the ambulance was directed to return to the Salem ORO Staging Area where it was released from exercise participation. *Id.* at 28-29. On the second day of the exercise, in an out-of-sequence demonstration, again, only one of the ambulances relied on by the NHY ORO to transport contaminated injured persons in Massachusetts was tested.

### C. Attorney General's Case

11.18. The Attorney General's challenge to the scope of the 1988 Seabrook exercise rests on an allegation that the demonstration of special-facility transportation providers was so unduly limited that it did not permit a meaningful test and evaluation of the SPMC in order to ascertain if that plan is fundamentally flawed. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-900, 28 NRC 275, 286 (1988). His challenge is limited to the issues raised in his contentions. 10 C.F.R. § 2.760a. Although he raised broad allegations with respect to special facilities in his contentions, both the bases for his contentions and his proposed findings tended to concentrate on ambulance providers for Massachusetts hospitals.

11.19. The Attorney General does not attempt to make a factual showing that the Seabrook exercise was inadequate in scope. Instead, he relies upon one Commission decision, *Shoreham*, ALAB-900, *supra*, to mount a legal challenge to the Applicants' exercise and the presumption of adequacy attaching to FEMA's findings regarding special-facility transportation providers. This legal challenge is totally consistent with Commission practice. Since the

Commission's regulations provide the predicate for challenging the scope of a prelicense exercise (10 C.F.R. Part 50, Appendix E, § IV.F.1 & n.1), an intervenor (through the appropriate vehicle) can always raise issues concerning compliance with regulatory requirements. *Shoreham*, ALAB-900, *supra*, 28 NRC at 286. However, for reasons explained below, we do not find ALAB-900 to be the legal hydra the Attorney General finds it to be with respect to his contentions. ALAB-900 was mostly confined to factual circumstances extant during the 1986 *Shoreham* emergency plan exercise, many of which were not present during the 1988 Seabrook exercise.

11.20. The Attorney General's regulatory attack on both the Applicants' exercise demonstrations and FEMA's evaluation of those demonstrations boils down to a simple argument focusing on the number of transportation providers exercised. In the main, it is grounded on the regulatory language in 10 C.F.R. Part 50, Appendix E, § IV.F.1, n.4, which states:

"Full participation" includes testing the major observable portions of the onsite and offsite emergency plans and mobilization of State, local and licensee personnel and other resources in *sufficient numbers* to verify the capability to respond to the accident scenario.

*Id.* (emphasis added).

11.21. The Attorney General alleges that 10 C.F.R. Part 50, Appendix E, § IV.F.1, requires that "up to 100% of facilities, staff, and functions [involved in an exercise], must actually participate, or be demonstrated, in an exercise." MAG PF 11.1.14. He states that there was no verification of resources *during the exercise*, which he argues is contrary to regulatory requirements that Applicants must "verify the capability to respond to the accident scenario." MAG PF 11.1.4, *citing* 10 C.F.R. Part 50, Appendix E, § IV.F.1, n.4. "As a matter of law," he asserts, "a preexercise survey of resources is not an adequate substitute for exercise participation." MAG PF 11.1.4, *citing* 10 C.F.R. Part 50, Appendix E, § IV.F.1, n.4. The Attorney General concludes that the number of vehicles exercised by the Applicants, and evaluated by FEMA, could not demonstrate response capability because:

[C]ommunications and coordination among emergency responders must be demonstrated in an exercise. . . . mere telephone contact [with transportation providers], without more, is not an adequate demonstration of response capability. [Emphasis in original.]

MAG PF 11.1.1.D, *citing Shoreham*, ALAB-900, *supra*, 28 NRC at 300.

11.22. With merely a nod to the deficiencies alleged in his contentions, the Attorney General argues that the Applicants bear the burden of proof that the "participation that did take place [during the exercise] was all that was reasonably achievable." MAG PF 11.1.1.E, *citing Long Island Lighting Co.* (*Shoreham Nuclear Power Station, Unit 1*), LBP-87-32, 26 NRC 479, 497 n.18 (1987);

*Shoreham*, ALAB-900, *supra*, 28 NRC at 297. He concludes that “[a]bsent such proof, the Licensing Board must presume that the scope of the exercise was not adequate to meet regulatory requirements, in that greater participation was reasonably achievable.” MAG PF 11.1.1.E (emphasis added). We find no such presumption created by ALAB-900.<sup>84</sup>

11.23. The Attorney General next argues that FEMA applied guidance criteria inconsistent with Commission regulatory requirements when it agreed to the extent of play tested, and when it found the exercise to be adequate. See MAG PF 11.1.1.G. He cites ALAB-900 for the proposition that the scope of a prelicense exercise must be judged against NRC’s regulatory requirements (10 C.F.R. Part 50, Appendix E, § IV.F.1 & n.4), not the customary practice or the regulatory guides of FEMA (MAG PF 11.1.1.F, *citing Shoreham*, ALAB-900, *supra*, 28 NRC at 290-92) and that where FEMA’s judgment or guidance documents conflict or are inconsistent with Commission regulations, “the latter . . . must prevail” (MAG PF 11.1.1.G, *citing Shoreham*, ALAB-900, *supra*, 28 NRC at 290. “Similarly,” he argues, “where there is inadequate participation in an exercise to meet regulatory requirements, ‘FEMA’s assessment rating [finding the exercise adequate] . . . is beside the point.’” *Id.*, *citing* ALAB-900, *supra*, at 297.

11.24. The Attorney General’s two-pronged argument is best summed up in just one of his proposed findings, and it demonstrates, again, that while the scope of his attack is focused equally on the Applicants and on FEMA, it is really an argument of numbers:

FEMA did not determine, and made no effort to determine, whether enough ambulances and drivers “would have been available to handle an actual evacuation.” *Id.*, 28 NRC at 299. There was no evidence [on the part of the *Applicants*] that greater participation was not reasonably achievable. The Appeal Board has previously ruled that the scope of an exercise is inadequate where only one (1) ambulance and (1) ambulette participated. “[T]hat level of participation does not constitute the ‘sufficient number’ contemplated by the regulation requiring a full participation pre-license exercise.” ALAB-900, *supra*, at 300 (emphasis added).

#### MAG PF 11.1.20.

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<sup>84</sup> The Attorney General bases his assertion on a holding in ALAB-900 that interprets this section of Part 50. However, an analysis of that case clearly shows that the Appeal Board was addressing a distinct evidentiary issue presented by the 1986 Shoreham exercise but not evident here.

In ALAB-900, applicant LILCO admitted that it had not complied with regulatory requirements of 10 C.F.R. Part 50, Appendix E, § IV.F.1, in that it only exercised one school out of forty-eight schools in the EPZ. But this was not the focus of the Appeal Board’s concern regarding infirmities in the applicant’s evidentiary burden. There, the Board’s focus was on LILCO’s assertion that it need not provide an evidentiary showing that it could not obtain greater participation among the EPZ schools, arguing that the lack of such evidence, due to nonparticipation, was a mere technicality. *Shoreham*, ALAB-900, *supra*, 28 NRC at 297. More succinctly, LILCO merely alleged that the EPZ schools would not participate in the exercise, but it did not provide evidence to support that allegation. *Id.*

11.25. On the one hand we have what appears to be a clear pronouncement by the Appeal Board that the exercise of one ambulance, by a license applicant, is not enough to meet NRC regulatory requirements of a full-participation exercise. On the other hand, we have both the FEMA finding that the demonstration of one ambulance was adequate for the purposes of a full-participation exercise and the NRC's approval of that determination. However, we are faced with discrete factual differences between the 1986 Shoreham exercise and the 1988 Seabrook exercise that must be weighed within the bounds of the Appeal Board's ruling in *Shoreham*, ALAB-900, and we turn to those issues first.

11.26. In the 1986 Shoreham emergency plan exercise, FEMA evaluated the performance of only one ambulance and one ambulette to demonstrate special-facility evacuation capabilities, and it "did not evaluate whether LILCO had enough ambulances and ambulettes or drivers available to handle an evacuation." *Shoreham*, LBP-87-32, *supra*, 26 NRC at 500. FEMA interviewed none of the ambulance company officials involved and thus did not evaluate whether ambulance company officials were knowledgeable about what was expected under the plan. *Id.* Because of the foregoing, and with its focus squarely on FEMA's evaluation of the exercise, the Licensing Board ruled that there should have been an "evaluation of the preparedness of the ambulance companies in the exercise." *Id.* at 501. The *Shoreham* Board found nothing to indicate that a test of those aspects of the emergency plan was not reasonably achievable.

11.27. In *Shoreham*, ALAB-900,<sup>85</sup> the Appeal Board came to the following conclusion:

[T]here is some ambiguity in the Licensing Board's ruling relating to the need for an evaluation of the preparedness of the ambulance companies that would serve special facilities: it is not entirely clear what the Board intends by "preparedness." If the Board means that the evaluation of the actual performance of only one ambulance and one ambulette was inadequate, then we concur that that level of participation does not constitute the "sufficient number" contemplated by the regulation requiring a full participation pre-license exercise.<sup>86</sup>

*Id.*, 28 NRC at 300.

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<sup>85</sup> ALAB-900 was an advisory opinion addressing the merits of LBP-87-32. That case had become moot after the appeal briefs were filed.

<sup>86</sup> In a footnote to this finding, the Appeal Board stated:

With respect to the Licensing Board's references to FEMA's failures to evaluate the number of ambulances and drivers actually available, and to interview ambulance company officials concerning their knowledge of their emergency response duties (LBP-87-32, 26 NRC at 500), it is not clear whether those omissions were solely the consequence of LILCO's/LERO's actions or FEMA's. In light of the advisory nature of this opinion, the issue need not be resolved. We question, however, the fairness of penalizing a license applicant for the shortcomings in an exercise *evaluation* (as contrasted with the exercise itself) that are *solely attributable to FEMA*.

<sup>28</sup> NRC at 300 n.27 (emphasis in original).

11.28. Unlike the factual situation in *Shoreham*, where FEMA did not determine whether a sufficient number of vehicles and drivers would have been available to handle an evacuation, in the present case, FEMA determined in its preexercise evaluation of the SPMC that there were adequate transportation resources under contract with ORO to handle the evacuation of the Massachusetts special facilities. Appl. Reb. No. 23, *supra*, at 27 and Attach. H.

11.29. We find no legal or regulatory authority upon which to ground the Attorney General's assertion that "[a]s a matter of law, a pre-exercise survey of resources is not an adequate substitute for exercise participation." MAG PF 11.1.4, *citing* 10 C.F.R. Part 50, Appendix E, § IV.F.1, n.4. He has incorrectly confused the verification of the number of resources with the regulatory requirement that there be a verification of resource capabilities during the exercise. Here, the development of the extent of play and the number of vehicles that were exercised focused on demonstrating the ability to execute assignments, not the actual demonstration of the ability to move a certain number of people. FEMA verifies the numbers of resources needed by a plan during plan review. Tr. 23,085-86, 23,121. It verifies the use of resources, the availability of resources, and the functionality of resources during an exercise. Tr. 21,682.

11.30. Second, unlike the Shoreham exercise, during the Seabrook exercise, the capability of the ORO to coordinate and integrate with the transportation providers and their functions was demonstrated. At the declaration of the Alert, ORO personnel initially contacted all bus, wheelchair van, and ambulance companies under agreement with NHY for resource support during an emergency to determine available transportation resources. *Id.*

11.31. Third, the Attorney General's focus on the one *ambulance* exercised for one Massachusetts hospital unfairly obfuscates the scope of the Seabrook exercise extent of play and FEMA's evaluation of the Applicants' response capabilities. The Seabrook exercise (inclusive of both the SPMC and the NHRERP) exercised six buses, four wheelchair vans, two ambulances, and two evacuation bed buses to demonstrate evacuation capabilities for special facilities in the Seabrook EPZ. *See* Donovan Dir., *supra*, Attach. A, at E/3.2.21 and E/3.3.28. We do not see any factual differences in the assignments for ambulances and other special-facility vehicles between the SPMC and the NHRERP. Taken as a whole, the demonstration of this number of vehicles for Seabrook EPZ special facilities far outstrips the exercise of only one ambulance and one ambulette for Shoreham EPZ special facilities.

11.32. In light of the foregoing, and probably the most important point with regard to this issue, the Attorney General has simply failed to convince us that FEMA applied regulatory criteria inconsistent with Commission regulations. FEMA agreed (and the NRC concurred) that the exercise of two ambulances (one in Massachusetts and one in New Hampshire), among the other special-facility transportation vehicles, was appropriate for the demonstration of resource

capabilities — it agreed to such in the extent-of-play agreement negotiated with NHY. *See id.*

11.33. Focusing specifically on the out-of-sequence event to make our point, demonstration of the objective involved by use of only one ambulance is consistent with FEMA guidance contained in a FEMA Memorandum, "Clarification of Selected Provisions of Guidance Memorandum (GM) MS-1, Medical Services." Appl. Reb. No. 23, *supra*, at 30-31 and Attach B. FEMA's normal approach to this objective is that the use of one ambulance with one victim is an appropriate demonstration of this response function. Tr. 22,167; *see also* Tr. 22,405. The need to limit the involvement of public safety resources (such as additional ambulances), the ability of the assigned FEMA evaluator to observe each of the medical aspects of the exercise, and the impact on the resources of the MS-1 hospital during a nonemergency situation, are further considerations taken into account when determining the extent of play. Appl. Reb. No. 23, *supra*, at 30. This approach is totally consistent with both requirements of 10 C.F.R. Part 50, Appendix E, § IV.F.1, and with the principle that a qualifying exercise should test every objective that is reasonable to test without mandatory public participation. Indeed, to preempt resources intended for public use to the point of stress would actually be forcing public participation in a negative manner.

11.34. The Attorney General's assertions regarding deficiencies in FEMA's regulatory criteria also ignore an important lesson in ALAB-900. Where FEMA's guidance is consistent with NRC regulations and at least implicitly endorsed by the Commission, it is entitled to correspondingly special weight. *Shoreham*, ALAB-900, *supra*, 28 NRC at 290; *see, e.g.*, *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 709-10 (1985), *aff'd in part and review otherwise declined*, CLI-86-5, 23 NRC 125 (1986). Here, FEMA's objectives for the Seabrook exercise have been determined to be "sufficient to constitute a 'qualifying' exercise under 10 C.F.R. Part 50, Appendix E, § IV.F.1, in that it should test as much of the emergency plans as is reasonably achievable without mandatory public participation." Memorandum to FEMA from Frank J. Congel, Director, Division of Radiation Protection and Emergency Preparedness, June 23, 1988 (Attach. G to Appl. Reb. No. 23, *supra*).

11.35. FEMA findings on questions of adequacy and implementation capability are considered presumptively valid in NRC licensing proceedings, unless such presumptions are rebutted. 10 C.F.R. § 50.47(a)(2).

11.36. Unlike the situation in *Shoreham*, here we are not confronted with an admission by the Applicants that there has been an inadequate demonstration of exercise participation, we have only the allegations of the Attorney General that the Applicants have failed to adequately exercise transportation providers in sufficient numbers. The Attorney General could not make a factual showing that the demonstration of special-facility transportation capabilities was so unduly

limited that it did not permit a meaningful test and evaluation of the SPMC to ascertain if the SPMC is fundamentally flawed (CLI-86-11, 23 NRC 577, 581 (1986); *Shoreham*, ALAB-900, *supra*, 28 NRC at 286), so he mounted a regulatory challenge to FEMA's findings totally on the basis of the ALAB-900 decision. However, that decision addressed a substantially different factual situation and adjudicative setting.

11.37. In light of the foregoing, we find a strong presumption that FEMA has applied the appropriate regulatory guidelines with respect to the scope of the June 1988 Seabrook Exercise.

#### D. Rulings of Law

11.38. With respect to the scope of the exercise, Intervenors must demonstrate that the exercise was so unduly limited that it did not permit a meaningful test and evaluation of the emergency plan in order to ascertain if that plan is fundamentally flawed. *Shoreham*, ALAB-900, *supra*, 28 NRC at 286.

#### E. Conclusion

11.39. The scope of the graded exercise was sufficient to test the adequacy of the SPMC.

### 12. NEW HAMPSHIRE EXERCISE PERFORMANCE

12.1. A number of contentions have been raised with respect to the State of New Hampshire's exercise performance. These include:

- MAG EX-19, Bases B.1, B.2, and D, which assert, among other things, that the Licensee did not issue appropriate protective action recommendations (PARs) to the State of New Hampshire and that, because of the high degree of reliance placed by New Hampshire on the Licensee's PARs, the State of New Hampshire's PARs were also inappropriate. In particular, the Attorney General asserts that the evacuation PAR for ERPA F communities was made too late, the shelter-in-place PAR for ERPA G communities was inappropriate, and the METPAC computer model is flawed and was used inappropriately. Contentions Memo. at 112-13.
- SAPL EX-2 which asserts that the exercise of the NHRERP failed to demonstrate the ability to provide sufficient buses and ambulances with properly trained drivers for transit-dependent, special-facility, and special-needs populations or that the buses that were deployed could be adequately routed. *Id.* at 114-17.

- SAPL EX-12 which asserts that the procedures, facilities, equipment, and personnel for the registration, radiological monitoring, and de-contamination of evacuees were not demonstrated and that facilities were neither organized nor run effectively. *Id.* at 120-21.
- SAPL EX-14 which asserts that there was an inadequate demonstration that appropriate protective action decisions will be made for the plume EPZ communities in that, in view of the radiation levels in the plume as the wind carried it over ERPA G, the evacuation PAR should have encompassed ERPA G communities. *Id.* at 122-23.
- TOH/NECNP EX-1 also asserted deficiencies in the scope of the exercise. *Id.* at 123-25.
- The remaining contentions considered in this section concern the scope of the New Hampshire exercise. They are: SAPL EX-4 (Sampling Team); SAPL EX-6 (Traffic Control); SAPL EX-7 (Decontamination of NH Emergency Workers); SAPL EX-8 (NH Shift Changes); and SAPL EX-13 (Special Facilities). *Id.* at 117-22.

#### A. Protective Action Recommendations

12.2. With respect to MAG EX-19 and SAPL EX-14, opponents of the facility rely for their direct case upon the testimony of Dr. Goble, described earlier. *See* Findings 6.35 through 6.62, particularly Findings 6.48 and 6.56-6.58, *supra*. The Board's findings and conclusions as to the SPMC in Section 6 of this Partial Initial Decision apply equally to NHRERP. In those findings the Board concluded, *inter alia*, that PAR generation and execution during the graded exercise revealed no fundamental flaws in the emergency plans exercised. Finding 6.78, *supra*. As to the adequacy and timeliness of PAR generation by the State of New Hampshire, *see also* Donovan Testimony at Tr. 22,681-89, particularly Tr. 22,687 and 22,689. As to the METPAC model, NRC Staff witness testified that it is one of the better models used by the electric utility industry (Tr. 24,951) and even Dr. Goble acknowledged that the METPAC model was on the leading edge of technology. Tr. 24,951. *See also* Findings 6.59 and 6.60, *supra*.

#### B. Reception Centers

12.3. With respect to SAPL EX-12, SAPL presented a panel of witnesses from the Salem Fire Department, Salem, New Hampshire. The witnesses were Fire Captain Daniel L. Breton and Fireman John W. Van Gelder. Breton Dir., ff. Tr. 25,535, *passim*.

12.4. Under the NHRERP, the Salem firefighters are responsible for setting up the Reception/Decontamination Center in Salem and for monitoring and decontaminating evacuees arriving there. The primary Reception/ Decontamination Center in Salem is located at Salem High School. *Id.* at 3-4; Appl. Exh. 5, Vol. 38, Appendix B.

12.5. The firefighters testified that upon the occasion of the exercise, fifteen on-duty firefighters from Salem responded to set up the reception and decontamination center. Breton Dir., ff. Tr. 25,535, at 15. No off-duty firemen responded. *Id.*

12.6. The firefighters expressed reservations as to whether there were enough firefighters to carry out the tasks they were assigned under the NHRERP. *Id.* at 5-6. Captain Breton was at the high school from about 11:30 a.m. until sometime between 2:00 and 3:00 p.m. He left during the unloading of the equipment and was not present during the monitoring and decontamination part of the exercise. Tr. 25,542-43, 25,549-50. Most of the time from 11:30 a.m. until 7:00 p.m., Fireman Van Gelder and the Fire Chief were at the high school where monitoring and decontamination procedures were performed. Tr. 25,544.

12.7. Applicants argue that the lack of personnel alleged, which seems to have arisen from the failure of personnel to report and from the dispatch of firefighters to meet *real* emergencies is not a fundamental flaw. Applicants state that in a real radiological emergency, as opposed to a highly politicized drill, personnel would report and mutual-aid agreements would resolve any shortage in manpower due to other emergencies. Also, to the extent that the contention alleges lack of manpower, that is a plan issue, not an exercise issue, and, in any event, it is clear that available firefighter manpower is "unlimited" in an emergency when mutual aid from surrounding communities is considered. Tr. 25,561. Virtually all of the Massachusetts and New Hampshire cities and towns are active participants in mutual-aid agreements involving personnel and equipment. Appl. Reb. No. 21, ff. Tr. 23,537, at 48-51; Tr. 16,867, 16,896-97, 24,084-85, 25,541, 25,578. See also the Partial Initial Decision for the New Hampshire hearings which dealt with the planning aspects of the Decontamination and Reception Centers and human behavior in emergencies. LBP-88-32, *supra*, 28 NRC at 699-724, 749-50 (particularly Finding 5.36 and items (2), (3), and (5) of Finding 7.96).

12.8. In any event, the assertion that it is improper to rely upon firefighters as part of the NHRERP because they may have other emergency duties (fire-fighting) at the time is beyond the scope of any contentions admitted in the proceeding as refined in the discovery process.

12.9. The firefighters stated that, in their judgment, there was confusion at the reception center on the day of the exercise. Breton Dir., *supra*, at 7. However, most of the confusion was in unloading boxes containing equipment to set up the reception and decontamination center from a truck that the witnesses

stated was incorrectly loaded. Apparently, the order of placement of the boxed equipment on the truck is a considerable factor in ease of assembly. Tr. 25,550-52, 25,569-71, 25,573-74. Assuming the correctness of the testimony, a wrongly loaded truck, albeit a nuisance, does not constitute a demonstration of a fundamental flaw in the emergency plan. The Board would agree with SAPL and the Salem firefighters that valuable time was lost and an annoying situation was created by the way in which the equipment was placed on the truck. But it seems to be a readily correctable item.

12.10. The firefighters also stated that their knowledge as to the approximate time of the drill helped make the response more efficient than it otherwise would have been. Breton Dir., *supra*, at 8. They also testified that the need to carry out their regular duties by responding to emergency calls impeded the performance of the exercise. *Id.* at 9.

12.11. FEMA Guidance Memorandum EX-3 provides that a qualifying exercise is not required to be unannounced. Appl. Reb. No. 23, ff. Tr. 22,702, at 5; Tr. 23,077-79; Appl. Exh. 61, at 2.5-12; *see also* Finding 12.90.9, *infra*. Furthermore, one of the ground rules for the exercise was that safety had priority over exercise events; therefore, personnel were to respond to actual emergencies if such occurred during the exercise. *See, e.g.*, Appl. Exh. 61, at 4.4-4.

12.12. FEMA found the performance of the Salem reception center during the exercise to be adequate and that the objective of demonstrating the adequacy of procedures, equipment, and personnel for monitoring and decontamination was met. Appl. Exh. 43F, at 183-84.

12.13. The Attorney General asserts that FEMA's exercise evaluation ratings are not controlling in determining whether a fundamental flaw has been demonstrated. While this is true, the Appeal Board has also made it clear that FEMA's findings have presumptive weight, and in the absence of a "Deficiency" rating, an intervenor will have a difficult task even in seeking the admission of contentions. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-903, 28 NRC 499, 507-08 (1988). Here, the only inadequacy identified by FEMA, within the scope of the admitted contentions challenging New Hampshire's performance in the exercise, was found to be an activity that requires corrective action (ARCA), not a Deficiency. *See* Appl. Exh. 43F, at 185. The Board finds that the problems identified during the exercise and related to the setting up and operation of the reception center are readily correctable and do not constitute a fundamental flaw in the emergency plan.

### C. Environmental Sampling

12.14. SAPL EX-4 alleges that only two State of New Hampshire sampling teams were utilized during the exercise and, therefore, sample collection and transport were not adequately demonstrated. Contentions Memo. at 117.

12.15. FEMA Objective 27 addresses environmental sampling and was exercised to demonstrate that equipment and procedures are adequate for the proper collection and transport of environmental samples and that the training provided to sample collection teams is adequate to ensure proper utilization of equipment and procedures. Applicants argue that two sample collection teams are sufficient for this purpose, because equipment, procedures, and training for all sample collection teams designated in the NHRERP for Seabrook Station are the same. The New Hampshire Division of Public Health Service (NHDPHS) sampling teams are experienced and trained in sampling equipment, techniques, and procedures. Appl. Reb. No. 23, *supra*, at 33.

12.16. FEMA found that the objective of demonstrating the appropriate use of equipment and procedures by the sampling teams (Objective 27) was met. Appl. Exh. 43F, at 192-93.

12.17. The NHRERP contemplates the use of up to three two-man environmental sampling teams to collect and transport various samples. Appl. Reb. No. 23, *supra*, at 32.

12.18. During the development of the extent-of-play portion of the exercise scenario, the New Hampshire Division of Public Health Services expressed concern of the impact to normal state operations and requested that only two of the three teams participate in the exercise. Further, NHDPHS had previously demonstrated the deployment of six environmental sampling teams for a FEMA-evaluated ingestion pathway exercise in December 1987, 6 months prior to the Seabrook exercise. Appl. Reb. No. 23, *supra*, at 32-33; Tr. 23,126-27.

12.19. On Day 2 of the exercise, two environmental sampling teams (four persons) were dispatched from Concord, New Hampshire, to the New Hampshire Incident Field Office (IFO), co-located with the NHY Emergency Operations Center (EOC), in Newington, New Hampshire. From there, the environmental sampling teams were dispatched to sampling locations in the field by New Hampshire accident assessment personnel. In the field, the two teams demonstrated the procedures for collecting environmental samples, collected examples of environmental samples, and demonstrated procedures for labeling, logging, and delivering the samples for analysis. Appl. Reb. No. 23, *supra*, at 34.

12.20. While FEMA's evaluation of Objective 27 is favorable, some problems were found. Two ARCA's were identified. One dealt with the ability to locate sampling points and resulted in a recommendation for training in the use of appropriate maps. The other had to do with familiarity with procedures for sample collection and the proper use of survey instruments which also resulted in a recommendation for additional training. Appl. Exh. 43F, at 192-93. Applicants have committed to correct these problems by additional training during 1989. Appl. Exh. 43E, at 10. The additional training should readily correct the weaknesses found in the sampling program. No change in the emergency plan is involved and, accordingly, no fundamental flaw in the plan was identified. As

ALAB-918 teaches, problems readily correctable by training and not involving any change in the emergency plan cannot reach the "fundamental flaw" threshold requirement. ALAB-918, 29 NRC 473, 486 (1989). The Board agrees with FEMA that the State of New Hampshire adequately demonstrated the appropriate use of equipment and procedures involved in environmental sampling.

#### D. Traffic Control

12.21. SAPL EX-6 and TOH/NECNP EX-1, Basis d, allege that traffic control points (TCPs) and access control points (ACPs) staffed by New Hampshire State Police and local law enforcement officers were too few in number to demonstrate adequately all that is necessary to provide traffic and access control functions in the New Hampshire portion of the 10-mile EPZ or to support FEMA's conclusion that the state and local police had adequately shown the capability to deploy the required number of officers. Contentions Memo. at 118, 124.

12.22. The Attorney General argues that because, in a 1986 exercise, FEMA found certain deficiencies including a shortage of State Police personnel, a demonstration of the adequacy of the corrective actions is required. See Appl. Exh. 43F, Appendix B, at B-33 through B-36. The Attorney General apparently disagrees with the State of New Hampshire's response which FEMA considered adequate and involved arrangements for more Troopers as required. A total of at least 100 Troopers from Troop A and elsewhere were arranged. *Id.* at B-33. The Attorney General argues that more Troopers should have participated in the actual exercise.

12.23. FEMA found that the objective of demonstrating ability and resources to manage evacuation traffic and to control access (Objective 20) was met. Appl. Exh. 43F, at 182-83. The Board concurs.

12.24. The expected demonstrations are defined by extent-of-play agreements with the exercise participants. As we have noted earlier, an extent-of-play agreement is an agreement between FEMA and the exercise participant(s) on the manner in which a particular response function will be demonstrated. Donovan Dir., ff. Tr. 21,653, at 2. FEMA's conclusions as to Objective 20 are based on the State of New Hampshire's performance in accordance with the agreed-upon extent of play as described in Attachment A of Mr. Donovan's testimony. *Id.*, Attach. A. Sections 3.3.9 and 3.3.10 summarize the extent of play in the demonstration under Objective 20 involving traffic and access control points and traffic impedance evaluation. *Id.* at E/3.3-30 through E/3.3-34.

12.25. The process of directing traffic and controlling access is a normal day-to-day function of the law enforcement organizations involved in the exercise. Similarly, the ability to use radio communications, dispatch personnel, locate various intersections, and direct and control traffic are routine law en-

forcement activities that these personnel are trained to perform on a regular basis. Appl. Reb. No. 23, *supra*, at 35. As pointed out in Finding 11.22, *supra*, extensive demonstration of normal daily duties is not required. It may be assumed that responders are familiar with those tasks that they perform as part of their regular job activity. Tr. 22,404-05.

12.26. Traffic control personnel in New Hampshire receive identical training. The extent of deployment of police personnel into the field during the exercise necessarily considered the impact on normal state and local law enforcement operations in a nonemergency situation. Appl. Reb. No. 23, *supra*, at 35.

12.27. The organizational ability and identification of resources necessary to implement traffic and access control functions were to be demonstrated. This demonstration was to include notification, coordination, assessment, assignment, and field deployment of personnel and resources. To accomplish this, four New Hampshire State Police Troopers and one local police officer in each of the eleven participating New Hampshire EPZ communities having traffic control responsibilities were allocated to demonstrate traffic or access control functions in the field. The purpose of the field deployment was to extend demonstration of organizational ability into the field and to demonstrate the adequacy of procedures and training for field personnel. As the procedures and training are the same for all field personnel, the number of officers to be deployed was sufficient to attain this objective. *Id.* at 35-36.

12.28. During the exercise, notification and coordination functions were demonstrated. This demonstration showed that the various law enforcement organizations could properly notify, assess, and assign resources in support of protective action recommendations. NHRERP procedures for this function were demonstrated. *Id.* at 36.

12.29. The actual field implementation aspects of traffic and access control functions were demonstrated by at least one police officer for each of the eleven participating New Hampshire communities with traffic control responsibilities and four State Troopers. (In several instances, local communities deployed more than one police officer into the field, resulting in the field participation of a total of sixteen local officers.) The use of additional police personnel to test these functions was neither required nor appropriate. Consistent with the NHRERP, Volume 4B, State Police Communications section, a State Police EOC Liaison was notified to report to the New Hampshire EOC located in Concord at the Alert emergency classification level. This State Police representative serves as the coordination point between the State of New Hampshire emergency response organization and State Police operations. One of the actions the State Police EOC Liaison at the State EOC performs is to establish communications with State Police Headquarters in Concord. Appl. Reb. No. 23, *supra*, at 36-37.

12.30. It was not necessary to have a greater number of State Troopers set up traffic control points because capability of response by those who are called upon to do things that they normally do in their regular employment can be assumed by virtue of that fact alone. *Id.* at 18-19; Tr. 22,939-41. *See also* Tr. 23,164.

12.31. In order to assess State Police personnel resource availability, the State Police EOC Liaison requested State Police Headquarters to transmit a copy of the daily trooper roster. This roster included information regarding on-shift police personnel duty locations throughout the state for that specific day. Additionally, this roster included information with respect to off-duty personnel, e.g., State Troopers off-shift, on vacation, or on sick leave. Appl. Reb. No. 23, *supra*, at 37; Tr. 22,431-33. The roster contained the names, badge numbers, car numbers of on-shift personnel, and the estimated times for Troopers to arrive in the vicinity of the EPZ and to be deployed to an actual ACP or TCP. Tr. 22,431-33.

12.32. During the exercise, the State Police Troop A IFO Representative at the New Hampshire IFO utilized information in coordination with the State Police EOC Liaison to make priorities and assignments of actual personnel. In an actual emergency, these personnel would be dispatched to Troop A headquarters from various State Police barracks throughout the state. At Troop A headquarters, they would receive dosimetry and field assignments and be dispatched into the field. The actual assignment of available State Police personnel resources as they were on the day of the exercise provided the basis for a determination that the New Hampshire State Police had demonstrated the capability to deploy sufficient State Police Troopers for implementation of access and traffic control functions. Exercise controller messages identified the specific ACP and TCP assignments to be demonstrated in the field and their respective activation times. Appl. Reb. No. 23, *supra*, at 38.

12.33. Similar actions were taken on the local level by personnel in participating municipalities that have the responsibility for traffic control functions. That is, local resources were determined and then at least one local officer from each of these municipalities demonstrated field implementation. *Id.* at 38.

12.34. Provisions for the distribution of traffic control equipment were also demonstrated. During the exercise, in addition to the twenty state and local police officers demonstrating access and traffic control, four state and seven local support personnel were also deployed to demonstrate distribution of equipment. *Id.* at 39.

12.35. Intervenors' specific assertion that personnel from the Town of Hampton did not staff any traffic control location is correct. As the Town of Hampton did not participate in the exercise, traffic control responsibilities for the town fell to the New Hampshire State Police. New Hampshire State Police, in conjunction with the State Department of Transportation, demonstrated traffic

control at TCP D-HA-01, located in the Town of Hampton at the intersection of High Street and Lafayette Road. *Id.*

#### E. Decontamination of Emergency Workers

12.36. SAPL EX-7 alleges that the exercise of the NHRERP failed to demonstrate the capability to provide for the decontamination of emergency workers, equipment, and facilities because the Hillside Junior High School in Manchester was not opened and demonstrated during the exercise. Furthermore, Intervenors assert that there was no showing of adequate provision for the disposal of contaminated wastes. Contentions Memo. at 118-19.

12.37. FEMA found that the objective of demonstrating decontamination of emergency workers and waste disposal was met. Appl. Exh. 43F, at 190-91. The Board agrees.

12.38. Monitoring and decontamination activities for emergency workers were to be demonstrated at activated Reception/Decontamination Centers. Emergency workers were to be directed to report to one of the activated Reception/Decontamination facilities for evacuees to be monitored after the completion of their assignment. Applicants consider this demonstration reasonable because the procedures for monitoring and decontaminating both members of the public and emergency workers are the same, and identical training is provided to emergency response organization members who staff the monitoring and decontamination functions for reception centers and for the Emergency Worker Decontamination Facility (EWF). The demonstration was to include monitoring and decontamination techniques, the identification, tagging, and bagging of contaminated articles, and handling of contaminated vehicles. Appl. Reb. No. 23, *supra*, at 41.

12.39. SAPL argues that this demonstration was not reasonable, even though procedures for monitoring and decontaminating members of the public and emergency workers are essentially the same, because emergency workers additionally have to turn in dosimetry and other equipment that is not handled at the Reception/Decontamination facilities. Applicants' witnesses testified that emergency workers are provided with three different types of dosimetry, two of which are self-reading so that exposure can be monitored and recorded periodically (15-minute intervals). The third type of dosimetry issued to emergency workers is thermal luminescent dosimeters (TLDs) which are processed and read subsequent to their assignments. Emergency worker dosimetry was collected by the Division of Public Health Services. Tr. 23,131-33.

12.40. There is no requirement that each and every emergency response facility participate in an exercise. On the day of the exercise, the Hillside Junior High School, which serves as a secondary Reception/Decontamination facility for the host community of Manchester and as the EWF, was not demonstrated.

The extent of play clearly indicated that the Hillside Junior High School facility was not available for the exercise. It acknowledged the state's position that the facility could not be used on the day of the exercise. The only thing that was not tested was the facility itself which was inspected by FEMA later and found satisfactory. Tr. 22,164-66; Appl. Exh. 43F, at 191. Monitoring and decontamination activities for emergency workers were demonstrated at the activated Reception/Decontamination facilities in the host communities of Salem and Dover. Appl. Reb. No. 23, *supra*, at 42; Tr. 22,165-66.

12.41. In order to assess the adequacy of the EWF and its associated supplies, equipment, and staffing, representatives of FEMA inspected the Hillside Junior High School. This inspection was conducted on July 22, 1988, and included observation by a representative of the Joint Intervenors. The facility, its operational layout, procedures, staffing, equipment, and supplies were assessed by FEMA in conjunction with its exercise evaluation and found to be adequate. Appl. Reb. No. 23, *supra*, at 42-43; Appl. Exh. 43F, at 191; Tr. 22,165-66.

12.42. The NHRERP contemplates the identification and decontamination or retention of contaminated materials such as vehicles and other personal effects. During the exercise, clothing and personal effects simulated to be contaminated were removed, inventoried, bagged, tagged, and stored in a secure place. Parking areas for contaminated vehicles were also identified and utilized. Appl. Reb. No. 23, *supra*, at 43.

12.43. With respect to the disposal of contaminated wastes, the exercise did not include a physical demonstration. The ultimate disposition of contaminated waste is considered to be a post-emergency response function which results from decontamination activities and, as such, is included as part of a recovery action plan developed at the later stages, or end, of an actual emergency response pursuant to recovery procedures. Accordingly, at 14:00 on Day 2 of the exercise, New Hampshire State EOC officials discussed the matter of decontamination waste materials and contaminated vehicles. At 14:52, they requested assistance from New Hampshire Yankee for removal of decontamination wastes in accordance with the existing agreement for this purpose. Subsequently, on Day 2, New Hampshire State EOC officials developed a long-term sampling and recovery plan that included provisions for periodic monitoring of contaminated vehicles held in restricted areas and for disposal of decontaminated waste materials by New Hampshire Yankee. Appl. Reb. No. 23, *supra*, at 43-44. See also the discussion concerning waste handling in Section 9 (Findings 9.125-9.130, *supra*).

## F. Facilities Staffing

12.44. SAPL EX-8 alleges that there was no demonstration of 24-hour continuous staffing of the New Hampshire Staging Areas and reception centers

and that continuous staffing of local and host EOCs was not shown to be fully adequate. Furthermore, Intervenors assert that key positions in the New Hampshire IFO were not fully staffed, there were no provisions employed for filling vacant positions, and the Governor's office was not properly represented. Contentions Memo. at 119-20. This contention is subsumed within the issues that pertain to FEMA Exercise Objectives 2 and 34 which respectively state:

Demonstrate the ability to fully alert, mobilize and activate personnel for both facility and field-based emergency functions.

Demonstrate the ability to maintain staffing on a continuous 24-hour basis by an actual shift change.

Appl. Reb. No. 23, *supra*, at 44; Appl. Exh. 43F, at 137-42, 198-200.

12.45. While finding that Objectives 2 and 34 were met, FEMA also found some items and activities that require corrective action. Appl. Reb. No. 23, *supra*, at 44; Appl. Exh. 43F, at 137-42, 198-200. Commitments have been made for corrective actions that have been either recommended or approved by FEMA. Appl. Exh. 43E, at 4, 10, 11; *see also* Findings 5.9-5.12, *supra*. Commitments pertaining to Objective 2 have been realized or are in progress. Under Objective 34, where FEMA found problems with the shift changes for key staff positions, appropriate local and host EOCs will demonstrate full shift changes at the next graded exercise. Appl. Exh. 43E, at 10, 11; *see also* Tr. 21,713-23. Corrective action arrangements to ensure 24-hour continuous operation at staging areas/reception centers include personnel supplementation by the New Hampshire National Guard. Appl. Exh. 43F, at 200.

12.46. The demonstration of staffing levels at emergency response facilities and the demonstration of continuous staffing sufficient to provide for an adequate emergency response are comprised of the following components:

- a. The notification and mobilization of emergency response organization members.
- b. The manning and activation of emergency response facilities.
- c. The demonstration of a continuous operation capability.
- d. The demonstration of the briefing of incoming replacement staff.

The ability to demonstrate staffing of emergency response organizations in the State of New Hampshire was affected by the need to avoid impairing or closing down normal state and local agency operations in a nonemergency situation. It was further affected by limitations on individual participants imposed by their normal public duties and other preexisting commitments. Appl. Reb. No. 23, *supra*, at 44-45.

12.47. Approximately 575 responders in the New Hampshire organizations participated in the exercise. This was a significant number of participants for a demonstration of an integrated emergency response capability during

a nonemergency situation. Generally, full-response facility activation was demonstrated within approximately 1 hour of the initial notification of an Alert classification. Appl. Reb. No. 23, *supra*, at 46; Appl. Exh. 43F, at 138.

12.48. Evidence presented in the New Hampshire hearings indicated that approximately 1300 emergency workers would be involved in a full-participation emergency. LBP-88-32, *supra*, 28 NRC at 709. Due to the various preexisting commitments and the nonemergency nature of the exercise, several participants could not or did not report to their emergency response facility assignments. For example, the Town of Seabrook staffing of the local EOC was observed to be not in accordance with the Seabrook RERP (Volume 16 of the NHRERP). FEMA noted in the Exercise Report that:

Specific staff could not be present due to prior engagements: The Fire Chief and school Principal were out of town; the Health Officer had a court appearance; and other persons (Road Agent, Water Superintendent, and Town Clerk) could not leave their offices. It was noted that the personnel present in the EOC assumed multiple duties and that the telephone contact was maintained with those individuals who were at work. We also noted that the Building/Health Officer arrived at the EOC after his Court duties.

Appl. Reb. No. 23, *supra*, at 46-47; Appl. Exh. 43F, at 140.

12.49. Applicants' witnesses testified that the agreed-upon "extent of play" established the number of players required to demonstrate reasonable assurance that an adequate response capability would be provided in the event of a real emergency. Appl. Reb. No. 23, *supra*, at 45. They further stated that response facilities and positions were adequately staffed to demonstrate the appropriate response to events dictated by the exercise scenario. While there may have been personnel shortages in isolated areas of the overall response organization, these absences did not impact the organizational ability to implement the assigned response functions. Shift changes for key staff positions were demonstrated in all but two of the eleven participating local New Hampshire EOCs. In the New Hampshire State Incident Field Office, three of the nine Local Liaison Officers were not replaced on the second shift. The plan specifies a maximum of nine Local Liaison Officers if all seventeen communities do not participate. Eleven EPZ communities in New Hampshire participated in the exercise. On the second shift, the Local Liaison Officer functions were handled with six Local Liaison Officers. Thus, the exercise provided a test of the organizational ability to perform response functions, ensuring that the emergency plans and procedures are flexible and adaptable to meet both expected and unexpected circumstances. Appl. Reb. No. 23, *supra*, at 47-48.

12.50. Host facilities also were sufficiently staffed and operational in a timely manner. This includes demonstrated host community EOCs and reception centers. The exercise demonstrated the ability to alert, mobilize, and activate personnel necessary for facility functions. On May 23, 1988, FEMA conducted

an inspection and review of personnel rosters compiled in support of the NHRERP. *Id.* at 48.

12.51. At the time the exercise was run, NHRERP did not require 24-hour staffing of staging areas and reception centers. Tr. 21,713. As a result, the extent of play did not require demonstration of 24-hour capability for those positions by actually turning over a complete shift. *Id.*

12.52. Although second-shift staffing of transportation staging areas was not part of the extent of play, the New Hampshire State Transportation Staging Area Supervisor presented rosters to FEMA evaluators showing sufficient personnel for protracted staffing of positions and explained arrangements that would be made for protracted staffing. The same method was utilized to demonstrate protracted staffing capability at reception centers. Appl. Reb. No. 23, *supra*, at 48.

12.53. New Hampshire has corrected for the lack of 24-hour management staffing at reception centers by stating that it will invoke the New England Compact. In FEMA's judgment, making the necessary telephone call to Vermont requesting certain people was sufficient; it was not necessary to actually bring people from Vermont to demonstrate a shift change. Tr. 21,721-22, 22,019. New Hampshire has also identified a group of individuals that have been trained to provide second-shift supervision at reception centers. Tr. 21,722.

12.54. The exercise of NHRERP included a demonstration of a second-shift capability through a combination of the physical change-out of personnel and the presentation of personnel rosters. Appl. Reb. No. 23, *supra*, at 48-49.

12.55. The Exercise Report (Appl. Exh. 43F) at page 138 states that "[t]he Governor's office was not represented according to the Plan." This statement refers specifically to the provision of the NHRERP that briefing the press is a nondelegable duty for the Governor. During the exercise, the New Hampshire Public Information Officer provided briefings to the press. The applicable language in the NHRERP was revised in the October 1988 amendment of the plan to make press briefings a delegable responsibility. Appl. Reb. No. 23, *supra*, at 49.

12.56. Intervenors argue that the very language of the stated exercise objectives clearly requires more participation than was demonstrated in the June exercise. FEMA apparently agrees, as does this Board, that the demonstration was not totally successful. Our ultimate finding on this issue is, however, that the inadequacies found in the exercise are correctable, do not constitute fundamental flaws, and that a minimally adequate demonstration of FEMA Exercise Objectives 2 and 34 was made.

## G. Use of School Teachers

12.57. TOH/NECNP EX-1 Bases a and b alleges that the June 28-29, 1988 exercise of the New Hampshire Radiological Emergency Response Plan for Seabrook Station failed to meet a primary objective because the availability and participation of school teachers relied upon under the NHRERP were not demonstrated. It further asserts that this lack of participation by teachers resulted in FEMA's inability to observe an adequate demonstration of the organizational ability of resources necessary to effect an early dismissal, sheltering, or evacuation of schoolchildren. Contentions Memo. at 123-24.

12.58. Intervenors presented no evidence on this contention other than to elicit on cross-examination that no New Hampshire teachers participated in the exercise. Tr. 22,274-78, 22,952-53. The Board agrees that teachers did not participate in the exercise.

12.59. FEMA states that it did not evaluate the participation of school teachers in the June 1988 exercise of offsite emergency plans for Seabrook Station because it was not the purpose of the exercise to evaluate their performance. FEMA considers schools and day-care centers to be part of the general population who were not required to take part in the exercise. The agreed-upon extent of play did not call for schoolchildren to be sheltered, boarded on buses, or evacuated. Neither did it call on school personnel to respond to exercise messages. With respect to schools, the exercise was intended to demonstrate that the State of New Hampshire and the NHY ORO had the capability to notify schools of the existence of an emergency, to communicate protective action recommendations or decisions, to ascertain whether the schools or day-care centers required transportation assistance for their children, and to deliver that assistance when requested. The exercise was designed, in part, to test the state's compensatory actions in the event of noncooperation by schools. MAG Exh. 106, at 2.

12.60. FEMA found that the applicable objective (Objective 19) was met. Appl. Exh. 43F, at 172-82. The Board agrees. The objective is as follows: Demonstrate the ability and resources necessary to implement appropriate protective actions for schoolchildren within the plume EPZ.

12.61. Intervenors argue that because of a FEMA deficiency found in a 1986 exercise which pertained to the "organizational ability to effect an orderly evacuation of schools" the scope of the June 1988 Exercise was not adequate to meet regulatory requirements that school personnel, both teachers and administrators, "participate in a full participation exercise to permit verification of their integrated capability to respond to the accident scenario." *Shoreham*, ALAB-900, *supra*, 28 NRC at 297. Intervenors further state that because of the inadequate demonstration, a remedial exercise involving school personnel, both teachers and administrators, from all New Hampshire schools must be conducted

to verify these capabilities prior to issuance of an operating license. MAG PF 12.1.50.CC.

12.62. The Intervenors have returned to an argument dismissed in Section 11, *supra*, which essentially alleges that "a representative number, up to 100% of facilities, staff, and functions, must actually participate, or be demonstrated, in an exercise . . . [to meet the] requirements for a 'full participation' exercise." MAG PF 11.1.14, *citing* 10 C.F.R. Part 50, Appendix E, § IV.F.1. They again rest their argument on the rulings in *Shoreham*, ALAB-900, *supra*, which interpreted the requirements of 10 C.F.R. Part 50, Appendix E, § IV.F.1, in light of the 1986 Shoreham exercise. We do not find ALAB-900 to be the guiding light in the case before us. The glaring deficiencies (in the Shoreham exercise) that ALAB-900 addressed are simply not present in the Seabrook exercise.

12.63. Only one school out of forty-eight in the Shoreham EPZ participated in the February 1986 exercise. This participation involved the actual completion of one school bus route to one high school. *Shoreham*, ALAB-900, *supra*, 28 NRC at 296. Licensee LILCO conceded that the participation of one high school — out of a total of forty-eight public and private schools — was not enough to satisfy the Commission's regulatory standard for a full-participation exercise. However, far from mandating the participation of all EPZ schools, the Appeal Board left the determination of what constitutes an adequate demonstration of school capabilities to FEMA. As the Appeal Board explained:

There is no dispute that the potential evacuation of schools within the emergency planning zone (EPZ) is a major element of offsite emergency planning. *See* FEMA Objectives, No. 19. *See also* 10 C.F.R. § 50.47(b)(10). A sufficient number of school and related personnel must therefore participate in a full participation exercise so as to permit verification of their integrated capability to respond to the accident scenario. 10 C.F.R. Part 50, Appendix E, § IV.F.1 n.4. . . . FEMA determined that much broader school participation would be necessary before it could verify the ability of the schools generally to respond in the event of an emergency at Shoreham. [Citation omitted.] Indeed, FEMA strongly recommended that in the future *all* schools (presumably in the 10-mile plume EPZ) be included in offsite exercises. . . .

. . . In future exercises, therefore, LILCO should at least attempt to obtain the participation of a sufficient number of schools . . . ."

*Id.* at 297. Unlike the factual situation found during the Shoreham exercise, the Applicants here, under the extent of play agreed to by FEMA, have demonstrated sufficient school and related personnel so as to permit verification of their integrated capability to respond to the accident scenario.

12.64. Both Applicants' and FEMA witnesses stated that the fact that New Hampshire schools were not in session did not affect the ability to properly exercise the plan. Tr. 22,500-01, 22,973-75.

12.65. Notification of and coordination with the New Hampshire School Administration Units (SAUs) and private schools during the exercise were

provided by New Hampshire Department of Education representatives at the State EOC in Concord and by the participating towns and/or the local liaisons at the IFO in Newington. Communications and coordination were demonstrated with at least one administrative representative of each of the five SAUs. FEMA noted in the Exercise Report that EPZ schools and potential host schools were promptly notified of changes in situation by New Hampshire Department of Education representatives. Appl. Reb. No. 23, *supra*, at 51; Appl. Exh. 43F, at 173.

12.66. Transportation requirements for schools were simulated by the exercise scenario based on default values for schools contained in the NHRERP. These transportation requirements were provided by exercise controller messages to the local EOC transportation coordinators or to the IFO Local Liaison Officers in the case of schools in nonparticipating communities. The transportation requirements were communicated to the IFO Resource Coordinator by these personnel in accordance with their procedures. The IFO Resource Coordinator then made assignments from the total vehicle pool indicated by the exercise scenario to be available at the State Transportation Staging Areas at the Rockingham County Complex and at the Portsmouth Circle Business Center. The IFO Resource Coordinator communicated these assignments to the State Transportation Staging Areas and directed the deployment of the required number of vehicles for schools to the local transportation staging areas. The vehicles were directed from the local staging areas to the schools. A representation of vehicles for schools was actually deployed from the transportation staging areas to the schools. These vehicles traversed the bus routes from the transportation staging areas to the schools and then to the appropriate host-community reception centers. Appl. Reb. No. 23, *supra*, at 51-52.

12.67. Within each SAU and private school, there is an internal emergency operations procedure. Under these procedures, superintendents/administrators receive notification and protective action recommendations from state and/or local emergency response officials and coordinate the implementation of the appropriate actions, including the provision of transportation resources, with the individual school facilities under their jurisdiction. *Id.* at 52-53.

12.68. The administrative structure, therefore, provides that a decision regarding school protective actions be made by the superintendent or facility administrator who, in turn, directs its implementation. In this context, the implementation of an administrator's decision by teachers does not require unusual or extraordinary skill. The actions required are consistent with those that would be taken, at the direction of administrators, for other emergency-related situations such as early dismissal during a winter storm, sheltering during a power outage, or evacuation demonstrated during a fire drill. *Id.* at 53.

12.69. Teachers are "relied upon" in the NHRERP during implementation of school protective actions only to the extent that they are expected to carry out

their professional responsibilities to supervise students under their jurisdiction during any type of emergency situation. As such, teachers are expected to take direction from their administrative supervisors and to provide direction and control of their students. The purpose of the exercise objective was accomplished by the participation of representatives of the New Hampshire Department of Education and of each of the affected School Administrative Units and by demonstration of transportation resources for schools. *Id.* at 53-54.

12.70. Mr. Donovan was clear in his view that nonparticipation by (Massachusetts) schools and teachers did not diminish the ability of FEMA to make, or the force of, a reasonable assurance finding. FEMA has found that special-facility organizations such as schools will act in their own interests to protect those persons within their responsibilities. Tr. 22,604-05.

12.71. As Applicants point out, schools were not in session and the fact that schools elected not to participate is of no consequence in analyzing transportation needs, because the default value in the plan was used as it would be in the case of a real emergency where a school did not respond to inquiries for any reason. Tr. 22,958, 22,961, 22,972.

## H. Transportation for Special Facilities and Miscellaneous

12.72. SAPL EX-13 alleges that there was no test of the capability to transport hospital and nursing home patients to host facilities by ambulance and an insufficient test of evacuation bed bus capability in that only two mini-scenarios were conducted for this purpose during the New Hampshire portion of the exercise. It further alleges that there was no test of: (1) the ability to make decisions regarding the administration of KI to institutional populations; and (2) the capability of host facilities to receive, monitor, and decontaminate patients. TOH/NECNP EX-1, Basis f, asserts that insufficient regular buses (18 of 453), special-needs buses (2 of 71), and ambulances (1 of 48) were demonstrated; Basis g asserts that there was no demonstration of actual availability of transportation resources. Contentions Memo. at 121-22, 125.

12.73. SAPL EX-2 is similar to SAPL EX-13 and TOH/NECNP EX-1 and alleges that the transit-dependent, including special-needs and special-facility populations, are not adequately protected because the graded exercise failed to demonstrate the ability to provide a sufficient number of buses and ambulances with properly trained drivers. *Id.* at 114-17.

12.74. The agreed-upon "extent of play" controlled the number of buses and ambulances involved in the exercise. See Donovan Dir., ff. Tr. 21,653, Attach. A, § 3.3.7. Twenty buses, one wheelchair van, and one ambulance were deployed from transportation resource providers for participation in the New Hampshire exercise. Appl. Reb. No. 23, *supra*, at 59. A principal factor in determining the number of buses utilized in the exercise was the availability

of FEMA evaluators who traveled on each bus route. The extent of play agreed upon called for a FEMA evaluator and an NHY controller to accompany each contracted vehicle from its origination at the State Transportation Staging Area through the completion of the vehicle's assignment and its return to the staging area. Donovan Dir., ff. Tr. 21,653, Attach. A, at E/3.3-29. Applicants' witnesses argue that putting more buses on the road when there are no evaluators to evaluate them would not do anything to verify the capability to respond. Tr. 23,065; Appl. Reb. No. 23, *supra*, at 26.

12.75. As in the case of the schools, the decisionmaking process associated with providing transportation resources for special populations was to be demonstrated by the State of New Hampshire emergency response organization. Notification of special facilities was to be demonstrated with participating facilities and simulated for nonparticipating facilities by exercise participants calling in to an NHY Control Cell. Vehicle providers were initially contacted, and transportation resources were assigned in accordance with the requirements determined by contact with special facilities. Field demonstrations of transportation resources were conducted to allow for the observation and evaluation of one or more events by any one FEMA evaluator. For example, most of the actual buses run during the exercise ran multiple routes, allowing the associated FEMA evaluators to observe more than one route. Appl. Reb. No. 23, *supra*, at 56.

12.76. It was determined by the organizational representatives during the development of the extent-of-play portion of the exercise scenario that the simulated deployment and dispatch of these evacuation vehicles would be sufficient to support the demonstration of the transport and evacuation capability of special-facility and special-needs populations in New Hampshire for the following reasons:

- (1) The primary objective of the exercise scenario was to test the sufficiency of the coordination and integration of the various personnel (state and local) and resources needed to evacuate special populations pursuant to the NHRERP. A main focus of this portion of the exercise was to test information flows, decisionmaking functions, and coordination aspects of the entire process and ascertain whether communications, maps, and other processes would be sufficient to implement protective actions. As indicated in the Exercise Report (Appl. Exh. 43F, at 165), these plan processes were sufficient to mobilize more than enough transportation resources to meet demand.
- (2) The actual process of transporting persons to and from hospitals, nursing homes, or other special-care facilities is a normal day-to-day routine of the wheelchair van and ambulance company personnel who would report to the State Transportation Staging Areas. Accordingly, the ability to drive to various locations, to load and unload patients,

and to transport special-care persons properly are functions that these companies and drivers demonstrate daily.

Appl. Reb. No. 23, *supra*, at 56-57.

12.77. During the exercise, the process of providing transportation assistance for special populations was demonstrated by a range of actions. They were:

- (1) Procedures were implemented at the New Hampshire State EOC by the EOC Resources Coordinator, the Pupil Transportation Safety representative, and the Bureau of Emergency Medical Services to contact transportation resource providers.
- (2) Special facilities (nursing homes and hospitals) were contacted at least once, in accordance with the extent of play, by either a Local Liaison Officer in the IFO or a local emergency response official in participating communities to demonstrate the ability to notify these facilities and to determine their transportation requirements.
- (3) The results of the actions described in item (2), above, were relayed to the IFO Resources Coordinator who assigned the appropriate transportation resources to the participating local communities or to the individual special facilities in nonparticipating communities.
- (4) Buses for traversing bus routes for transit-dependent persons were assigned to local communities in accordance with the numbers allocated in the NHRERP.
- (5) Twenty buses, one wheelchair van, and one ambulance were deployed from transportation resource providers to State Transportation Staging Areas at the Rockingham County Complex and the Portsmouth Circle Business Center according to the provisions of the NHRERP. This deployment occurred at the Site Area Emergency classification in accordance with the plan.

*Id.* at 58-59.

12.78. Vehicles for special populations were dispatched from the State Transportation Staging Areas to the local communities and to special facilities, and subsequently proceeded to either host-community reception centers or to host facilities. *Id.* at 59.

12.79. After transportation resources were identified and mobilized, and assigned on the basis of identified requirements, the demonstration was extended to the field by the actual deployment of vehicles from the State Transportation Staging Areas for special populations and for traversing transit-dependent bus routes in the local communities. *Id.*

12.80. The wheelchair van was dispatched to the Town of Seabrook Local Staging Area. From there, the van simulated the pickup of a handicapped person from the Pine Street Trailer Park and then continued on to the Salem Reception Center. The two conversion bed buses were dispatched to nursing homes for

transport of evacuees to host health care facilities. These nursing homes (where conversion beds were installed on the bus) were the Eventide Nursing Home in Exeter and the Edgewood Center in Portsmouth (where patient loading was demonstrated by the use of a mannequin). Both conversion bed buses completed the routes from the nursing homes to their respective host facilities. *Id.* at 60.

12.81. The ambulance and crew that were mobilized by the State EOC Resources Coordinator were directed to the State Transportation Staging Area (TSA), at the Rockingham County Complex in Brentwood. There, the ambulance crew was issued dosimetry and instructions. The TSA Ambulance Coordinator assigned the ambulance to the Hampton Local Staging Area. Upon answering questions posed by FEMA evaluators, the ambulance crew was released from participation in the exercise. *Id.*

12.82. FEMA evaluated ambulance resources, thus verifying their preparedness. Tr. 23,121-22. The Board notes that the performance of this evaluation is to be contrasted with the lack of any such evaluation in the *Shoreham* proceeding, as discussed in *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-900, 28 NRC 275, 300 (1988).

12.83. Sixty-six of the total of seventy-seven bus routes (86%) for special populations in the New Hampshire portion of the EPZ were demonstrated. Appl. Reb. No. 23, *supra*, at 60. See also Tr. 22,118 ("Completed with controller intervention" not scored as "completed"). See also Tr. 22,151-52, 22,159-60.

12.84. Vehicles that demonstrated evacuation routes for special facilities on Day 1 and Day 2 of the exercise completed the routes from the special facilities to the designated host facilities. On Day 1 of the exercise, two evacuation bed buses traversed routes from two EPZ nursing homes to the host facilities of these nursing homes. The actual receipt of special-facility evacuees by the host facilities was not demonstrated. These host facilities are hospitals and nursing homes that receive hospital patients and nursing home residents daily. Appl. Reb. No. 23, *supra*, at 61.

12.85. The personnel assigned this function under the NHRERP are equipped and trained according to the procedures currently contained in the NHRERP for radiological monitoring, at reception centers. The monitoring equipment and procedures were demonstrated at two reception centers during the exercise. *Id.* at 61-62.

12.86. With respect to the decisionmaking process associated with the administration of KI to institutionalized persons, as delineated in the NHRERP, Vol. 1, § 2.7.3, Thyroid Protection, the Director of DPHS located at the State EOC in Concord is responsible for making recommendations on the use of KI as a thyroid blocking agent for the public and emergency workers pursuant to the nature of the emergency situation. *Id.*

12.87. During the exercise, DPHS personnel responsible for recommending the use of KI recommended its use for emergency workers in municipalities

located within 2 miles of the plant. As a result, the direction for emergency workers located within this area to take KI was given at 16:29. At 14:09, over 2 hours earlier, New Hampshire had recommended the evacuation of towns located within 5 miles of the plant. The only health care institution that could have potentially been affected by the KI directive, the Seacoast Health Center in Hampton, had already undertaken to evacuate. *Id.* at 63.

12.88. The purpose of this exercise scenario, in part, was to demonstrate the ability of DPHS personnel to make appropriate decisions for the administration of KI to potentially affected persons based on the available information and the DPHS procedures in the NHRERP. The information available to the state decisionmakers was that radioiodines were a concern in towns located within 2 miles of the plant and that at the time of concern, only emergency workers were present in this area due to the evacuation recommendation previously provided to the public. The appropriateness of the KI DPHS procedures and the DPHS personnel to properly implement them was demonstrated by the decisionmaking process that resulted in the recommendation of the ingestion of KI to emergency workers within the identified specific area of concern. *Id.* at 63-64; Appl. Exh. 43F, at 163-64.

12.89. Intervenors allege that with respect to verifying the capability to provide adequate transportation needs in an emergency, the exercise revealed many deficiencies. *See generally* MAG PF 12.1.57.A-57.A.8; SAPL PF 12.1.54.a-63.b. Most of the alleged deficiencies can be ascribed to Intervenors' concept of a "full-participation" exercise as contrasted with FEMA, NRC, and Applicants' interpretations. For example, with respect to demonstrating the ability to determine the need for transportation and fulfilling that need, Intervenors argue that each facility (school, day-care facility, special facility) should have been contacted to ascertain the transportation need and each of the transportation providers polled as to availability of buses and/or ambulances. Considering the situation at Seabrook with respect to noncooperating entities and other constraints, the extent of play, by necessity, provided flexibility in assessing the need for transportation. In accordance with the agreed-upon procedures, an attempt was made to determine the transportation requirement and, if no contact is made or the facility is not participating, default values could be used. *See* Extent of Play §§ 3.3.1 and 3.3.2 of Attach. A to Donovan Dir., ff. Tr. 21,653. For example, since schools were not in session during the exercise, the use of default numbers was necessary to accomplish the exercise. An exercise that, in many instances, was artificially made more difficult by assumptions forced on the players by FEMA, i.e., at a time when the regular school buses would have been at the schools and available, their use was denied and alternative transportation arrangements had to be made. The reason for the denial was to test capability to provide compensating actions. *See* Tr. 22,469-70, 22,581-84 (Donovan). *See also* Finding 7.74, *supra*. Clearly, the focus of the exercise was

not doing all things but demonstrating the ability to do it. It is not necessary to fill the highways with, in this case, nonexistent schoolchildren or nursing home patients in order to demonstrate a transportation capability, nor is it necessary to test the bus drivers' ability to drive a bus (although apparently accurate and readable maps might still be a consideration to be addressed). The bus drivers, as with teachers and ambulance drivers, do not have to be tested in what they do professionally. It is reasonable to assume that they will do their job. *See* Finding 12.69, *supra*. Further, NRC regulations require testing only what is reasonably achievable without public participation. 10 C.F.R. Part 50, Appendix E, § IV.F.1. It is with these types of considerations that the objectives of the exercise and the extent of play were prepared. Intervenors just think more should have been done. Applicants, NRC Staff, FEMA, and the Board disagree with Intervenors' assessment.

12.90. Below are specific deficiencies as alleged by Intervenors followed by Board comments:

1. Intervenors state that transportation providers did *not* make available resources in accordance with the extent of play and NHRERP procedures. For schools, transportation needs were to be determined by actual contact with public, private, and day-care personnel to provide census data. Appl. Exh. 65, §§ 3.3.1, 3.3.2, 3.3.7 ("Actual supply/demand calculations will be made per RERP procedures"). It is alleged that New Hampshire officials made virtually no effort to contact schools, and instead used default values to compute transportation needs. MAG Exhs. 104, 105; *see* Appl. PF 12.1.48; MAG PF 12.1.57.A. As discussed previously, schools were not in session and transportation requirements for schools were simulated in accordance with an agreed-upon procedure. *See* Finding 12.66, *supra*.
2. Intervenors state that most transportation providers did *not* determine actual supply of transportation resources as required by extent of play. Appl. Exh. 61, § 3.3.7. Indeed, ten of eighteen transportation providers refused to participate in the exercise at all, and an additional two companies could not even be contacted. MAG Exh. 107; Tr. 23,188-91; MAG PF 12.1.57.A.2; *see also* SAPL PF 12.1.55.b. The extent-of-play agreement for NHRERP transportation resources called for supply/demand calculations to be made per RERP procedures. MAG Exh. 107 demonstrates that an attempt was made to contact each of the transportation providers and to determine the number of vehicles and drivers available. Given the situation, particularly with the nonparticipants, a good-faith effort was made to collect the necessary information, and FEMA considered the objective met. The state identified vehicles through its suppliers that were sufficient to evacuate the special population in the plume EPZ and ad-

ditionally notified and placed eighty-seven drivers from DOT and the National Guard on standby. Appl. Exh. 43F, at 165; *see also* the narrative summary concerning the implementation of protective actions for schoolchildren under Objective 19 (Appl. Exh. 43F, at 172-73). As to actual use of vehicles, FEMA agreed to allow the contracting of transportation resources for use in the exercise to demonstrate the functional capability of the RERP. Donovan Dir., ff. Tr. 21,653, Attach. A, at E/3.3-26. The Board agrees with FEMA's finding that the transportation-related aspects of Objectives 18 and 19 were met. Appl. Exh. 43F, at 164-82.

3. Intervenors allege that seventeen of sixty-six, or 25.7%, of all bus routes run to demonstrate transportation resources for special-needs facilities were *not* run successfully. Tr. 22,988; MAG PF 12.1.57.A.3; SAPL PF 12.1.58. Pages 166 through 171 and 173 through 181 of the Exercise Report summarize the completion status of transit-dependent routes and school and day-care routes in New Hampshire. It shows that of a total of 224 routes, 9 were cancelled, 8 were not completed, and 207 were completed, of which 20 were completed with controller assistance. For those routes actually run or attempted, over 96% were completed. FEMA found that the drivers had problems reading or following the maps and there were problems with the accuracy of some of the maps. Appl. Exh. 43F, at 172, 181-82. These ARCA's have been or will be addressed. Appl. Exh. 43E, at 6, 7.
4. Intervenors point out that the 1986 exercise revealed a deficiency in the ability of drivers to reach their destinations, due to the poor quality of maps and lack of training. Tr. 22,993. Although disputed by Applicants, similar problems were revealed by the 1988 exercise. *See* Tr. 22,993-94; MAG PF 12.57.A.4; *see also* Board discussion of MAG PF 12.57.A.3, above (Finding 12.90.3).
5. A primary objective of the exercise was to test communication and coordination regarding scenario events. The majority of the transportation routes for the State of New Hampshire special facilities, however, were run out of the time line on Day 2 of the exercise. Tr. 22,989. Intervenors argue that under these circumstances, it is not credible for Applicants to claim that adequate coordination of transportation resources, in the context of an overall, coordinated response, could nevertheless be demonstrated. *See* Tr. 22,989-93; MAG PF 12.1.57.A.5. Communication and coordination were demonstrated within the extent of play at least to the satisfaction of FEMA. As described by Applicants' witnesses, the routes run on Day 2 were run principally to determine if the maps could be followed. In any event,

- all the routes could not have been run in 1 day because of the limited number of FEMA evaluators. Tr. 22,991-92.
6. Only three of eighteen bus companies actually provided buses during the exercise. Tr. 22,995. These buses had been precontracted, and the companies had made advance arrangements for deployment to preidentified locations. Tr. 22,995-97. Therefore, during the exercise, none of the eighteen bus companies were actually required, in conformance with NHRERP procedures, to determine the number of vehicles actually available and to deploy these resources to facilities identified at the time of emergency. Tr. 23,006-07. According to Applicants, the scope of the exercise did not require any bus company to determine the actual availability of transportation resources. Tr. 23,006. Therefore, the exercise did not verify the capability to actually deploy needed transportation resources in an emergency. MAG PF 12.1.57.A.6; SAPL PF 12.1.55.a-c. The level of participation of the bus companies in the exercise was predetermined, and Applicants provided what was called for in the agreement. *See* § 3.3.7 of Extent of Play document.
  7. In proposed findings the Attorney General argues that without actual participation, a primary goal of providing training to transportation providers during the exercise could not be met. *See* Tr. 22,998-23,000; MAG PF 12.1.57.A.7. This issue appears to be outside the scope of the instant contention. Regardless of that, however, the only aspect that might have required testing (since one would not be required to test a professional driver's ability to drive his vehicle) would be the quality of the maps with respect to readability and followability. That aspect was given considerable attention. *See* the Board's comments on MAG PF 12.1.57.A.5, above (Finding 12.90.5).
  8. The Massachusetts Attorney General argues that during the exercise, FEMA did not even attempt to evaluate how many buses were actually available for emergency response. Tr. 23,007; MAG PF 12.1.57.A.8. FEMA conducted its own survey of transportation facilities for Seabrook and that is summarized in a FEMA document dated October 21, 1988, and attached to Applicants' Rebuttal No. 23 as Attachment H.
  9. In its proposed findings, SAPL raises the issue of FEMA Objective 36 which deals with unannounced, off-hours exercises. SAPL PF 12.1.70-71. While Guidance Memorandum (GM) EX-3 clearly states that "Objective 36, unannounced, and off-hours exercises and drills, does not apply to a qualifying exercise" (MAG Exh. 93, under Guidance, at 2, § 3), SAPL argues that the guidance memorandum was provided under a transmittal letter that stated that it should

be used in conjunction with NUREG-0654, FEMA REP-1, Rev. 1, Supp. 1, which is the guidance that applies to the evaluation of *utility* plans. Tr. 23,072-73. Since NHRERP is not a utility plan, SAPL argues that Objective 36 should have been tested. Applicants counter that although NHRERP is not a utility plan, they had determined in discussions with FEMA that Objective 36 did not apply to qualifying exercises. Tr. 23,072. Further, it would not have been practical to have one participating organization, one participating state, and one utility response organization doing something different. Applicants' witness opined that physically it could not occur that you could have the exercise announced on one side of the border and unannounced on the other. Tr. 23,076. The Board agrees that the intent of the guidance pertaining to Objective 36 was to exclude unannounced, off-hours exercises from qualifying exercises such as the June 28-29, 1988 Seabrook Exercise. The Board also agrees that the most reasonable interpretation of FEMA's GM EX-3, dated March 7, 1988, particularly in view of Applicants' direct discussions with FEMA, is to exclude unannounced, off-hours activities in "qualifying exercises."

## I. Rulings of Law

12.91. It is not sufficient for the opponents of Seabrook to demonstrate the existence of an error or lack of judgment on the part of players in the exercise as such; rather, what must be demonstrated is that those things that did not go perfectly in the exercise demonstrate the existence of a fundamental flaw in the plan or plans being exercised. *Shoreham*, ALAB-903, *supra*, 28 NRC 499.

12.92. With respect to the scope of the exercise, Intervenors must demonstrate that the exercise was so unduly limited that it did not permit a meaningful test and evaluation of the emergency plan in order to ascertain if that plan is fundamentally flawed. *Shoreham*, ALAB-900, *supra*, 28 NRC at 286.

12.93. A fundamental flaw in an emergency plan, as revealed in an exercise, has two principal components. First, it reflects a failure of an essential element of the plan, *and*, second, it can be remedied only through a significant revision of the plan." *Shoreham*, ALAB-903, *supra*, 28 NRC at 505.

12.94. Any purported deficiency observed in an exercise which can be corrected by providing supplemental training cannot be held to evidence a fundamental flaw in a radiological emergency response plan. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-918, 29 NRC 473, 486 (1989).

## **J. Conclusion**

12.95. The Board finds and rules that the graded exercise demonstrated that the NHRERP is adequate and implementable.

## **13. ULTIMATE CONCLUSIONS AND ORDER**

13.1. The Board has considered all of the reliable, probative, and substantial evidence presented by the parties on the admitted contentions on the SPMC and the June 1988 FEMA Graded Exercise. We have also reviewed the proposed findings of facts and conclusions of law submitted by the parties and FEMA. Based upon the findings of fact and conclusions of law set out herein, which are based upon the whole record of the proceeding, cited by the parties, this Board has decided all issues in controversy with respect to those contentions. Accordingly we conclude as follows:

13.2. The Board finds and rules that the Seabrook Plan for the Massachusetts Communities (SPMC) is adequate and implementable and therefore Massachusetts officials will generally follow the SPMC in the event of an actual emergency at Seabrook. Thus, the Board rejects as unsupported in this record Contentions JI-41 through JI-43.

13.3. The Board finds and rules that the New Hampshire Radiological Emergency Response Plan (NHRERP) is implementable.

13.4. The Board finds and rules that the 1988 graded exercise was adequate in scope and revealed no fundamental flaw in the SPMC or the NHRERP.

13.5. The SPMC meets the requirements of 10 C.F.R. § 50.47 and Appendix E to 10 C.F.R. Part 50. The Board finds reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at the Seabrook Station, in accordance with the Commission's emergency planning regulations and precedents with respect to the issues litigated in this phase of the proceeding.

13.6. This conclusion depends upon the many commitments, Board requirements, provisos, conditions, and expectations set out in the respective findings above. We leave verification of the Applicants' conformance with these provisions to the experts of the NRC Staff under the direction of the Director of Nuclear Reactor Regulation. Except where specified time limits have been placed on Applicants' conformance, the Director has broad discretion in the timing and manner of conformance consistent with the discussion in the respective findings and in furtherance of the Board's intent.

13.7. On December 30, 1988, this Board issued its Partial Initial Decision with respect to the NHRERP. LBP-88-32, 28 NRC 667 (1988). There we concluded that, subject to the satisfaction of certain conditions, there is reasonable assurance that adequate protective measures can and will be taken within the

New Hampshire portion of the EPZ in the event of a radiological emergency at Seabrook Station. *Id.* at 804.

13.8. Upon the issuance of LBP-88-32 and the issuance of this Partial Initial Decision, this Board would have decided all issues remaining in controversy in the Seabrook operating license proceeding. However, on November 7, 1989, the Appeal Board remanded to this Board certain issues decided in LBP-88-32 with respect to the NHRERP. ALAB-924, 29 NRC 331 (1989).

13.9. The Board has carefully read ALAB-924, evaluated the remanded issues, and studied the Appeal Board's directions to this Board. We conclude that those issues and directions do not preclude the immediate issuance of an operating license for the Seabrook Station.<sup>87</sup>

13.10. The Board directs that, pursuant to the Atomic Energy Act, as amended, the Commission's regulations, and, in particular, subject to the provisions of 10 C.F.R. § 2.764, the Director of Nuclear Reactor Regulation is authorized to issue to the Applicants an operating license for Seabrook Station Unit 1 to operate at power levels not to exceed 3411 MW(t).

13.11. Pursuant to 10 C.F.R. § 2.760, this Initial Decision will constitute the final action of the Commission 45 days from the date of its service, unless an appeal is taken in accordance with 10 C.F.R. § 2.762 or the Commission directs otherwise. See also 10 C.F.R. §§ 2.764, 2.785, 2.786.

13.12. Any party may take an appeal from this Initial Decision by filing a Notice of Appeal within 10 days after its service. Each appellant must file a brief supporting its position on appeal within 30 days after filing its Notice of Appeal, or, if the Staff is the appellant, within 40 days. Within 30 days after the period has expired for the filing and service of the briefs of all appellants (40 days in the case of the Staff), a party who is not an appellant may file a brief in support of or in opposition to the appeal of any other party. A responding party shall file only a single responsive brief regardless of the number of appellants'

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<sup>87</sup> The Board will issue a memorandum following the issuance of this Partial Initial Decision explaining why ALAB-924 does not preclude the issuance of an operating license. Our explanations will include, for example, the observation that the remanded issues do not involve significant safety or regulatory matters when considered in the context of the record of the NHRERP proceeding; our ultimate conclusions that the NHRERP provides reasonable assurance that adequate protective measures can and will be taken are not changed; the record of the NHRERP proceeding need not be reopened to resolve some inconsistencies and voids found by the Appeal Board, and that any needed implementing actions can be readily and promptly taken. We shall also explain why the pendency of several motions to submit new contentions does not preclude the issuance of the operating license.

briefs filed. Any motion for modification of this schedule must be addressed to the Appeal Board. *See* 10 C.F.R. § 2.762.

**ATOMIC SAFETY AND  
LICENSING BOARD**

**Richard F. Cole  
ADMINISTRATIVE JUDGE**

**Kenneth A. McCollom  
ADMINISTRATIVE JUDGE**

**Ivan W. Smith, Chairman  
ADMINISTRATIVE LAW JUDGE**

Bethesda, Maryland  
November 9, 1989

## SALISBURY TRAFFIC CONTROL POST NO. B-SA-09

TOWN: SALISBURY

PRIORITY: 1-SUMMER  
NOT NEEDED -OFF-SEASONLOCATION: OCEAN BLVD.(ROUTE 1A)  
AND ROUTE 286

ERP#:

B

NODE#:

6

KEY:

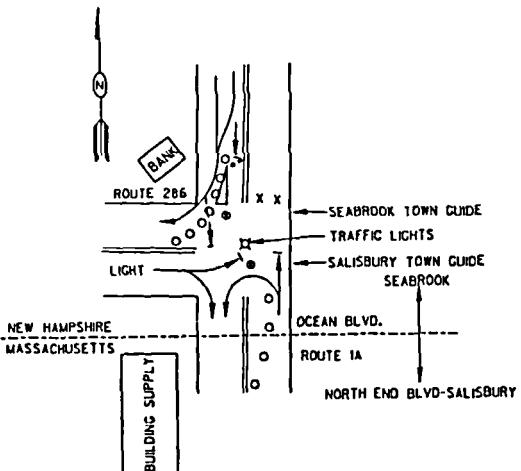
- MOVEMENT FACILITATED
- MOVEMENT DISCOURAGED
- TRAFFIC GUIDE
- TRAFFIC CONE
- ✗ TRAFFIC BARRICADE

DESCRIPTION:

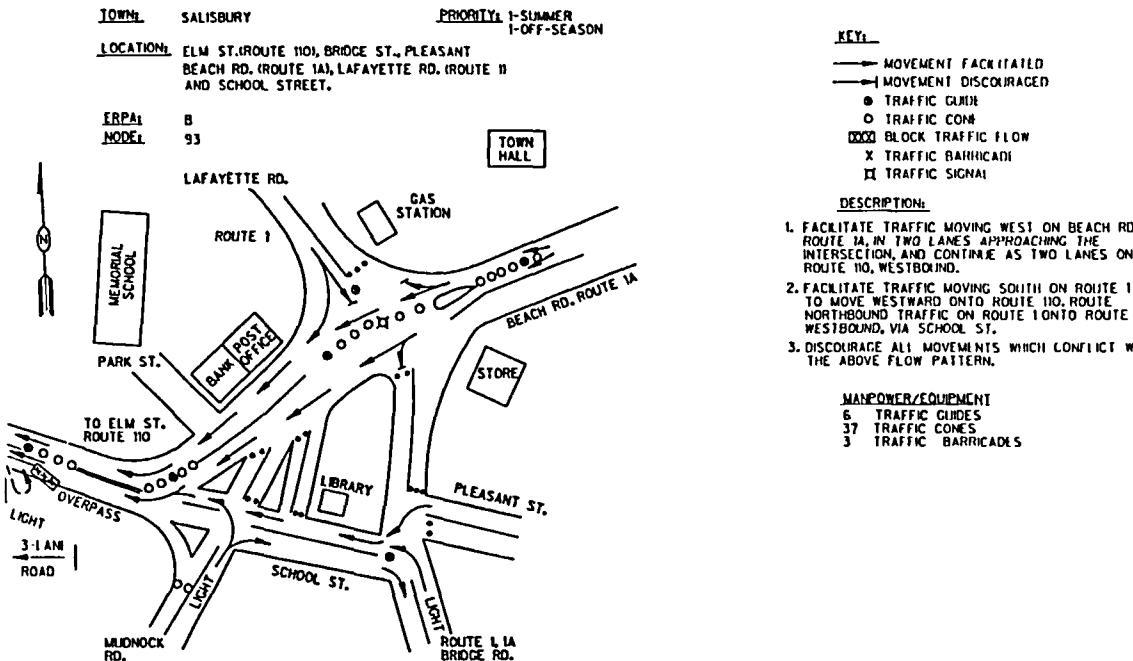
1. FACILITATE TRAFFIC MOVEMENT FROM ROUTE 1A SOUTH TO WESTBOUND ROUTE 286. IF ROUTE 286 BECOMES CONGESTED, SEND TRAFFIC SOUTH ON ROUTE 1A. WHEN ROUTE 286 CONGESTION CLEARS UP, REVERT TO GUIDING TRAFFIC ONTO WESTBOUND ROUTE 286. MOVEMENT ONTO ROUTE 286 IS PREFERRED; HOWEVER, KEEP TRAFFIC MOVING OUT OF SEABROOK BEACH EVEN IF ROUTE 286 IS CONGESTED.
2. FACILITATE U-TURN MOVEMENT FOR TRAFFIC ON NORTHBOUND ROUTE 1A APPROACH.
3. DISCOURAGE NORTHBOUND TRAFFIC ON ROUTE 1A.

MANPOWER/EQUIPMENT:

- 2 TRAFFIC GUIDES
- 12 TRAFFIC CONES
- 2 TRAFFIC BARRICADES



## SALISBURY TRAFFIC CONTROL POST NO. B-SA-06



## AMESBURY TRAFFIC CONTROL POST NO. 8-AM-06

TOWN: AMESBURY  
LOCATION: ROUTE 110, I-95 & ELM ST.  
ERRAI: B  
MODEL: 45, 253, 255

PRIORITY: 1-SUMMER  
2-OFF-SEASON

KEY:

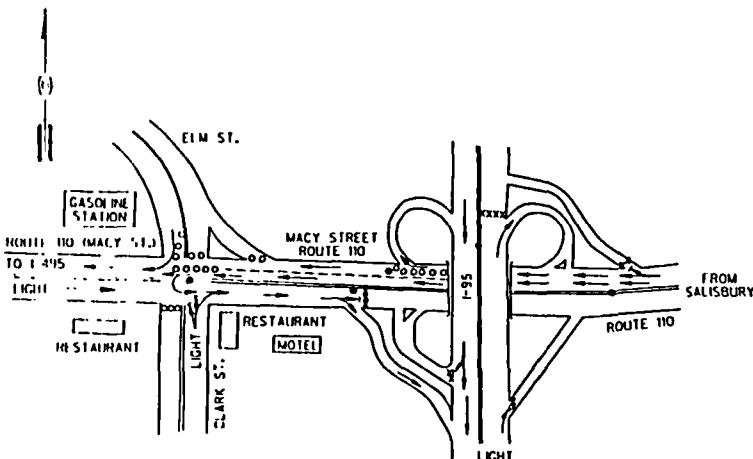
- MOVEMENT FACILITATED
- MOVEMENT DISCOURAGED
- TRAFFIC GUIDE
- TRAFFIC CONE
- ✗ TRAFFIC BARRICADE

DESCRIPTION:

1. FACILITATE WESTBOUND THROUGH TRAFFIC MOVEMENT ALONG ROUTE 110 AND FROM ELM ST. TO WESTBOUND ROUTE 110.
2. FACILITATE TRAFFIC MOVEMENT FROM WESTBOUND ROUTE 110 ONTO ENTRY RAMP TO SOUTHBOUND I-95.
3. FACILITATE U-TURN BY WESTBOUND TRAFFIC ON ROUTE 110 AT ELM ST. FOR THOSE WHO ELECT TO TRAVEL ON SOUTHBOUND I-95, OR IF WESTBOUND ROUTE 110, WEST OF ELM ST. IS CONGESTED.
4. DISCOURAGE NORTHBOUND TRAFFIC ON I-95.
5. DISCOURAGE ENTRY ONTO NORTHBOUND I-95 BY TRAFFIC WESTBOUND ON ROUTE 110.
6. DISCOURAGE EASTBOUND TRAFFIC ON ROUTE 110, EAST OF ENTRY RAMP TO SOUTHBOUND I-95.
7. DISCOURAGE ENTRY ONTO NORTHBOUND ELM ST.

MANPOWER/EQUIPMENT

- 5 TRAFFIC GUIDES
- 21 TRAFFIC CONES
- 13 TRAFFIC BARRICADES



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

**Before Administrative Judges:**

Ivan W. Smith, Chairman

Dr. Richard F. Cole

Dr. Kenneth A. McCollom

In the Matter of

Docket Nos. 50-443-OL

50-444-OL

(ASLBP No. 82-471-02-OL)  
(Offsite Emergency Planning)

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

November 20, 1989

**MEMORANDUM SUPPLEMENTING LBP-89-32**

The Partial Initial Decision on the Seabrook Plan for the Massachusetts Communities (SPMC) and the 1988 FEMA Graded Exercise issued on November 9, 1989. LBP-89-32, 30 NRC 375. There we authorized the Director of Nuclear Reactor Regulation to issue a full-power operating license for the Seabrook station notwithstanding the pendency before this Board of the matters remanded on November 7, 1989, by the Appeal Board in ALAB-924 (30 NRC 331) and the pendency of several motions to add new contentions to the proceeding. We noted that we would issue a memorandum following LBP-89-32 explaining why the pendency of those issues does not preclude the immediate issuance of the Seabrook operating license. LBP-89-32, 30 NRC at 651 n.87. The purpose of this Memorandum is to provide that explanation.

## General

ALAB-924 remanded to this Board four issues reviewed on appeal from LBP-88-32, the partial initial decision on the NHRERP. 28 NRC 667 (1988).<sup>1</sup> The fact that our November 9, 1989 decision, LBP-89-32, was about to be issued was well established on the public record of this proceeding because this Board had complied with the Commission's directive to report the target date for its issuance. The Commission noted on September 15, 1989, that, "[I]acking the admission of any new contention, the order [partial initial decision] expected on November 30, 1989, would have the potential to authorize issuance of the full-power license and conclude this proceeding." CLI-89-19, 30 NRC 171, 173.<sup>2</sup> Despite the Appeal Board's certain knowledge that LBP-89-32 was about to issue, ALAB-924 is silent as to any effect the Appeal Board action would have on the potential in our decision for authorizing issuance of the Seabrook operating license. It is true that ALAB-924 sets out certain specific, as well as general, directions to this Board. But, overall, our reading of ALAB-924 leads us to infer that the remand order included traditional broad discretion in resolving the issues, based upon our familiarity with the very large evidentiary record of the proceeding.

Moreover, there is no regulation or, as far as we can determine, any reported decision that would foreclose the issuance of an operating license once the basic findings under 10 C.F.R. §§ 50.47(a)(1) and 50.57(a)(3) have been made, despite the pendency of open matters. To the contrary, while it is preferred that issues be resolved in an adjudicative context prior to the issuance of a license, some unresolved matters may be left to posthearing consideration and, indeed, even delegated to the Staff for implementation. *Consolidated Edison Co. of New York* (Indian Point, Unit 2), CLI-74-23, 7 AEC 947, 951-52 (1974). *But see Commonwealth Edison Co.* (Byron Nuclear Power Station, Units 1 and 2), LBP-84-2, 19 NRC 36, 210-12 (1984).

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<sup>1</sup> A fifth matter was referred to the Licensing Board for further action. We are directed to take appropriate steps to ensure that the commitment made in Applicants' testimony concerning the planning basis for determining transportation needs for the special facilities, Webster in Rye, New Hampshire, and Exeter Healthcare Facility in Exeter, New Hampshire, are met. The Appeal Board noted a disparity between the commitment to determine transportation needs based upon maximum capacity of each facility, and the actual capacity of the vehicles assigned. ALAB-924, 30 NRC at 352 n.72. The Board will require the Applicants to confirm that their commitment has been honored at the time we invite briefing on proceeding with the issues remanded by ALAB-924, unless Applicants have already so confirmed.

<sup>2</sup> Subsequently this Board informed the parties that the decision would issue as early as 3 weeks prior to November 30. Tr. 28,320. On November 1, the Appeal Board denied Joint Intervenors' motion to direct this Board to withhold its impending initial decision said by Intervenors to be due on November 9 or 10.

This principle is particularly valid in matters of emergency planning where licensing boards traditionally rely upon predictive findings that emergency plans can and will be implemented and upon posthearing verification of the resolution of open matters. *E.g., Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-836, 23 NRC 479, 494-95 (1986), *citing Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1103-04 (1983), and *Indian Point*, CLI-74-23, *supra*. See also *Byron*, LBP-82-2 *supra*, 19 NRC at 251-52.<sup>3</sup>

A common issue in the foregoing cases was whether a posthearing delegation of open matters to the Staff was appropriate. Here, of course, the question is whether postlicensing consideration of open matters by an adjudicating board is appropriate. Putting aside questions of passing jurisdiction, which are not present at this juncture, if the requisite findings of reasonable assurance of public safety can be made despite pending open matters, then, *a fortiori*, the Commission's adjudicating boards can defer resolution of some remanded issues for postlicensing consideration under the close scrutiny of the litigating parties.

The important question is not whether this Board can consider just any issue postlicensing, but whether the issues remanded in ALAB-924 are amenable to such treatment. We believe that they are. Perhaps lost in the flurry of motions and comments following the issuance of ALAB-924 and LBP-89-32 was the fact that, in ALAB-924, the Appeal Board affirmed this Board's partial initial decision on the NHRERP with respect to every major safety issue decided in ALAB-924. In commenting upon the issuance of the operating license during the pendency of ALAB-924 issues, we promised to explain why the remanded issues were not a bar to licensing, and noted:

Our explanations will include, for example, the observation that the remanded issues do not involve significant safety or regulatory matters when considered in the context of the record of the NHRERP proceeding; our ultimate conclusions that the NHRERP provides reasonable assurance that adequate protective measures can and will be taken are not changed; the record of the NHRERP proceeding need not be reopened to resolve some inconsistencies and voids found by the Appeal Board, and that any needed implementing actions can be readily and promptly taken. We shall also explain why the pendency of several motions to submit new contentions does not preclude the issuance of the operating license.

LBP-89-32, 30 NRC at 651 n.87.

This Board will, of course, promptly seek the advice of the parties on the appropriate resolution of the remanded issues. For now, however, we explain our

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<sup>3</sup> We note, however, that the Appeal Board ruled that implementing detail for the sheltering option is a deficiency that must be remedied before the plan can be approved, distinguishing *Waterford*, *supra*. ALAB-924, 30 NRC at 372 n.194.

reasoning with respect to the particular issues remanded in ALAB-924, based upon the record of the proceeding to date.

## Letters of Agreement

### *Statement of the Issue*

NUREG-0654/FEMA-REP-1, which is similar to NRC regulatory guides, provides guidance to the effect that individuals and organizations that can be relied upon to provide assistance in an emergency shall be identified, the assistance identified and supported by appropriate letters of agreement (LOAs). NUREG-0654, II.C.4. *See also id.* II.A.3, II.P.4. The Licensing Board, on May 21, 1986, ruled with respect to proffered contentions that LOAs are not required between the state and communities; that LOAs are required only for providers of services and therefore not for schools (day-care centers, etc.) because, in this case, teachers are "recipients" not "providers" of services. We also ruled, on May 18, 1987, that separate letters of agreement with those such as bus drivers who collectively supply services are not required. We made similar findings in LBP-88-32, 28 NRC at 673.

The Appeal Board ruled that this Board correctly found in the NHRERP decision that teachers will do their duty as "recipients" of services so long as students remain on the school grounds and that the distinction between "providers" and "recipients" of services (no LOAs required) was a sensible one. ALAB-924, 30 NRC at 342-43. But the Licensing Board had found that when teachers were expected to accompany students on buses, instead of being free to leave by their own transportation, teachers should be regarded as "service providers." LBP-88-32, 28 NRC at 730.

The Appeal Board notes the disparity between our decisional finding that teachers are "providers" when escorting children on buses during an emergency, and our earlier rulings that they are, in general, "recipients." ALAB-924, 30 NRC at 343. The matter is remanded for "further explanation" with the direction that the Licensing Board "resolve the existing inconsistency in its interpretations of the role of school personnel in an evacuation and determine whether any LOAs should be obtained from school personnel." *Id.* at 342, 343-44. In resolving this issue, we are directed to consider whether school personnel acting in the role of custodians of the students are "ordinarily expected to accompany their students in an evacuation." *Id.* at 343.

### **Licensing Board Explanation**

We begin with an answer to the Appeal Board's factual inquiry, i.e., whether the teachers are ordinarily expected to accompany their students in an evacuation. The assumption underlying our respective finding was that some of them would accompany the students in an evacuation if needed. LBP-88-32, 28 NRC at 729-30. School teachers testifying for Intervenors understood that they would be asked to accompany schoolchildren. Tr. 4014. Applicants' panel of experts testified that not all school buses would be accompanied by school personnel, but that school personnel will do what must be done and that sufficient numbers of school personnel would be available to supervise the students on buses. Applicants' Direct Testimony No. 7, ff. Tr. 5622, at 126-27. Mr. Strome, then New Hampshire's Director of Emergency Management, explained that whether or not teachers accompany schoolchildren in an evacuation depends upon whether they volunteer to do so in the discharge of their normal *loco parentis* responsibilities. He stressed also that, although New Hampshire would hope that the teachers would be willing to participate in caring for schoolchildren in an evacuation, their participation is not "key to the process." He noted, as does this Board, that schoolchildren regularly get on school buses without hands-on assistance, and that teachers don't travel on the buses every day. Tr. 3388-89. On the other hand it is commonly observed that teachers routinely accompany their students on field trips.

In the very broad experience of Dr. Milet, a leading expert on human behavior in emergencies, he knows of no emergency in the history of this country where teachers have abandoned their children. LBP-88-32, 28 NRC at 740-41. The Licensing Board concluded that school teachers and school officials, as a group, will not abandon their pupils in the event of a radiological emergency at Seabrook. LBP-88-32, 28 NRC at 732, 749. Contrary to the Appeal Board's understanding (ALAB-924, 30 NRC at 343 n.24), we did not intend for that conclusion to stop at the school bus steps. If needed, school personnel will stay with their charges until they are safe.

The LOA/school personnel matter is not a significant safety issue. We are convinced that sufficient numbers of school teachers will accompany school buses in those cases where they are needed for a safe evacuation of schoolchildren. In arriving at that conclusion, we place more confidence in the inherent dedication and sense of responsibility of school personnel than on nonbinding letters of agreement. Moreover, in evacuating with their students, those school teachers are themselves being evacuated and need not choose between personal safety and their duty to their students.

There is, however, a regulatory aspect to the remanded issue on letters of agreement which we are obligated under ALAB-924 to explain. We did indeed refer to teachers as "service providers" to the extent they might be expected to

accompany students on the bus. This is the very term used in connection with our findings on letters of agreement. *Compare LBP-88-32*, 28 NRC at 673 *with id.* at 730. The Appeal Board's perception of a disparity has a basis.

Our finding occasioning the remand was under Section 7, Human Factors in Emergencies. 28 NRC at 728, 729-30. Letters of Agreement, as a regulatory or guidance requirement, were discussed under an entirely different part of the decision — Section 2, Letters of Agreement. 28 NRC at 673, *et seq.* The term "service providers" was used, in a literal sense, correctly in both sections. However, the term has a special regulatory meaning under the LOA part of the decision flowing from NUREG-0654, II.C.4.

Our finding that teachers provide a service under Section 7, Human Factors, was, in a sense, a gratuitous dotting of the "i" in the interest of accuracy. No party argued, as a human factors consideration, that the likelihood of teachers evacuating with students would be enhanced by LOAs. It was without any thought of the LOA requirements that the Board deemed teachers evacuating with students to be providers of services.

Be that as it may, if, in fact, teachers are "service providers" contrary to our earlier rulings that they are not, the regulatory implications must, in obedience to ALAB-924, be addressed. First, nothing in our finding in Section 7, Human Factors, is inconsistent with our finding under Section 2, Letters of Agreement, that LOAs are not required for individuals who collectively supply a labor force or activity. Whatever services teachers may provide when they volunteer to go with their students during an evacuation are done collectively as school system employees.

Second, our finding that the teachers provided a service depended upon the assumption that they would forego evacuating in their own vehicles. 28 NRC at 730. We did not explore the matter in detail because we did not then, nor do we now, think it is significant. But obviously some teachers would rely upon school buses for their evacuation — probably the teachers most likely to volunteer — and they would in every sense be recipients of that evacuation service.

Third, the school system as a unit is the recipient of evacuation services for the students (and employees needing transportation). Teachers are an integral part of that system. They should not be separated from the school system as a part especially requiring LOAs.

Finally, as we have found, and profoundly believe, teachers as a group will not abandon students needing their care. They will accept evacuation services in the exercise of the altruistic and voluntary care of their charges. To the extent that school buses permit the teachers to see their children safely to reception centers, they are the recipients of services, albeit on behalf of their charges.

Accordingly, we do not believe that the remanded issue regarding teachers and LOAs has either safety or regulatory significance. That issue does not change our ultimate conclusion that schoolchildren can and will be safely evacuated and

that the NHRERP provides reasonable assurance that protective actions can and will be taken in the event of a radiological emergency at Seabrook.

## 1986 Special-Needs Survey

### *Statement of the Issue*

Taken together, NUREG-0654/FEMA-REP-1 Criteria J.10.d and J.10.g provide that emergency plans should specify the means to relocate, notify, support, and assist, among other categories of potential evacuees, special-needs individuals (i.e., transit-dependent and homebound disabled or bedridden persons). The first step in assuring that an emergency plan is capable of meeting the needs of this group is the reasonably complete identification of the number and particularized assistance requirements of the special-needs population that resides within an EPZ.

In May 1986, the Applicants moved for partial summary disposition of all contentions to the extent they "assert[ed] that there do not exist adequate procedures for identifying persons with special needs."<sup>4</sup> In support of their motion, the Applicants offered the affidavit of the Director of the New Hampshire Civil Defense Agency (NHCDA) detailing the design, dissemination methodology, public awareness campaign, and results of a March 1986 survey (to be repeated annually) undertaken by the NHCDA to identify the number and particularized transportation needs of special-needs individuals.<sup>5</sup>

As explained by Mr. Strome, the NHCDA developed and mailed in March 1986 a preaddressed, postage-paid survey instrument to 33,812 New Hampshire households based on then-current customer lists provided by the Public Service Company of New Hampshire and the Exeter-Hampton Electric Company. In addition, the survey was made available through several local service and municipal agencies. Strome, ¶2. Finally, recognizing that the use of utility customer lists would not necessarily ensure that every household in the New Hampshire portion of the Seabrook EPZ would receive a survey instrument, public announcements were made by the NHCDA noting the distribution of the survey instruments, encouraging responses, and providing a means for persons to request a survey instrument if they had not received one. *Id.*, ¶6.

The survey sought information regarding the number of residents of each household who would need transportation (and if so, whether transportation

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<sup>4</sup> Applicants' Motion for Partial Summary Disposition of South Hampton Contention No. 8, NECNP Contention NHLP-4 and SAPL Contentions 18 and 25 (May 20, 1986) (hereinafter referred to as "Applicants' Motion") at 1-2.

<sup>5</sup> Applicants' Motion, Affidavit of Richard H. Strome (Contention South Hampton-8, NECNP Contention NHLP-4, and Contentions SAPL-18 and -25) (hereinafter referred to as "Strome, ¶—").

by ambulance was necessary), and/or who was hearing- or sight-impaired, wheelchair disabled, bedridden, non-English speaking (and if so, what language), or would otherwise need special help because of other health conditions.<sup>6</sup> Strome, ¶ 2 and Attach. A. The survey also asked respondents to provide special directions to their respective residences.

With SAPL taking the lead, Intervenors opposed the Applicants' motion on the grounds that "genuine issues as to the adequacy of the dissemination of the survey, its design and the frequency with which it is to be conducted" necessitated further litigation.<sup>7</sup> In support of its opposition, SAPL appended an affidavit by Frederick Anderson, Jr., asserting that the 1986 Special Needs Survey was deficient in its dissemination methodology because (1) the state had used utility customer lists and thus did not reach EPZ residents who were not personally responsible for utility bills, (2) the survey was mailed in March and thus did not reach those seasonal residents who would qualify as special-needs individuals, and (3) the survey was conducted using a single mailing, an approach that is unlikely to locate even a majority of special-needs individuals.<sup>8</sup> In terms of the survey instrument itself, Anderson asserted that its design was deficient because it (1) did not sufficiently motivate individuals to respond by indicating the consequences of such a failure (no personal evacuation); (2) employed ambiguous questions that could lead to overlapping, speculative, or inaccurate responses; and (3) was only in English and thus was not adequate for households where no adult resident spoke English. Anderson, ¶¶ 6, 8-12.

In November 1986, the Licensing Board granted partial summary disposition, concluding that the 1986 Special Needs Survey conducted by the State of New Hampshire (and scheduled to be repeated annually) was adequate as a matter of law for the emergency planning purposes, and further concluded that any additional enhancements or refinements of the survey methodology employed by the state or the possible use of alternative survey methods were

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<sup>6</sup> As of May 16, 1986, the initial survey resulted in the identification of 1974 persons who might require transportation, 333 persons who might require special notification, 51 persons who might require transportation by ambulances, 546 persons who might require special assistance due to a physical disability, and 9 persons who might require special notification in languages other than English. Strome, ¶ 3. By July 11, 1986, after additional responses and consultations with private and governmental organizations who routinely deal with handicapped individuals or provide home health care, approximately 2340 transit-dependent individuals and 9 ambulance-dependent individuals had been identified. Appl. Dir. No. 2, ff. Tr. 4228, at 9-10. However, the survey is conducted annually, and the transportation needs of special-needs individuals are updated on a continuous basis as survey responses and other information become available. Thus, the specific number used in the NHRERP as a transportation resource planning basis with respect to special-needs individuals fluctuates over time. See Strome, ¶ 5; Tr. 4285.

<sup>7</sup> SAPL's Response to Applicants' Motion for Summary Disposition of SAPL Contentions 5, 7, 14, and 17 and Motion for Partial Summary Disposition of SAPL Contentions 18 and 25 (June 9, 1986) (hereinafter referred to as "SAPL Response") at 16. See also NECNP Opposition to Applicants' Motion for Summary Disposition (June 9, 1986) at 23-25.

<sup>8</sup> SAPL Response, Affidavit of Frederick H. Anderson, Jr. (June 6, 1986) (hereinafter referred to as "Anderson, ¶ 7"), ¶¶ 4, 5, 13, 14.

"extraordinary measures" not required under the Commission's emergency planning regulations.<sup>9</sup> In ALAB-924, the Appeal Board held that SAPL had raised material factual issues regarding the adequacy of the 1986 Special Needs Survey whose litigation was not properly precluded under the Commission's *San Onofre* "extraordinary measures" principle. See *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-83-10, 17 NRC 528, 536 (1983), *rev'd in part on other grounds*, *GUARD v. NRC*, 753 F.2d 1144 (D.C. Cir. 1985). It therefore remanded the matter of the sufficiency of the Special Needs Survey for further consideration.<sup>10</sup>

### **Licensing Board Explanation**

We have carefully considered the factors that led the Appeal Board to reverse the grant of partial summary disposition, the pleadings of the parties in support of and in opposition to Applicants' Motion, and the information subsequently developed and reflected in the record of the New Hampshire portion of this proceeding. For the reasons set out below, we conclude that the remanded issues regarding the 1986 survey do not present significant safety or regulatory considerations requiring prelicense adjudication, and do not undermine our ultimate finding in LBP-88-32, 28 NRC at 699, that "adequate transportation and support services will be available to evacuate the transport-dependent population of the EPZ . . . ." Moreover, we find that the survey deficiencies identified by SAPL, even if ultimately found to be meritorious, are either of no moment or are amenable to relatively simple and timely correction. Because of this and consistent with the Commission's intent underlying its emergency planning rule, we believe reasonable assurances exist at this juncture that "there are no barriers to emergency planning implementation or to a satisfactory state of emergency preparedness that cannot feasibly be removed." 46 Fed. Reg. 61,134, 61,135 (Dec. 15, 1981).

We start by focusing on the specific material issues identified by SAPL which, in its view, warranted further prelicense litigation. As we read the material issues SAPL sought to litigate under SAPL-18 and SAPL-25, the principal thesis of those contentions is that the dissemination methodology of the 1986 Special Needs Survey (repeated annually) is flawed and that the results obtained through that survey cannot be relied upon to adequately identify the number and particularized transportation needs of transit-dependent individuals that might reside within the EPZ at the time of a radiological emergency. SAPL

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<sup>9</sup> Memorandum and Order of November 4, 1986, at 14-17 (unpublished).

<sup>10</sup> The Appeal Board went on to note that once the Licensing Board determined the adequacy of the Special Needs Survey, it would be appropriate for the Board to revisit the ultimate question of whether reasonable assurances exist that adequate transportation resources will be available to assist special-needs individuals.

Response at 17-18. The contentions further assert that the design of the survey instrument itself "could have been improved to eliminate ambiguity." *Id.* at 18. We further note that neither SAPL nor its expert advanced any specific factual bases tending to establish that significant numbers of special-needs individuals or their transportation needs were, in fact, understated or unreported. Rather, SAPL's statement of material facts is replete with phrases such as "may not," "may well have," "could have been," "may have meant," and "would probably not."

With respect to the questions regarding the design of the survey instrument itself, we note that neither SAPL's statement of material issues nor the affidavit of its supporting expert asserts that the survey was deficient or inadequate because of design flaws. Rather, as noted above, the issue that SAPL sought to litigate was that the instrument "could have been improved to eliminate ambiguity." Even if we accept SAPL's proposition as true (*Gulf States Utilities Co.* (River Bend Station, Units 1 and 2), LBP-75-10, 1 NRC 246, 248 (1975)), it would not materially weaken the Applicants' position that the design of the survey instrument was adequate for the purposes of preemergency planning under NUREG-0654. In addition, SAPL's concerns regarding the absence of sufficiently motivational language on the face of the survey itself (emphasis of the dire consequences of a failure to respond),<sup>11</sup> the frequency of the survey (once a month rather than annually), and the need to continuously survey "the thousands of transients in the area" to identify special-needs individuals within their ranks simply invites us to impose identification requirements beyond those we believe are reasonably contemplated by NUREG-0654 and the Commission's emergency planning rule.

Moreover, we do not find that the timing of the 1986 NHCDA survey presents a significant safety or regulatory issue that must be resolved prior to the issuance of a license. First, any failure to identify summer special-needs individuals is of consequence only in the summer, some 8 months hence. Second, given the NHRERP's allocation of transportation resources equal to 150% of the 1986 identified transit-dependent needs (Appl. Dir. No. 2, ff. Tr. 4228, at 10) and written commitments indicating the overall availability of approximately 170 more buses than the estimated need (LBP-88-32, 28 NRC at 692), the number of summer transit-dependent individuals would have to be *significant* before our

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<sup>11</sup> Moreover, even if it were ultimately determined that NUREG-0654 required the NHCDA to specially craft its survey instrument to go beyond the acquisition of information and create a motivation among EPZ residents to respond to the mail survey, we believe that the mechanism for conducting such a public information campaign already exists under the NHRERP. The plan already calls for the annual distribution of public information calendars (NHRERP, Vol. 1, § 23.2) and public information flyers (*id.* § 23.4). These informational packets (some of which are in languages other than English) already include a section on the provisions for special assistance to handicapped/mobility-impaired individuals. To the extent necessary, these packets can easily be expanded to include any additional information subsequently determined necessary to ensure the reasonable identification of special-needs populations.

finding that adequate transportation resources will be available can be seriously questioned.

Similarly, in support of the opposition to Applicants' Motion, Mr. Anderson asserted that because the offsite siren system had not yet been audibly tested, the survey required the hearing-impaired to speculate as to their need for special assistance. Anderson, ¶ 10. SAPL's concern has been mooted. The New Hampshire siren notification system has been tested. Appl. Exh. 43F, at 157-58. As a result, respondents to surveys subsequent to this test need not speculate on this point, and appropriate compensatory measures have been taken.

Thus, the only special-needs issue remanded by the Appeal Board that has the reasonable possibility of requiring a prelicense hearing and adjudication is that involving the dissemination methodology employed by the NHCDA in conducting the 1986 Special Needs Survey. The NHCDA's methodology used a three-prong approach relying on EPZ-utility customer mailing lists, a public information program providing, *inter alia*, a mechanism for EPZ residents to obtain a copy of the survey, and the availability of survey instruments through several local service organizations and municipal agencies. In evaluating the safety significance of this alleged deficiency in the 1986 survey, we note that no survey can guarantee the identification of *every* transit-dependent or special-transport individual within an EPZ who will require assistance in the event of some future emergency.<sup>12</sup> Because of this, a common and acceptable approach is to have available both excess transportation resources and a mechanism for special-needs individuals who have not been preidentified to make their needs known to emergency response workers. Both these approaches are part of the NHRERP. See, e.g., Appl. Dir. No. 2, ff. Tr. 4228, at 9-10, 12-15, 25; NHRERP, Vol. 1, §§ 2.6.11a-11b. Moreover, while SAPL has clearly raised the possibility that *some* special-needs individuals *might* not be accounted for due to the particular dissemination methodology employed by the NHCDA, we believe that the number, whatever it might be, is not so large as to render the existing excess transportation resources under the NHRERP inadequate.

In our view, the focus of SAPL's identified concerns regarding the adequacy of the 1986 Special Needs Survey is to fine-tune and broaden rather than replace the methodology employed by the NHCDA to identify special-needs populations. This being the case, while the number of preidentified special-needs individuals might increase, we do not believe the remanded survey issues undermine our finding of reasonable assurances in LBP-88-32 that the NHRERP has both the

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<sup>12</sup>Indeed, during the Massachusetts portion of this proceeding, the only witness offered by any Intervenor on the issue of identifying and calculating the transportation needs of the homebound disabled testified that not all preidentified homebound disabled would in fact use the transportation resources allocated to them. LBP-89-32, Finding 8.48.

procedures and transportation resources to satisfy the needs of special-needs populations in the event of a radiological emergency at the Seabrook Station.

## Advanced-Life-Support Patients

### *Statement of the Issue*

The Appeal Board remands an issue (SAPL's) concerning the time it would take to prepare special-facility advanced-life-support (ALS) patients for transit and to load them into emergency vehicles and the effect this preparation time may have upon evacuation time estimates (ETEs).<sup>13</sup>

The Appeal Board takes notice of the testimony of Intervenors' witness Joan Pilot, who stated "without apparent contradiction" that it would take from "28 minutes to an hour" to move an ALS patient from a bed to a stretcher adjacent to the bed and that none of this activity can be accomplished before arrival of the evacuation vehicle.<sup>14</sup>

Earlier in this proceeding, we dismissed SAPL's challenge to the evacuation times for special facilities when we found that the NHRERP "assumes that patients are at the loading point when transportation arrives (NHRERP, Vol. 6, at 11-12 [sic]), not in their beds awaiting pickup as Intervenors argue." LBP-88-32, 28 NRC at 699. The Appeal Board recognizes that if this were the case for ALS patients, the NHRERP's planning assumptions would encompass the amount of time Ms. Pilot asserted it would take to prepare special-facility ALS patients before taking them to the transportation loading point. However, the Appeal Board found our ruling to be:

inconsistent with the direction given in the individual emergency plans for New Hampshire EPZ towns that patients/residents of special facilities will be assembled *as* (not before) the evacuation vehicles arrive. If, as these plans suggest, assembly begins only when the evacuation vehicles arrive, then the preparation time factor highlighted by Ms. Pilot seemingly has not been considered as part of the present planning basis for ETEs.

ALAB-924, 30 NRC at 351 (footnotes omitted).

The Appeal Board states that it is unable to conclude that the issue of preparation time "has received appropriate consideration as a factor in deriving accurate ETEs for this class of the special facility population." *Id.* at 351-52.

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<sup>13</sup> The Appeal Board's concern is framed in the context of the accuracy of the ETE for the development of protective action recommendations for ALS patients. Given the fact that several special facilities are located within close proximity to the Seabrook Station and the fact that these facilities may offer greater sheltering protection than available to the general public, thus making sheltering a more acceptable alternative to evacuation if the evacuation times increase appreciably, the question of how much the ETE for these patients will be increased by preparation time becomes "a matter of concern." ALAB-924, 30 NRC at 350-51.

<sup>14</sup> *Id.* at 351, citing Rebuttal Testimony of Joan Pilot, ff. Tr. 7670, at 1-2; Tr. 7674-76.

Accordingly, the Appeal Board remands the matter to the Board “to resolve this deficiency.” *Id.* at 352

### **Licensing Board Explanation**

Section 11 of the NHRERP<sup>15</sup> details the analyses applied and the results obtained, which provide evacuation time estimates for transit vehicles responding to the needs of the transit-dependent population within the Seabrook EPZ. In the plan’s ETE analysis, ETEs were developed for three categories of transit-dependent persons: (1) residents and tourists with no cars available; (2) individuals at “special facilities” including schools, health-support facilities, and child-care centers; and (3) those individuals who have “special medical needs.” NHRERP, § 11, at 11-18. It is the ETE for this last category of special populations which encompasses the transportation of nonambulatory ALS patients — those having “special medical needs.” This category of individuals, due to special medical requirements, is evacuated by emergency medical service (EMS) vehicles — ambulettes and ambulances. *Id.* at 11-22.

Because EMS vehicles are generally available on an emergency basis and it is therefore reasonable to expect that drivers are immediately at hand, the NHRERP ETE for special-medical-needs individuals assumes that the mobilization time for EMS vehicles can be completed within 20 minutes. *Id.* Also, since many EMS vehicles have to travel long distances to the EPZ (some as far as 90 miles), more time is required for those vehicles to reach EPZ special facilities. In its calculation of travel time for EMS vehicles, the NHRERP ETE for special-medical-needs individuals assumes an inbound travel speed of 50 mph. *Id.* at 11-26. Thus the NHRERP shows the total elapsed time, at worst, from notification to the arrival of an EMS vehicle at its destination within the EPZ, in the following ETE calculation:

Mobilization Time:	0.33 hours
Inbound Travel: 90/50 + 0.50	2.30
Loading Passengers	<u>0.67</u>
	3.30 hours

*Id.*

In the context of the Appeal Board’s concern, we note that the NHRERP’s ETE calculation for the transit of special-medical-needs individuals has allowed 0.67 hour (40.2 minutes) for the loading of ALS patients. This estimation of loading time does not deviate in any significant way from an average of the

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<sup>15</sup> Appl. Exh. 5, NHRERP, Vol. 6, § 11, Evacuation Time Estimates (ETE) for Transit Operations.

time Ms. Pilot stated it takes to prepare ALS patients for transportation (28 + 60 minutes/2 = 44 minutes). An increase of 4 minutes in the ETE would not affect the choice of a protective action recommendation for the ALS patient population as a whole. However, this finding in itself does not completely address the Appeal Board's concern, nor does it end our analysis of the issue.

Transportation arrangements for the evacuation of nonambulatory persons are coordinated between the State of New Hampshire and each New Hampshire town within the EPZ. At the Alert classification level, the Transportation Coordinator (or equivalent personnel) of the local emergency response organization, or State IFO Local Liaison at the Incident Field Office confirms the community's institutional and special transportation requirements through verification of actual need by contacting each special facility. Appl. Dir. No. 2, ff. Tr. 4228, at 16-17, 24. The NHRERP also provides for the notification and possible mobilization of Emergency Medical Service vehicles at the Alert level. *Id.* at 19. If an evacuation is recommended, the number of vehicles previously determined to be required are dispatched from the State Transportation Staging Areas (TSAs) to the Local TSAs in the affected communities. From the Local TSAs, vehicles are assigned to assist the transportation-dependent population; i.e., ambulances are dispatched to medical care facilities providing for ALS patients. *Id.* at 21.

The foregoing NHRERP provisions demonstrate that special facilities (where ALS patients reside) are contacted by emergency coordinators at the Alert classification level prior to an order to evacuate. This initial verification effectively provides the staffs of the special facilities with advance notice that an evacuation is being considered. Ambulances, while mobilized at the Alert level, are not dispatched from the State TSA to the Local TSA and then to the special facilities until an order to evacuate has been given. The fact that the staffs of the special facilities are given advance warning of a pending emergency evacuation, and the fact that ambulances are not dispatched from the State TSAs to the special facilities until an order to evacuate has issued, provides an extra margin of time within which ALS patients can be readied for evacuation — a margin of time beyond that assumed as loading time for those patients in the NHRERP ETE for that population. This extra margin of time is an added measure of conservatism to the Applicants' ETE for the ALS population and further tends to support the ETE's adequacy for protective action decisionmaking.

We finally address the Appeal Board's concern that Finding 4.40 in LBP-88-32, 28 NRC at 699 (citation omitted) ("[t]he plan assumes that patients are at the loading point when transportation arrives, . . . not in their beds awaiting pickup as Intervenors argue") is inconsistent with the directions given in individual emergency plans for New Hampshire towns ("as evacuation vehicles arrive, assemble residents . . ."). We take note of a mis-citation in our Finding 4.40 which may have mistakenly led the Appeal Board down a path it did not intend to take in its analysis of this issue. Our cite to "NHRERP, Vol. 6, at 11-12" is

clearly erroneous, as that cited page (which contains a table of Estimated Transit Requirements) clearly fails to support the Board's finding (Finding 4.40) relating to the loading of *nursing home* patients at special facilities. The Appeal Board recognized this mistake and correctly changed the citation to "NHRERP, Vol. 6, at 11-[21]" in its slip opinion. ALAB-924, 30 NRC at 351. In the context of *that* citation (which shows that 10 minutes has been allocated by the plan for the loading of ambulatory and wheelchair nursing-home residents), we can see why the Appeal Board was concerned about the time it would take to prepare ALS patients for transit. However, our review of this issue has now demonstrated that that citation and its emphasis on "assembly" does not pertain to special-facility advanced-life-support patients. As we have cited above, ALS patients are provided for in NHRERP, Vol. 6, at 11-22, 11-26, and 11-27. Within the context of these portions of the NHRERP, which provide an analysis of the ETE for ALS patients and the means to develop protective action decisions regarding that population, any inconsistency between our former ruling and the current issue evaporates.

Our analysis of the issue leads us to the conclusion that there is no safety-significant problem outstanding with regard to the transit preparation time for ALS patients at special facilities that warrants a delay in the issuance of a full-power license for Seabrook Station. Some improvement could be made in the NHRERP by requiring an amendment to the plan (or town plans) to provide for instructions to the staff of special facilities to prepare ALS patients for transportation at the order to evacuate. Moreover, any confusion over the distinction between preparing special-needs persons in anticipation of arriving transportation, and assembling them, can be readily resolved. This type of improvement does not require any significant revision to the NHRERP and it can be readily accomplished by the Applicants and the state and verified by the NRC Staff during the postlicensing period.

## **Implementation of the Sheltering Option**

### ***Statement of the Issue***

In the NHRERP decision, with respect to sheltering the beach population, the Licensing Board concluded that sheltering would be the protective action of choice under a very limited number of conditions and that therefore the State of New Hampshire is appropriately prepared to recommend sheltering only rarely. LBP-88-32, 28 NRC at 775. The Appeal Board affirmed our sheltering conclusions. ALAB-924, 30 NRC at 367. However, the Licensing Board had also approved what we then perceived to be New Hampshire's *ad hoc* approach to the implementation of the sheltering option. We ruled that implementing detail

was unnecessary except for about 2% of the transient beach population without transportation. This conclusion was based, in part, on the low probability that sheltering would be recommended for the beach population, in part upon the concern that such detail might mislead a decisionmaker, and in part because the matter could be left in the hands of FEMA and the New Hampshire authorities. LBP-88-32, 28 NRC at 769-70.

The Appeal Board remanded, finding that so long as sheltering for the beach population is a protective option, notwithstanding the low probability of its selection, implementing measures are required. All of our reasons for not requiring implementing detail were rejected. The Appeal Board explained that emergency planning regulations and guidance support preplanning rather than an *ad hoc* response. ALAB-924, 30 NRC at 369-72.

The Appeal Board noted the special implementing measures for those at the beach with no transportation where specific sheltering locations are to be identified together with appropriate EBS messages directing the transit-dependent to go to the public shelters to await assistance in the event evacuation is ordered. Further, the Appeal Board ruled that there is no basis for distinguishing between those who will be provided shelter under condition (3) (transit dependent) and those for whom sheltering is to be a protective action option under conditions (1) and (2) (general transient beach population). *Id.* at 363-64, 370.

Finally the Appeal Board directs that the NHRERP not be approved until the deficiency is remedied, and when the potential shelters have been identified, it will be appropriate for the Licensing Board and the Appeal Board to address the adequacy of that shelter.<sup>16</sup> *Id.*, 30 NRC at 372 n.194.

### ***Licensing Board Explanation***

It is likely that this issue cannot be resolved on the existing record. We understand and are obedient to the ruling that the very low probability of a sheltering protective action may not be the basis for not requiring implementing detail. However, as a safety matter, that same low probability would permit postlicensing consideration. The New Hampshire beach population does not peak until July. Implementing measures may not be difficult to effect. New Hampshire relies upon a "shelter-in-place" concept, i.e., everyone, transients and residents alike, who are indoors, remain indoors. LBP-88-32, 28 NRC at 758. It is true that no other radiological emergency response plan requires that

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<sup>16</sup>We do not understand the mandate to assess the "adequacy of the shelter" to suggest that a preset minimum level of dose savings must be afforded by sheltering at the New Hampshire beaches. See ALAB-924, 30 NRC at 367 n.164, citing ALAB-922. Rather, we read the direction to permit a challenge to whether there has been an identification of an adequate amount of suitable sheltering out of the sufficient available supply. Since the Appeal Board declined to affirm or reverse the Licensing Board's finding that there was more than twice the needed shelter for the peak beach population, we are not free of doubt on this point. ALAB-924, 30 NRC at 373 n.196.

specific sheltering (as compared to maps showing sheltering areas) be identified for the general population, thus there is no experience for guidance. But on the other hand, sheltering available for the outdoors transient beach population is concentrated in a relatively compact and well-defined area.

Although we are directed to ensure that the same implementation action be taken for the general transient beach population as for the transit-dependent transient beach population, there are fundamental differences between the needs of the two groups. The transit-dependent group needs preidentified "sheltering" *only in the case that evacuation is ordered*. They must go to preidentified public sheltering to catch the evacuation bus. Applicants' Direct Testimony No. 6, ff. Tr. 10,022, at 21. When *sheltering* is the chosen protective action, transit-dependent transients will not differ from the general transient group. Their sheltering needs will be exactly the same.<sup>17</sup> Therefore the Appeal Board mandate to treat transit-dependent transients the same as transients with transportation will be complied with by the protective action scheme for sheltering now in place. We are required, nonetheless, to identify potential shelters for transients with transportation. ALAB-924, 30 NRC at 372-73. We make this point not to question the reasoning behind the remand of this issue, which is not our role in this proceeding, but to explain that, in carrying out that remand, greater flexibility is possible when identifying sheltering for the general transient beach population than with sheltering that needs to be along evacuation bus routes.

Finally, the Board had left to FEMA and New Hampshire the task of resolving differences over implementing detail. LBP-88-32, 28 NRC at 769. In drafting LBP-88-32, the Board overlooked the fact that FEMA and the State of New Hampshire had already resolved FEMA's concern about implementing detail.<sup>18</sup> It is unlikely that the FEMA/State agreement will satisfy the Appeal Board's requirements on that issue, however.

The Board concludes that the very low probability of selecting the sheltering option for the beach population and the fact that the beach population does not reach large numbers until July, provides adequate safety pending the resolution of the remanded sheltering issue.

## PENDING MOTIONS

Several motions to admit contentions in two categories were pending before this Board on November 9, 1989, the date LBP-89-32 issued. The first category

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<sup>17</sup> In the rare sheltering case — gaseous release of predictably short duration arriving before evacuation can be effected — evacuation is not called for.

<sup>18</sup> Letter from Huntington, Assistant Attorney General of New Hampshire, to Chairman Smith of Licensing Board, October 13, 1988.

of motions pertains to the September 27, 1989 onsite emergency plan exercise.<sup>19</sup> The second category, consisting of a single motion as of this date, relates to the alleged withdrawal of the Massachusetts Emergency Broadcast System (EBS) from participation in the SPMC.<sup>20</sup>

In proceeding as we did we considered the following factors:

First, LBP-89-32 was ripe for issuance in the normal course. The pleadings on the onsite exercise contentions had just been completed,<sup>21</sup> but the Board's opinion on the intricate legal arguments was not yet drafted. After many years of a full and fair adjudication on all matters in controversy, Applicants had prevailed on all issues. We believed that they were entitled to an immediate judgment to that effect — providing that the legitimate rights of the intervening parties could be protected.

Second, there is no NRC regulation requiring that an initial decision be delayed because of speculation that future issues might require further hearings. In this context, the Board reports that it did not rush the initial decision to completion at the expense of the Intervenors' four motions on the September 1989 onsite exercise. To the contrary, the Board took strong measures to encourage the parties to move promptly on the onsite exercise contentions. Tr. 28,297-321 (telephone conference, October 19, 1989). In fact, the initial decision was somewhat delayed while the Board examined the onsite exercise motions for serious safety implications.

While we now understand the safety and regulatory implications of the onsite exercise motions, there is a very intricate set of legal arguments which should be discussed before a complete and reviewable decision on the motions can be rendered. This will take time not previously anticipated by this Board or by the Commission in its Order of September 15, 1989 (CLI-89-19) denying Applicants' Motion for an exemption from the 1-year onsite exercise rule.<sup>22</sup>

<sup>19</sup> Intervenors' Motion to Admit Contentions on the September 27, 1989 Emergency Plan Exercise, September 28, 1989; Intervenors' Second Motion to Admit Contentions on the September 27, 1989 Emergency Plan Exercise, October 13, 1989; Intervenors' Motion to Amend Intervenors' Motions [of September 29 and October 13, 1989], October 16, 1989; and Intervenors' Motion for Summary Disposition of Contentions JI-Onsite EX-1 and JI-Onsite EX-2, October 18, 1989.

<sup>20</sup> Intervenors' Motion to Admit a Late Filed Contention and Reopen the Record on the SPMC Based Upon the Withdrawal of the Massachusetts E.B.S. Network and WCGY. This motion dated November 9, 1989, and served by first class mail that date was received by the Board after LBP-89-32 was rendered (November 9), and served (November 13). An apparently identical earlier motion with the same title was dated October 30, 1989. The October 30 motion was withdrawn by a faxed "Withdrawal of Motion" dated November 8, 1989. Thus, it is not literally true that the E.B.S. motion was pending before this Board when LBP-89-32 issued. However, since no appeal had been taken from LBP-89-32 when the second E.B.S. motion finally arrived, this Board continued to have jurisdiction over it. The fact remains that the Board did not know about the November 9 E.B.S. Motion when it rendered the partial initial decision, LBP-89-32.

<sup>21</sup> The last pleading, dated November 8, 1989, was the NRC Staff Response to Intervenor's Motion for Summary Disposition of Proffered Contentions JI-Onsite EX-1 and JI-Onsite EX-2, November 8, 1989.

<sup>22</sup> In CLI-89-19 the Commission, noting that the Licensing Board set November 30, 1989, as the target date for its decision on all remaining issues stated, "[l]acking the admission of any new contention, the [licensing board decision] expected on November 30, 1989, would have the potential to authorize issuance of the full-power license

(Continued)

To have delayed an otherwise ready initial decision pending the resolution of the onsite exercise motions would, as noted, be unfair to Applicants. But that unfairness might be a reasonable price given the 8 years of this litigation, were it not for the fact that delay spawns delay. The Attorney General of Massachusetts is carrying out his announced strategy of filing contentions at every opportunity. He announced in advance of the respective events that he would submit contentions on low-power testing and again on the onsite exercise. True to his word those occasions produced pleadings as well measured in terms of pounds as in numbers. *See, e.g.*, LBP-89-28, October 12, 1989, Memorandum and Order [denying motions for low-power contentions], 30 NRC 271, 272 n.1. The on/off/on sequence of the EBS motions portends even more motions for renewed litigation. The Attorney General's large staff of assistants with their fecund word processors can produce motions for renewed litigation faster than the Board and parties can deal with them. The specter of the deplored "endless loop of litigation"<sup>23</sup> becomes more threatening as the 2-year anniversary of the 1988 FEMA Graded Exercise approaches.

If the capacity to file motions to admit late-filed contentions is permitted to afford Intervenors the unilateral power to delay the issuance of the full-power license, there is no hope for the Seabrook Station despite Applicants' fairly won victory.<sup>24</sup> The Board believes that this problem calls for prompt Commission policy guidance, and pursuant to 10 C.F.R. § 2.764(f)(1)(ii), it is the Board's responsibility to so inform the Commission.

The pendency of the motions on the onsite exercise presents a different kind of problem. Such exercises are material to the issuance of an operating license in the circumstances of this proceeding. 10 C.F.R. Part 50, Appendix E, § IV.F.1. Subject to reasonable procedural requirements, Intervenors may challenge Applicants' compliance with the onsite exercise requirements. CLI-89-19, 30 NRC at 174 n.5; *Union of Concerned Scientists v. NRC*, 735 F.2d 1437, 1446-49 (D.C. Cir. 1984); ALAB-918, 29 NRC 473 (1989). Therefore, if Intervenors' respective motions are admitted, our Initial Decision authorizing the issuance of a full-power license may need to be revisited and perhaps vacated. Nevertheless we believe that the Commission may find it efficient to proceed with its section 2.764 review in view of several circumstances.

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and conclude this proceeding [emphasis supplied]." 30 NRC at 173. It is possible that the Commission used the term "admission" in the precise sense that the mere pendency of motions for renewed adjudication would not bar a decision authorizing a full-power license. However, there is no reason to believe that the Commission was focusing upon the between-the-cracks situation at bar where motions for renewed adjudication come in faster than they can be decided.

<sup>23</sup> *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-88-9, 28 NRC 567, 570 (1988).

<sup>24</sup> Yet another motion seeking additional litigation was presented to the Licensing Board during the preparation of this Memorandum: Intervenors' Motion to Reopen the Record and Admit Late-Filed Contention Regarding Proposed Amendment of Seabrook Operating License Application, November 17, 1989.

An onsite exercise was conducted at Seabrook on September 27, 1989, and Inspection Report 50-443/89-10 documents the Staff's inspection of the exercise. No violations, deviations, or unresolved items were identified.

The Commission in CLI-89-19 (30 NRC at 174 n.5) ruled that any contention on the exercise must allege a fundamental flaw, *citing Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-903, 18 NRC 499 (1988). However, the Intervenors' contentions do not allege that the exercise revealed fundamental flaws in the emergency plan. Instead they allege that the scope of the exercise was inadequate, relying upon *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-900, 28 NRC 275, 285-87 (1988), for support. The Intervenors accurately cite ALAB-900 for the proposition that "the exercise must be comprehensive enough to permit a meaningful test and evaluation of the emergency plan to *ascertain if that plan is fundamentally flawed*" (emphasis supplied). *Id.* at 286-87. Intervenors' Second Motion at 7.

However, Intervenors do not deliver on the promise implicit in their citation to ALAB-900. Nowhere do the motions or the respective contentions allege that the onsite exercise was insufficiently comprehensive to have revealed fundamental flaws, nor do they point to any nonexercised aspect of the onsite emergency plan which, in their view, had the capacity to reveal fundamental flaws if that aspect had been exercised.

Assuming for present purposes that the standards for reopening a closed evidentiary record (10 C.F.R. § 2.734) apply in this case — and we believe that they do — it is significant that the only expert witness affidavits before the Board are those of two NRC Staff officials and two New Hampshire Yankee emergency planning officials to the effect that the scope of the onsite exercise was sufficient to test the major elements of the Seabrook onsite emergency response plan.<sup>25</sup> Similarly, the inspection report of the onsite exercise concluded that:

The licensee's response actions for this exercise demonstrated the ability to implement the emergency plan in a manner which would provide adequate protective measures for the health and safety of the public.

In contrast, Intervenors generally depend upon NRC regulations and Staff guidance documents for their position that the onsite exercise was inadequate in scope. While the large stack of pleadings on this issue leaves much work for the Board, we have read the factual record of the matter and do not believe that a factual case has been made out by Intervenors. Indeed, their motion for summary disposition puts the matter before us as an issue of law on undisputed

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<sup>25</sup> E.g., Affidavit of Edward J. Fox at 7 (attached to NRC Staff Response to Intervenors' Motion to Admit Contentions of September 27, 1989 Exercise, October 16, 1989).

facts.<sup>26</sup> The Board can report now that it does not agree with the Intervenors' legal arguments.<sup>27</sup> A decision denying the motions on the onsite exercise will issue as a matter of the Board's highest priority.

As to the motion respecting the Emergency Broadcasting System, the fact that it was submitted, withdrawn, and resubmitted, and that the matter is not yet fully briefed, indicates that its potential effect on the outcome of the proceeding is too speculative to have warranted deferring or recalling our decision authorizing a full-power operating license. We have nevertheless examined those papers and find nothing sufficiently grave to justify any delay.

**ATOMIC SAFETY AND  
LICENSING BOARD**

Richard F. Cole  
ADMINISTRATIVE JUDGE

Kenneth A. McCollom  
ADMINISTRATIVE JUDGE

Ivan W. Smith, Chairman  
ADMINISTRATIVE LAW JUDGE

Bethesda, Maryland  
November 20, 1989

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<sup>26</sup> See also Second Motion at 6.

<sup>27</sup> Moreover, in evaluating the effect of the legal arguments, the Board will have to discuss whether CLI-89-19 has foreclosed contentions based upon interpretations of regulations and Staff guidance, given the Commission's direction that any contention on an exercise must allege a fundamental flaw. CLI-89-19, 30 NRC at 174 n.5.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

**Before Administrative Judges:**

**John H Frye, III, Chairman**  
**Dr. James H. Carpenter**  
**Dr. Jerry R. Kline**

In the Matter of

Docket No. 40-2061-ML  
(ASLBP No. 83-495-01-ML)

**KERR-MCGEE CHEMICAL  
CORPORATION  
(West Chicago Rare Earths  
Facility)**

November 22, 1989

The Licensing Board presiding in this proceeding on Kerr-McGee Chemical Corporation's application for a license amendment which would permit it to dispose of thorium mill tailings at its West Chicago, Illinois site decides cross-motions for summary disposition filed by Kerr-McGee and Illinois, which intervened in opposition to the application.

**DISPOSAL OF MILL TAILINGS: REQUIREMENTS OF  
10 C.F.R. PART 40, APPENDIX A**

The proposed above-grade disposal cell satisfies the applicable portions of Criteria 3, 4, 6, and 12 of Appendix A to 10 C.F.R. Part 40 in that it will adequately resist erosion and human intrusion without the necessity for active maintenance.

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\*When issuance numbers were assigned, the number "LBP-89-34" was inadvertently skipped.

## **DISPOSAL OF MILL TAILINGS: REQUIREMENTS OF 10 C.F.R. PART 40, APPENDIX A**

Criterion 2, which requires consideration be given to disposing of wastes from small extraction operations at existing large disposal sites, is not applicable. Section 12.5 of the Draft Generic Environmental Impact Statement on Uranium Milling, NUREG-0511, April 1979, makes it clear that Criterion 2 concerns disposal of tailings from the milling of low-grade ores, ores that could not be economically transported to mill sites, found in remote locations using semiportable milling equipment.

## **DISPOSAL OF MILL TAILINGS: REQUIREMENTS OF 10 C.F.R. PART 40, APPENDIX A**

Criterion 7A requires a detection monitoring program when the tailings are placed in the disposal cell in order to determine whether there is a need to set groundwater protection standards.

## **NEPA: CONSIDERATION OF ALTERNATIVES**

Given the uncontested conclusion that health, safety, and environmental impacts would be negligible at any of the sites within Illinois, there was no need to give further consideration to sites more remotely located where transportation costs necessarily would be greater. There simply is no reason to incur large economic costs if no significant environmental benefit is to be gained.

## **NEPA: RESPONSE TO PUBLIC COMMENTS ON AN EIS**

Where Staff prepared and circulated a supplement to its FES which, although it contained no specific responses, addressed the general areas of Illinois' comments on the FES, it will not be ordered to further respond absent some showing that the supplement has overlooked important matters raised by those comments.

## **MEMORANDUM AND ORDER (Ruling on Motions for Summary Disposition)**

The history of this proceeding is set out in LBP-89-16, 29 NRC 508 (1989), and need not be repeated here. Pursuant to the schedule contained in LBP-89-16,

Illinois moved for summary disposition of certain contentions<sup>1</sup> and Kerr-McGee cross-moved for judgment in its favor on all contentions. In an unpublished Memorandum and Order of November 14, we denied motions for summary disposition of Contentions 4(a) and 3(g)(2). We will resolve those contentions in an initial decision following a hearing scheduled for December 14 and 15. The remaining contentions are resolved in this Memorandum and Order.

Before turning to the motions for summary disposition, we must address two collateral matters. First, we must decide Kerr-McGee's motion to dismiss Contention 4 as a sanction for Illinois' alleged failure to fulfill its obligations. Second, we must decide Kerr-McGee's motion for this Board to protect its jurisdiction by issuing an order directing Illinois not to file a final application for an amendment to its agreement with NRC which would enable it to assume jurisdiction over the mill tailings that are the subject matter of this proceeding.

### KERR-MCGEE'S MOTION FOR SANCTIONS

Kerr-McGee believes that Illinois' efforts in advancing and briefing Contention 4 reveal that it has not adequately fulfilled its obligation to thoroughly examine the relevant facts available to it and fully advise the Board in regard to them. Kerr-McGee urges that we dismiss Contention 4 as a sanction. Needless to say, Illinois opposes this result.<sup>2</sup>

Kerr-McGee's complaint is quickly answered. However one may characterize the quality of Illinois' presentation of Contention 4 and its motion for summary disposition, it is clear that Illinois did not fail to comply with any affirmative obligation to disclose information in response to discovery requests or otherwise. Even were we to agree with Kerr-McGee that Illinois' motion suffered from insufficient preparation and therefore made our job more difficult, we could not properly dismiss Contention 4 as a sanction for not producing higher-quality work. The penalty for poor preparation is an adverse ruling on the merits of an issue which, had the preparation been thorough, might have been decided differently. The cases cited by Kerr-McGee do not dictate a different result. Kerr-McGee's motion for sanctions is denied.

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<sup>1</sup> Illinois' October 2 unopposed motion for leave to amend Appendix A to its Opposition to Kerr-McGee's Cross-Motion is granted.

<sup>2</sup> See Kerr-McGee's Opposition to Illinois' Motion and Cross-Motion for Summary Disposition of August 22, at 5-14; Illinois Opposition to Kerr-McGee's Cross-Motion of September 21, at 2-4.

## KERR-MCGEE'S MOTION FOR AN ORDER PROTECTING THIS BOARD'S JURISDICTION

On October 27, Kerr-McGee filed a motion seeking an order that would protect this Board's jurisdiction to complete this proceeding. This motion is motivated by the fact that Illinois is seeking to amend its agreement with the Commission under the terms of § 274 of the Atomic Energy Act in order to acquire jurisdiction over the mill tailings located on Kerr-McGee's West Chicago site. If the Commission delegates such authority to Illinois, Staff will seek to terminate this proceeding on the ground that authority to rule on Kerr-McGee's application to dispose of the tailings no longer resides in the Commission. Kerr-McGee asks that we order Illinois not to file a final application for such authority until a final decision is achieved in this case.

As we indicated in LBP-89-16, we understand and sympathize with Kerr-McGee's frustration at the seeming inability of this Commission to make a decision on its application.<sup>3</sup> Its frustration must be compounded by the prospect that, after 12 years and the expenditure of substantial Commission resources, the Commission might delegate authority for the matter to Illinois on the very eve of finally reaching a decision.

Nonetheless, Illinois and Staff correctly point out that we have no jurisdiction to issue such an order.<sup>4</sup> We are empowered by the Commission to decide issues in controversy concerning Kerr-McGee's application. That authority does not permit us to prohibit Illinois from seeking delegation of authority from the Commission pursuant to section 274. Such an application simply does not involve review by an atomic safety and licensing board. It is a separate proceeding before the Commission. Consequently, Kerr-McGee should direct its request for relief to the Commission. The Commission has authority to decide whether it wishes to resolve Kerr-McGee's application or delegate authority for its resolution to Illinois.<sup>5</sup> Kerr-McGee's motion is denied.

### CONTENTION 4

Kerr-McGee proposes to dispose of the thorium mill tailings in an engineered disposal cell situated above grade on its site located within the City of West Chicago. Contention 4 alleges that Kerr-McGee's application does not comply with Criteria 1, 2, 3, 4, 6, 7A, and 12 of Appendix A to 10 C.F.R. Part 40. Briefly, this contention asserts the following.

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<sup>3</sup> 29 NRC at 516-17.

<sup>4</sup> See Illinois' and Staff's Responses of November 16 and 17, respectively.

<sup>5</sup> For the information of the parties and the Commission, we expect to conclude our review in early 1990.

Staff has misapplied Criterion 1, which states that the general goal of siting and design decisions is permanent isolation by minimizing dispersion by natural forces without the need for ongoing maintenance. This criterion mandates that remoteness from populated areas, natural conditions that contribute to the isolation of the tailings from groundwater, and the potential for minimizing dispersion by erosion be considered in judging alternative and existing sites. (Contention 4(a).)

Kerr-McGee has not demonstrated under Criterion 2 that economic and environmental costs or the nature of the wastes make it impracticable to dispose of the tailings at an existing large disposal site, or that the advantages of onsite disposal clearly outweigh the cost of perpetual surveillance. (Contention 4(b).)

Criterion 3 states that the prime option for tailings disposal is below grade, but permits above-grade disposal where below grade is not environmentally sound or is otherwise impracticable. This criterion requires that above-grade disposal provide reasonably equivalent protection against erosion as below grade. Illinois alleges that the latter requirement will not be met without active maintenance (Contention 4(c)), and points to Criterion 12 for the proposition that isolation must be maintained without active maintenance (Contention 4(g)).

Similarly, Illinois alleges that Criterion 4's requirement concerning the contours of the disposal site (which must be as close as possible to those that would exist if the tailings were disposed of below grade) will not be met (Contention 4(d)), and that Criterion 6's requirement concerning isolation (which must be provided, to the extent reasonably achievable, for 1000 years and, in any event, for 200 years) will not be met without active maintenance (Contention 4(e)).

Finally, Illinois alleges that Staff has not determined that Kerr-McGee has implemented a detection monitoring program required by Criterion 7B in order to permit the establishment of groundwater protection standards under Criterion 5B(1). (Contention 4(f).)

Thus Illinois urges disapproval of Kerr-McGee's proposal on three grounds:

First, that Criterion 1, if properly construed, requires the disapproval of the proposal because of the population density surrounding the site, the proximity of the water table, and the necessity for above-grade disposal that makes the disposal cell vulnerable to both human intrusion and natural erosional forces;

Second, that Criterion 2 requires that far more serious consideration be given to disposal at an existing large tailings site; and

Third, that the requirements of Criteria 3, 4, 6, and 12, which all relate to protection against erosion without active maintenance, are not met by the proposal.

These arguments present questions that have not been heretofore considered by the Commission's adjudicatory boards. On November 14, we issued a

summary disposition of Contention 4(a), which deals with Criterion 1, and Kerr-McGee's motion for summary disposition of Contention 3(g)(2), which concerns Staff's failure to validate the equation used to evaluate transport of contaminants through the unsaturated zone. We scheduled a hearing on certain limited factual issues pertaining to those contentions. Following that hearing, we will issue an initial decision explaining in full our reasoning with respect to those contentions. In this Memorandum and Order, we begin our consideration of the motions for summary disposition with Contentions 4(c), 4(d), 4(e), and 4(g), which concern Criteria 3, 4, 6, and 12.

### Criteria 3, 4, 6, and 12

Criterion 3 states a preference for below-grade disposal and states that, if such is not possible, above-grade disposal is to provide equivalent isolation. Criterion 4 states site and design requirements that must be met by both above- and below-grade disposal cells. Criterion 6 sets performance standards for disposal cells. Criterion 12 provides that no active maintenance should be required in order to preserve isolation.

Contention 4(c) alleges that Kerr-McGee has not demonstrated that its proposed above-grade disposal cell will provide equivalent isolation *without active maintenance*. Contention 4(d) alleges that the embankment and cover slopes will not be relatively flat or as close as possible to those that would be provided by below-grade disposal, in contravention of Criterion 4. Contention 4(e) alleges that active maintenance will be necessary to meet the performance standards of Criterion 6, while Contention 4(g) alleges that human intrusion, natural forces, and cell design indicate a significant potential that active maintenance will be necessary. Illinois and Kerr-McGee have moved for summary disposition on Contentions 4(c), (d), (e), and (g).

At the outset, we must determine what constitutes active maintenance. Illinois did not address this question in its motion for summary disposition, while Kerr-McGee referred to the definition contained in 10 C.F.R. Part 61, pertaining to land disposal of radioactive waste, in its cross-motion. That definition provides:

"Active maintenance" means any significant remedial activity needed during the period of institutional control to maintain a reasonable assurance that the performance objectives . . . are met. Such active maintenance includes ongoing activities such as the pumping and treatment of water from a disposal unit or one-time measures such as replacement of a disposal unit cover. Active maintenance does not include custodial activities such as repair of fencing, repair or replacement of monitoring equipment, revegetation, minor additions to soil cover, minor repair of disposal unit covers, and general disposal site upkeep such as mowing grass.

10 C.F.R. § 61.2 (1988) (emphasis added). Illinois and Staff pose no objections to this definition in their responses to the cross-motion.

We agree with Kerr-McGee that section 61.2 provides guidance that we may use in interpreting Appendix A. We reach this conclusion because the goal stated in 10 C.F.R. § 61.44, elimination to the extent practicable of the need for active site maintenance following closure, is very similar to the goal of Criterion 12. With this definition in mind, we address Illinois' and Kerr-McGee's arguments.

#### *Contentions 4(c) and (d)*

In its motion on Contentions 4(c) and (d), Illinois argues that because the 20% slope proposed for the disposal cell's sides, while not prohibited, will require active maintenance over the long term in order to resist erosion, the cell will not provide isolation equivalent to that provided by below-grade disposal. Illinois bases this argument on the affidavit of Dr. Gerald R. Thiers. Dr. Thiers concludes that the cell will not comply with Criteria 3 and 4 on the basis of his review of Chapter 3 and Appendix B of the Staff's SFES.<sup>6</sup>

In its opposition to Illinois' motion and its cross-motion on these contentions, Kerr-McGee points out that Criterion 3 requires that above-grade cells provide *reasonably* equivalent, not equivalent, isolation to that provided by below-grade cells. Moreover, the slope of the sides of the cell, 5h:1v (1 foot vertical rise for each 5 feet of horizontal run), complies with Criterion 4(c). Thus no violation of Criterion 3 is shown.<sup>7</sup> The specific factual assertions of Dr. Thiers and Kerr-McGee's responses follow.<sup>8</sup>

1. There is no calculation showing that plants proposed to be used in the vegetative cover of the cell will resist wind erosion, and there is no documentation showing that the proposed plants will be self sustaining. In response to this assertion, Kerr-McGee cites Engineering Report VI at 6-8 to 6-9, Appendices A and B. Those sections consider potential erosion on the waste cell, but not wind erosion specifically. However, the report recommends that a mix of native prairie grasses, which can grow to 3-7 feet in height and form dense root systems, be used as vegetative cover. According to the report, grass cover is well suited for erosion control because loss of an inch of soil under it could require 1600 years. *Id.*, Appendix A at 7-9, 13. Kerr-McGee proposes to use these grasses and forbs as the initial vegetative cover for the cell. If this cover is to be sustained permanently as a prairie ecosystem it must be burned or mowed every

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<sup>6</sup> See Exh. C to Illinois' Motion at 2-4.

<sup>7</sup> See Kerr-McGee's Opposition and Cross-Motion at 31-34, 38-42.

<sup>8</sup> See Exh. C to Illinois' Motion at 2-4; Kerr-McGee's Opposition and Cross-Motion at 34-38.

- few years, otherwise natural vegetative succession will cause a forest to develop. Thus the fact that the prairie vegetation is not in this sense self sustaining is not a hazard.<sup>9</sup> *Id.*, Appendices A, B.
2. Evapotranspiration<sup>10</sup> will not be active during rainstorms to prevent erosion. All parties agree. There is no fact in dispute.
  3. Size specification of the proposed intrusion barrier materials has not been given and the proposed materials may weather faster than anticipated. Kerr-McGee points out that this assertion is incorrect. It cites its Engineering Report which describes the requirements for the materials and points out that the intrusion barrier will lie 2 feet below the surface of the topsoil. Because vegetative cover on the topsoil layer will resist erosional forces, that layer should remain intact during the design life of the cell so that the intrusion barrier is unlikely to be exposed to forces of weathering.<sup>11</sup>
  4. Size gradation of the materials proposed for construction of the 6-inch gravel blanket is not given, nor is it shown that the materials will resist maximum erosional forces or that they will resist weathering. Kerr-McGee cites Engineering Report IX at 9-14 to 9-15 which addresses all of Illinois' concerns except for the matter of weathering resistance. Staff previously pointed out that limestone cobbles could erode in from 300 to 47,000 years depending on erosion rates assumed and that it has specified criteria in the SFES for the selection of rock types that would be resistant to weathering.
  5. No calculations are provided to show that slopes will not slide during storms, earthquakes, and "static conditions"; Kerr-McGee points out that such calculations were provided in Engineering Report IV at 4-15.
  6. The proposed 20% slope is contrary to the requirements of Criterion 4(c). Kerr-McGee correctly points out that the 20% slope is, Illinois to the contrary notwithstanding, specifically acceptable under the terms of Criterion 4(c).<sup>12</sup>

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<sup>9</sup> The NRC Staff submitted the affidavit of Richard H. Pearl which states the same essential facts. Additionally, the affidavit states that, in the Chicago area, erosion results mainly from surface runoff and not from wind erosion. Wind erosion is not a significant factor even for an elevated structure like the disposal cell.

<sup>10</sup> Evapotranspiration causes the soil to dry between storms. This enhances the water absorptive capacity of the soil during a storm and reduces runoff that could cause erosion.

<sup>11</sup> The NRC Staff opposes Illinois' motion and, by affidavit of Mr. Pearl, presents facts in essential agreement with Kerr-McGee. Additionally Mr. Pearl states that the expected life of the clay and cobblestone layer is 40,000 years if limestone cobbles are used and longer if silicate cobbles are used. Limestone cobbles could erode over a period from 300 to 47,000 years depending on the erosion rate assumed. The Staff addressed the issue of resistance to weathering in the SFES and provided general specifications for limestone if it is to be used for the intrusion barrier. SFES at 5-15.

<sup>12</sup> Additionally, Dr. Thiers asserts that the cell contours show an area designed to concentrate runoff, contrary to the requirement of Criterion 4(d) that certain documentation required by Criterion 4(d) has not been provided,

(Continued)

In its response to Kerr-McGee's cross-motion, Illinois asserts that Criterion 3 requires a demonstration that the above-grade cell will provide reasonably equivalent isolation to that of below-grade disposal. The demonstration requires a comparative calculation of the performance of the above-grade and below-grade alternatives. That has not been done. Kerr-McGee's citation of Criterion 4(c) to justify 5h:1v slopes on the flanks of the cell does not demonstrate reasonable equivalence and shows Kerr-McGee's misunderstanding of the intent of Criteria 3 and 4(c).

Illinois further asserts that Kerr-McGee did not adequately respond to its concerns about sustainability of vegetation because the cell will be covered by prairie which requires active maintenance or by climax forest in which the trees are susceptible to wind toppling. Illinois complains that Kerr-McGee's estimates of soil erosion are wrong because it improperly reduced the probable maximum flood as a design basis. Had Kerr-McGee considered the storm that would produce the maximum flood, the calculated erosion would have been greater.

Illinois is also dissatisfied with Kerr-McGee's response about the adequacy of the intrusion barrier because the Engineering Report does not provide gradation limits for particles in the barrier, and the rock and clay mixture will be subject to weathering by wetting, drying, freezing, and thawing. Kerr-McGee has not provided specifications in its Engineering Report for resistance to weathering. Finally, Illinois complains that Kerr-McGee has not considered the probable maximum flood in its design of the 6-inch gravel blanket and that it is not designed to withstand such an event. Failure of the blanket will cause formation of gullies and release of wastes.<sup>13</sup>

Illinois' arguments in support of its own motion and in opposition to Kerr-McGee's motion raise different considerations. We address Illinois' motion first.

#### *Ruling on Illinois' Motion on Contentions 4(c) and (d)*

We conclude that Kerr-McGee is correct in its assertion that Illinois' motion is not based on a thorough technical review of all of the relevant information available to it. Many of Illinois' assertions of inadequacy or noncompliance are based on alleged failure of Kerr-McGee or Staff to supply information rather than on perceived design defects in the cell itself. Illinois' consultant based his critique almost entirely on review of Chapter 3 of the SFES. That chapter generally describes the proposed action and alternatives in only 22 pages. The Staff may not have anticipated in that chapter every detail some later reviewer

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and that there is no documentation that the cell can withstand the maximum credible earthquake, as required by Criterion 4(e). Kerr-McGee correctly points out that these assertions are irrelevant to Contention 4(d) which paraphrases Criterion 4(c) and thus cannot be viewed as fairly raising issues outside of the latter's scope.

<sup>13</sup> See Illinois' Opposition to Kerr-McGee's Cross-Motion for Summary Disposition at 39-43.

would have liked. However, Chapter 5 of the SFES describes the environmental consequences of the project and alternatives in more detail. Kerr-McGee's Engineering Report provides even more detail. Each of Illinois' allegations cites error or omission of some kind in documentation. In each case, Kerr-McGee and the Staff have answered by pointing to the relevant documentation. These responses are adequate answers to Illinois' complaints.<sup>14</sup>

The purported facts presented by Illinois to support a conclusion that Kerr-McGee has not satisfied its burden of demonstrating that the waste cell complies with Criteria 3 and 4(c) have been refuted by Kerr-McGee and Staff. Illinois' assertions are either incorrect or immaterial to the decision. They are based on a misunderstanding of the proposal or an inadequate review of the available record.

Illinois' assertion in its brief that the flanks of the waste cell are too steep to prevent erosion must also be dismissed as speculative. It is undisputed that the flanks are designed to have slopes of 5h:1v, which is permitted by Criterion 4(c). Without supporting reasons, applicable to the West Chicago site, the Board may not order more stringent requirements for slopes of the waste cell than permitted by regulation. Illinois' motion for summary disposition of Contentions 4(c) and (d) is denied.

#### *Ruling on Kerr-McGee's Motion on Contentions 4(c) and (d)*

In opposing Kerr-McGee's cross-motion, Illinois presses its claim that either a prairie or forest vegetative cover has flaws that would prohibit a finding that above-grade disposal provides reasonably equivalent isolation of waste compared to below-grade disposal without active maintenance. Prairie vegetation is said to be flawed because it will require active maintenance while forest vegetation is

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<sup>14</sup> For example, the botanical reports appearing in Chapter 6 of the Engineering Report provide answers to concerns about wind erosion and sustainability of vegetation. The Board finds that those reports constitute a *prima facie* case that wind erosion will be negligible because the vegetation will form a root system in the soils and will stand up to 7 feet above the surface. The prairie vegetation to be used is native to Illinois and persisted without human management for thousands of years prior to settlement. If there is no management of prairie vegetation it will eventually become a forest populated by native trees which have lower potential for erosion than prairie. See SFES Table 5-5.

The State's assertion about evapotranspiration in a rainstorm is true. However, this fact is immaterial because it is absurd. It is beyond credulity to postulate that significant evaporation occurs during a rainstorm or, worse, that it could be large enough to curtail runoff caused by a storm.

The Staff view on erodability of the cobbles in the intrusion layer, for example, is that even limestone cobbles may last for 40,000 years. In context, however, this is the conclusion of a contingent analysis in which it is first postulated that the covering soil layers will be removed by some unknown mechanism exposing the cobble layer to erosional forces. Under foreseeable conditions the cover layer will erode in 243,000 years over the top and 15,100 years over the flanks, and the intrusion layer will not be exposed. See SFES at 5-13 to 5-15 and Table 5.5.

The Board finds that Kerr-McGee has supplied information on rock size and has calculated resistance to erosion for materials in the 6-inch gravel blanket which the State claims is missing. Engineering Report IX at 9-14 to 9-15. The SFES addressed the Staff specifications for choice of resistant rock material for the intrusion layer which we find equally applicable to rock used in the gravel blanket. SFES at 5-15.

bad because the wind will topple trees and provide opportunity for gully erosion which could lead to dispersion of wastes.

The proposed prairie plant community will be maintained by mowing or burning every few years. However, no party suggests that denudation of the cell is a hazard over its design life if the prairie is not maintained as planned. Illinois does not challenge the conclusion of Kerr-McGee and Staff that if the proposed maintenance activity is pursued a prairie will persist, and if it is abandoned the prairie will be replaced by forest without human assistance. The likely pioneer and climax forests are more resistant to erosion than prairie<sup>15</sup> and no violation of the regulatory goal for isolation of waste without active maintenance would occur if that succession took place. Moreover, the maintenance contemplated by Kerr-McGee to preserve the prairie vegetation is clearly not "active maintenance" as that term is defined in section 61.2.

In its opposition, Illinois also voices concerns over the adequacy of the intrusion barrier. Appendix A does not require that an intrusion barrier be included in the design of a waste cell; therefore, there are no specific regulatory standards the barrier must meet.<sup>16</sup> Because the barrier is part of the design, we review it only to determine whether it is likely to perform its intended function under conditions likely to prevail during the design life of the cell.

The intrusion barrier is included in the West Chicago design to prevent human and animal intrusion and to provide added assurance of cell stability in the event that the topsoil layer is lost for some unspecified reason during the design life of the cell. Staff's analysis shows that erosion of the surface layer might take place on a time scale well in excess of the design life of the cell and that it poses no credible mechanism by which the topsoil might be lost within 1000 years. Nevertheless it concludes that if the soil layer is lost by some unspecified mechanism the intrusion barrier would offer long-term protection. SFES at 5-13; Table 5.5. We conclude from the soil erosion data that there is only a very remote possibility that the barrier will be required to perform an erosion control function within the design life of the cell.

Illinois poses its criticism of the design in the form of an allegation that the particle size distribution of the graded clay-cobble layer has not been provided

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<sup>15</sup> Illinois' complaint that wind might topple trees in the future is undisputed but its assertion that this will lead to gully formation and release of wastes is an unsupported hypothesis. The prospect that trees on the cell might fall during several hundred years of forest succession is virtually assured given that a pioneer forest will be replaced by a climax forest over that period.

The forest description given in the Ware report makes plain that forests consist of a complex of vegetation that includes many species of closely associated trees and shrubs growing on sponge-like absorptive soils. Engineering Report VI, Appendix B. Staff's analysis attributed erosion resistance to forests rather than individual trees. SFES at 5-13; Table 5.5. It is a compelling inference that erosion resistance in forests is the collective result of all vegetation present. Illinois' assertion to the contrary lacks factual support. We reject its view as unsupported speculation.

<sup>16</sup> External rock cover of impoundments is required by Criterion 4(d) only in the event that vegetative cover cannot be established.

in the documentation. That allegation does not rebut Kerr-McGee's and Staff's evidence or establish the materiality of the missing data.<sup>17</sup> In light of the undisputed purpose and regulatory status of the intrusion barrier a complaint of missing information without a showing of its materiality is inadequate to defeat the cross-motion for summary disposition.

Similarly, Illinois' unsupported allegation that weathering of cobbles in the intrusion barrier has not been considered is incorrect and not an adequate basis to defeat the cross-motion for summary disposition. Staff considered the use of limestone cobbles because limestone is common in Illinois. It considered the highly variable weathering resistance of limestone cobbles that might be used in the intrusion barrier and assumes they could last as much as 40,000 years. The life of the intrusion barrier could be extended if silicate rocks were used. However, precise erosion rates of rocks and minerals were not scientifically determined. SFES at 5-13 to 5-15. Nonetheless, Staff's analysis supports a conclusion that the design life of 1000 years is attainable with either limestone or silicate rocks. Illinois has not controverted Staff's analysis.

In his affidavit supporting Illinois' opposition to the cross-motion, Dr. Thiers points out that Kerr-McGee, while recognizing that the "probable maximum flood" event is generally recognized by the NRC, nonetheless reduced that event to assumption B magnitude.<sup>18</sup> Dr. Thiers asserts that failure to design to the larger event means that gullies will form and eventually lead to a release of the tailings.<sup>19</sup> Appendix A does not specify particular criteria for assessing longevity based on a design flood or storm.

Staff and Kerr-McGee relied on variations of the Universal Soil Loss Equation to estimate erosion of the cell. The Staff used parameters including a rainfall factor derived from 25 years of record expressed in annualized terms to solve the equation. SFES Table 4.3; *id.* at 5-12 to 5-13. Kerr-McGee used a more detailed model that permitted individual storm calculations of erosion based on daily climatic data, simulating 100 years of erosion in individual runs. Engineering Report VI at 6-11 to 6-16, Appendix C. Both conclude that the topsoil of the cell will not be lost by erosion over its design life. There is no indication that the Universal Soil Loss Equation calls for the probable maximum rainfall as

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<sup>17</sup> In fact, Staff and Kerr-McGee have provided substantial information on particle size of materials although the final choice of materials has not been specified. Cobbles are defined as rocks 2-10 inches in diameter. SFES, Appendix B at B-4 n.a. Clay consists of particles less than 2 micrometers in diameter. Particle size distributions of sand, silt, and clay in several east-central Illinois glacial tills and at the West Chicago site are provided. SFES Table 4.15; Table 4.12. Kerr-McGee states that it will use locally obtained borrow materials to make the intrusion barrier and has considered criteria for the suitability of materials. Engineering Report IV at 4-9 to 4-14. While no computations that rely on graded particle sizes in the intrusion layer have been performed, Illinois' assertions fail to establish what computations involving these parameters should have been performed and would have been material to an assessment of the barrier.

<sup>18</sup> The assumption B event has a rainfall intensity of 10.1 inches in 24 hours. Engineering Report IX at 9-13.

<sup>19</sup> See Exh. A to Illinois Opposition to Kerr-McGee's Cross-Motion, §§ 3(c) and (e).

an input parameter for any of the calculations or that it could be meaningfully applied.

The bare allegation that a larger storm event should have been considered is insufficient to call into question the analyses performed by Kerr-McGee and Staff. Dr. Thiers has provided no technical basis for his conclusion that gullies will form leading to a breach of containment and release of the tailings. Moreover, the definition of "active maintenance" contained in section 61.2 contemplates that certain minor repairs to the cell cover are permissible. The damage that Dr. Thiers alleges will take place appears to be of the sort that could be corrected by minor repairs.

In sum, we find that Illinois has failed to controvert the showing made by Kerr-McGee and Staff. While Illinois' point that Criterion 3 requires a demonstration that above-grade disposal provides isolation that is reasonably equivalent to below grade is well taken, the analyses performed by Kerr-McGee and Staff amply demonstrate that this is so. Kerr-McGee's cross-motion for summary disposition of Contentions 4(c) and (d) is granted.<sup>20</sup>

#### *Ruling on Contentions 4(e) and (g)*

In its motion on Contentions 4(e) and (g), Illinois argues that the location of the disposal cell within a densely populated area almost guarantees human intrusion absent a rigorous security program. In Illinois' view, such a program is inconsistent with Criteria 6 and 12. Even with it, Illinois believes that active maintenance would be necessary to ensure the integrity of the cap. Illinois again relies on Dr. Thiers' affidavit for support.<sup>21</sup> The factual arguments advanced by Dr. Thiers in ¶ 7 (at 4-6) and ¶ 8(a)(6) of his affidavit are clearly irrelevant to these contentions. The remaining arguments contained in ¶ 8 (at 6-7), with the exception of that concerning human intrusion, have largely been disposed of in connection with Contentions 4(c) and (d) and are, in any event, unsupported assertions which are insufficient to call Kerr-McGee's and Staff's analyses into question.

Illinois' response to Kerr-McGee's cross-motion also repeats the arguments made in opposition to the cross-motion on Contentions 4(c) and (d) which we have rejected. It adds Dr. Thiers' assertion that the cell, being located in a populated area, has nearly a 100% probability of being dug into for free fill and/or out of curiosity. Illinois also supports this allegation with reports of intrusions onto the West Chicago site in the recent past.

We agree that some human intrusion onto the site is likely. However, we do not believe that the site would constitute an attractive nuisance, so as to make

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<sup>20</sup> For the same reasons, Kerr-McGee's Cross-Motion on Contention 2(k) is also granted.

<sup>21</sup> See Exh. C to Illinois' Motion at 3-7.

such intrusion probable. Moreover, given the design of the cell so as to resist erosion, we do not believe that Dr Thiers has made a case that human intrusion could create damage so extensive that active maintenance would be required to correct it as that term is defined in section 61.2. Consequently, we deny Illinois' motion and grant Kerr-McGee's motion with respect to Contentions 4(e) and (g).

## Criterion 2

### *Ruling on Contention 4(b)*

Contention 4(b) asserts that Criterion 2 is applicable and that no showing has been made that it would be impracticable to dispose of the West Chicago wastes at an existing large disposal site. In its motion for summary disposition, Illinois points to a statement made by the Commission in *State of Illinois* (Section 274 Agreement), CLI-88-6, 28 NRC 75, 91 (1988), to the effect that disposal of the tailings at the West Chicago site might violate Criterion 2's bias against the proliferation of small disposal sites.<sup>22</sup> Kerr-McGee points out that Criterion 2, which applies to "small remote above ground extraction operations," does not apply to West Chicago because of the large volume of tailings there present.<sup>23</sup> In its opposition to Kerr-McGee's cross-motion, Illinois argues that the volume of West Chicago tailings is not large, pointing to larger quantities that have been moved in the Western United States.<sup>24</sup>

We agree with Kerr-McGee that the West Chicago operation did not constitute a "small remote above ground extraction operation" contemplated by Criterion 2. While the Statements of Consideration that accompanied the proposed and final Appendix A to Part 40 did not discuss Criterion 2, the Draft Generic Environmental Impact Statement on Uranium Milling,<sup>25</sup> the conclusions of which were implemented by the notice of proposed rulemaking leading to the adoption of Appendix A,<sup>26</sup> provides the rationale behind Criterion 2. Section 12.5 makes it clear that Staff was concerned about the milling of low-grade ores, ores that could not be economically transported to mill sites, found in remote locations using semiportable milling equipment. Thus Criterion 2 was not intended to cover operations such as that at West Chicago. Illinois' motion for summary disposition of Contention 4(b) is denied and Kerr-McGee's cross-motion is granted.

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<sup>22</sup> See Illinois' Motion at 31-33.

<sup>23</sup> See Kerr-McGee's Cross-Motion at 29-30. Staff concurs in Kerr-McGee's position. See Staff's Opposition to Illinois' Motion at 15 and Response in Support of Kerr-McGee's Cross-Motion at 3.

<sup>24</sup> See Illinois' Opposition to Kerr-McGee's Cross-Motion at 35-39.

<sup>25</sup> NUREG-0511, April 1979.

<sup>26</sup> See Uranium Mill Licensing Requirements, Final Rule, 45 Fed. Reg. 65,522 (Oct. 3, 1980).

## **Criterion 7A**

### ***Ruling on Contention 4(f)***

Contention 4(f) asserts that, contrary to Staff's position stated in the SFES,<sup>27</sup> Criterion 7A requires that a detection monitoring program at West Chicago presently must be in place. Illinois argues that Criterion 7A requires licensees to establish detection monitoring programs so that groundwater standards may be set pursuant to Criterion 5B(1). It further argues that the tailings must currently be managed in accord with Criterion 5B(1), and that, under Criterion 7A, a detection monitoring program must be put in place to support the setting of specific groundwater protection standards.

In its cross-motion, Kerr-McGee argues that Staff correctly concluded that Criterion 7, which concerns preoperational monitoring at a mill site, does not apply to West Chicago, and that Criterion 7A "provides greater detail as to how the operational monitoring program is to be designed and implemented."<sup>28</sup>

In its response to Kerr-McGee, Illinois points out that nothing in Criterion 7A limits its application to operating sites and that the Commission did not make a distinction between licensed operating sites and nonoperating sites. Illinois is correct in its observation. However, all parties have overlooked the goals stated in Criterion 7A:

The initial purpose of the program is to detect leakage of hazardous constituents from the *disposal area* so that the need to set ground-water [sic] protection standards is monitored. If leakage is detected, the second purpose of the program is to generate data and information needed for the Commission to establish the standards under Criterion 5B.

(Emphasis added.) The definitions in the Introduction to Appendix A state that:

"Disposal area" means the area containing byproduct materials to which the requirements of Criterion 6 apply.

Criterion 6 states the requirements for closing the disposal site by placing an earthen cover over the tailings so as to provide for their isolation for 1000 years, to the extent reasonably achievable, and, in any case, for at least 200 years. Thus it is clear that Criterion 7A comes into play when the tailings are placed in the disposal cell. This interpretation is confirmed by the language of Criterion 5B(1) which states:

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<sup>27</sup> See SFES at 2-23.

<sup>28</sup> See Kerr-McGee's Cross-Motion at 51-52. Staff agrees. See Staff's Opposition to Illinois' Motion at 21, and Response in Support of Kerr-McGee's Cross-Motion at 6. Kerr-McGee also argues that Illinois is attempting to litigate Kerr-McGee's present compliance with applicable water quality standards, a matter that is outside the scope of this proceeding.

The Commission [will take action] if needed to accord with developed data and site information as to the flow of ground water [sic] or contaminants, when the detection monitoring established under Criterion 7A indicates leakage of hazardous constituents from the disposal area.

Consequently, while Illinois is incorrect in stating that Criterion 7A presently requires a detection monitoring system, it is correct that one must be in place when the tailings are placed in the disposal cell. To this extent, Illinois' motion is granted and Kerr-McGee's cross-motion is denied.<sup>29</sup>

### CONTENTION 3

Contention 3 attacks the Staff's SFES. It asserts that Staff has failed to follow the requirements of the National Environmental Policy Act and applicable implementing regulations. In particular, in its motion for summary disposition, Illinois asserts that Staff unreasonably restricted the range of alternatives considered in the ways enumerated in Contentions 3(a), 3(b), 3(g)(1), and 3(g)(8).<sup>30</sup>

#### Ruling on Contention 3(a)

Contention 3(a) asserts that Staff's

assumption that 0.1% of the unpackaged wastes would be disbursed [sic] as particulates and gases for every 160 km (100 mi.) traveled during either truck or rail transport to an alternate site is arbitrary and capricious.

Illinois argues that Staff's 0.1% assumption vastly overstates the likely dispersal of the tailings during transportation and therefore overstated the environmental cost of moving the tailings to another site. Illinois supports this argument with the affidavits of Dr. M. Frank Petelka and Mr. Warren D. Snell, who espouse the view that release during transport would be considerably smaller than the 0.1% value. In particular, Dr. Petelka describes observations

<sup>29</sup> Contention 3(g)(8) presents a related matter. That contention asserts that the costs that would be incurred for groundwater cleanup, if needed, have not been assessed. In its motion, Illinois argues that a possible result of the establishment of a detection monitoring system under Criterion 7A is the need to clean up the groundwater. Both Kerr-McGee and Staff oppose, arguing *inter alia* that the need for cleanup is speculative and therefore outside the required scope of the SFES. Kerr-McGee cites *Methow Valley Citizens Council v. Regional Forester*, 833 F.2d 810, 816 (9th Cir. 1987), *rev'd on other grounds*, 109 S. Ct. 1835 (1989), quoting *Scientists' Institute for Public Information v. AEC*, 481 F.2d 1079, 1092 (D.C. Cir. 1973). We agree that it is not necessary to consider potential cleanup costs in the SFES. Whether cleanup is necessary at all will not be determined until a detection monitoring program is in place after the tailings are placed in the cell. Illinois' motion is denied and Kerr-McGee's cross-motion is granted.

<sup>30</sup> See Illinois' Motion at 12-13.

that indicate an actual release rate of 0.01% or less.<sup>31</sup> Illinois assumes without discussion that the difference is significant.

In its response to Illinois' motion and in its cross-motion, Kerr-McGee raises certain procedural objections to this contention, but opposes it primarily on the basis that it does not raise an issue that is *material* to the selection of an alternative. Kerr-McGee cites the SFES in Tables 5.18, 5.21, and 5.22 as showing the radiation dose estimates, based on the assumption that Illinois challenges, are not large enough to affect the assessment of alternatives. This is true because the Staff's analysis concluded that "the estimated health effects for all alternatives are negligible." SFES at 1-19.<sup>32</sup>

The NRC Staff supports Kerr-McGee's position, providing the affidavit of Dr. Yuchan Yuan, who states

A dispersion calculation using a source release factor of 0.1% of Kerr-McGee NRT wastes per 100 mile traveled would result in an increased external radiation level of less than 0.1 mr/yr at locations adjacent to the transportation route. This level is indistinguishable from background radiation level of about 90 mr/yr in the Chicago area.<sup>33</sup>

We fail to see the significance of the issue of whether the estimated radiation resulting from transportation losses is negligible or ten times smaller than negligible. We find that whether the radiation estimate is 0.1 millirem per year, or even smaller as Illinois would have it, does not raise an issue material to the consideration of alternatives. Illinois' motion for summary disposition is denied and Kerr-McGee's cross-motion is granted.

### Ruling on Contention 3(b)

Contention 3(b) raises three issues concerning the Staff's alternative site selection process:

1. The site selection method was not based on Criterion 1, 10 C.F.R. Part 40;
2. The site selection method did not apply the same criteria to potential alternative sites and the West Chicago site; and
3. Disposal at an existing uranium mine or mill tailings site in the western United States was not adequately considered.

<sup>31</sup> See Exhs. A and D to Illinois' Motion for Summary Disposition. In its opposition to Illinois' Motion, Staff takes issue with the conclusions of Illinois' experts. See Staff's Response at 9-11.

<sup>32</sup> See Kerr-McGee's Response and Cross-Motion at 54-58.

<sup>33</sup> See Staff's Response to Kerr-McGee's Cross-Motion at 7.

In its motion for summary disposition, Illinois makes three arguments:

1. A uniform application of the criteria applied to the alternative sites would have resulted in the rejection of the West Chicago site, referring to its argument under Contention 3(g);
2. Staff's reliance on increased doses and health risks from transportation of the tailings was improper, referring to its argument under Contention 3(a); and
3. Disposal of the Kerr-McGee tailings at a facility in the western United States is feasible.<sup>34</sup>

In its response and cross-motion, Kerr-McGee characterizes Illinois' first argument as quarreling with the adequacy of Staff's response to its comments on the draft SFES and raises a number of procedural objections. Staff supports Kerr-McGee's position.<sup>35</sup> Given the dictates of Appendix A to Part 40, we believe Staff's approach was proper. Therefore we deny Illinois' motion and grant Kerr-McGee's cross-motion for summary disposition of Contention 3(b)(i) and (ii). We will set out our reasons for this result in full in our ruling on Contention 4(a), which concerns Criterion 1, in our initial decision following the forthcoming hearing.

To the extent that it is relevant to this contention, Illinois' second argument (relating to health risks from transportation) must be rejected for the reasons given in connection with Contention 3(a).

This leaves Contention 3(b)(iii), concerning disposal at an existing site in the western United States. Illinois points to the Envirocare, Inc. facility in Clive, Utah, as one designed to accept Kerr-McGee-type material and one that has accepted materials contaminated with radium from eastern states recently. In response, Kerr-McGee asserts that Staff assessed and properly rejected a western disposal site on the basis of economic costs of transportation, health risks of transportation, and uncertain availability. Kerr-McGee further points out that the West Chicago waste would require 1.8 million drums, far in excess of the number cited in the contention, and that the Envirocare facility is not licensed to accept 11e(2) byproduct material.<sup>36</sup>

The Staff supports Kerr-McGee's motion for the reasons given by Kerr-McGee and concludes that summary disposition is warranted.

In its response, Illinois asserts that both Kerr-McGee and the Staff gave inappropriate weight to and overestimated the economic costs of transportation to a western site. It also attacks the assessment of health risks of transportation as overstated because rail transportation was not considered. Finally, Illinois

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<sup>34</sup> See Illinois' Motion at 16-17.

<sup>35</sup> See Kerr-McGee's Response and Cross-Motion at 58-61; Staff's Response to Kerr-McGee's Cross-Motion at 8.

<sup>36</sup> Kerr-McGee Cross Motion, Exh. 9.

asserts that disposal in Utah would not meet with any public or regulatory resistance. The Affidavit of Wayne Snell is cited as evidence of the suitability of the Envirocare site.<sup>37</sup>

Illinois' arguments do not confront the analytical procedure followed by Staff. Staff devoted the major part of the SFES to an analysis of the risks to public health, safety, and the environment if the wastes are disposed at West Chicago or at one of the alternative locations in Illinois. Staff concluded that:

[T]he proposed action would have the smallest overall health effects (action period and long term period). Moreover, the estimated health effects for all alternatives are negligible. Therefore, taking into consideration the long term health and safety benefits of moving the wastes, the additional cost is simply not justified. . . . [T]he costs of establishing an offsite disposal area, transporting the wastes to the alternative site, and stabilizing the wastes at that site cannot be justified on the basis of substantially reduced health, safety, or environmental impacts.

#### SFES at 1-19 to 1-20.

It is evident from the foregoing that the Staff considered health, safety, and environmental impacts in its review of Kerr-McGee's proposal and, only after finding them negligible at all of the sites, did it reach the conclusion that the cost of transporting the wastes to a new site was not warranted. We find that this analytical procedure does not place undue reliance on economic costs.

It is immaterial whether the Envirocare facility might be a suitable repository. Given Staff's uncontested conclusion that health, safety, and environmental impacts would be negligible at any of the sites within Illinois, there is no need to give further consideration to sites more remotely located where transportation costs necessarily would be greater. There simply is no reason to incur large economic costs to relocate the wastes.

We deny Illinois' motion and grant Kerr-McGee's cross-motion for summary disposition of Contention 3(b)(iii).

#### Ruling on Contention 3(e)

Contention 3(e) asserts that costs and benefits to parties other than Kerr-McGee were not considered in the SFES. Illinois did not move for summary disposition of this contention, but Kerr-McGee did. Kerr-McGee points out that a variety of environmental costs to others were considered in the SFES at pages 8-14 to 8-24. Staff concurs in this view.<sup>38</sup> Illinois opposes the motion on the ground that consideration was not given to monetary costs that would be

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<sup>37</sup> See Illinois' Opposition at 21-23.

<sup>38</sup> See Kerr-McGee's Cross-Motion at 69-71; Staff's Response at 9-10.

associated with the need for a guard to prevent intruders once Kerr-McGee has fulfilled its responsibilities and left the site.

Illinois has not raised an issue that is *material* to this proceeding. The cost of guard services cannot be large enough to influence a cost-benefit comparison among multimillion-dollar alternatives. Further, such costs fall on the mill operator, as prescribed in 10 C.F.R. Part 40, Appendix A, Criterion 10. Thus they do not involve a cost to a party other than Kerr-McGee and consequently fall outside the scope of the contention. Kerr-McGee's motion for summary disposition is granted.

#### **Ruling on Contention 3(g)(1)**

Contention 3(g)(1) asserts that potential alternative sites were rejected based on hydrogeological and demographic considerations which, if applied to the West Chicago site, would also have dictated its rejection. Like Contention 3(b)(i) and (ii), it raises issues that are best discussed in connection with Contention 4(a) concerning Criterion 1. Illinois' motion is denied and Kerr-McGee's cross-motion for summary disposition of Contention 3(g)(1) is granted. Our reasoning will be set out in our initial decision following the hearing on Contention 4(a).

#### **Ruling on Contention 3(g)(2)**

Kerr-McGee's motion for summary disposition of Contention 3(g)(2) was denied in our November 14 Memorandum and Order.

#### **Ruling on Contention 3(g)(4)**

Illinois' motion to withdraw Contention 3(g)(4) is granted.

#### **Ruling on Contention 3(g)(8)**

Contention 3(g)(8) asserts that the cost of necessary groundwater cleanup have not been considered. We deny Illinois' motion and grant Kerr-McGee's cross-motion for summary disposition of this contention. Because it is related to Contention 4(f) concerning Criterion 7A, our reasoning is set out there.<sup>39</sup>

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<sup>39</sup> See note 29, *supra*.

## CONTENTION 7

Contention 7 relies on LBP-84-42, 20 NRC 1296, 1323 (1984), and LBP-85-3, 21 NRC 244, 255 n.16 (1985), for the proposition that Staff may not properly select the West Chicago site as the best of those considered under NEPA if that site does not meet the Appendix A criteria. Because it is closely related to Contention 4(a) concerning the proper interpretation of Criterion 1, we will rule on it in our initial decision following the hearing on the latter contention.

## CONTENTION 9

This contention provides:

In its Order of January 23, 1986 [sic], the Atomic Safety and Licensing Board directed the NRC Staff to respond to certain comments on the DES. (See Order of January 23, 1985, paragraphs 5 and 8 on pages 28 and 29.) The SFES does not include responses to those comments, and, therefore, the NRC Staff has not complied with said Order.

Illinois originally submitted a contention relating to the adequacy of the responses to comments in the FES. Although the contention initially was denied, we subsequently reconsidered and admitted it.<sup>40</sup> Subsequently, following our direction to the Staff to prepare the SFES,<sup>41</sup> we dismissed the entirety of Contention 1 as a sanction for Illinois' failure to comply with its discovery obligations.<sup>42</sup>

Staff maintains that the dismissal of Contention 1 relieved it of any obligation to respond to the comments identified in that contention. Moreover, Kerr-McGee and Staff note that

the specific matters that Illinois sought to have addressed in the original FES — alternative disposal sites, the impacts of onsite disposal, and the costs of long-term maintenance and monitoring — were evaluated anew in the preparation of the SFES. SFES, 1-1 to 1-18. The new analysis was subject to comprehensive comment by the public, including a variety of State agencies, and the staff prepared a detailed response to each of the comments. SFES, Appendix H. None of the State's newly admitted contentions relate to the adequacy of the staff's analysis of these comments. At this juncture, further pursuit of issues relating to the FES would serve no real purpose. Accordingly, the contention should now be resolved against the State.

<sup>40</sup> LBP-85-3, 21 NRC 244, 260 (1985).

<sup>41</sup> LBP-84-42, 20 NRC at 1307-17, *reconsideration denied*, LBP-85-3, 21 NRC 244 (1985).

<sup>42</sup> LBP-86-4, 23 NRC 75, 86-87 (1986).

*See Kerr-McGee's Opposition and Cross-Motion at 81-82.<sup>43</sup>*

Illinois maintains that, just as the dismissal of its Contention 1 did not operate to relieve Staff of the obligation to prepare the SFES, it did not relieve it of the obligation to respond to comments. Illinois points out that NEPA imposes an obligation on Staff independently of this proceeding. Because Staff admits that it did not respond to the comments in question, Illinois believes that it is entitled to a favorable ruling on its motion.<sup>44</sup>

We believe that Illinois' arguments elevate form over substance. While Staff has an independent obligation to respond to comments on environmental statements, the totality of the circumstances justified, in this instance, Staff's failure to respond. After having failed in its attempt to uphold its FES against Illinois' attack, Staff launched upon the preparation and circulation of the SFES. The SFES specifically addresses the areas of the comments that were not responded to. We will not order Staff to respond to comments that were made on a document that has been substantially modified by the SFES without some showing that the SFES somehow has overlooked important matters raised by those comments. Illinois has made no such showing. Illinois' motion is denied and Kerr-McGee/s cross-motion is granted.

## CONTENTION 2

Contention 2 was advanced at the outset of this proceeding in 1983. It focuses on the engineering design of Kerr-McGee's proposed disposal cell. Illinois did not move for summary disposition with respect to this contention; Kerr-McGee so moved with respect to certain admitted subparts.

### Ruling on Contention 2(b)

Contention 2(b) concerns the alleged presence of leachable organic compounds in the tailings. Illinois responded to Kerr-McGee's motion with a motion to withdraw. Illinois' unopposed motion for withdrawal of Contention 2(b) is granted.

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<sup>43</sup> Kerr-McGee's arguments are set forth in its Opposition and Cross-Motion at 79-82; Staff's arguments can be found in its Opposition to Illinois' Motion at 22, and its Support of Kerr-McGee's Cross-Motion at 14.

<sup>44</sup> Illinois' arguments may be found in its Motion at 42-44, its Opposition to Kerr-McGee's Cross-Motion at 52-57, and its Opposition to Staff's Response in Support of Kerr-McGee's Cross-Motion at 7-8.

## Ruling on Contention 2(e)

Contention 2(e) asserts that Kerr-McGee's leachate collection system is inadequately designed to perform its function of providing the means of detecting cap failure before contaminants escape from the cell because:

First, it will be difficult to maintain the integrity of the leachate collection pipes when several million cubic feet of waste are deposited over them;

Second, no information is provided as to the size of the pipes and their composition; and

Third, Kerr-McGee has not indicated how failure of the pipes through clogging or collapse will be detected and has not provided for correction of these events if they occur.

In its motion, Kerr-McGee notes that it submitted detailed information in its Engineering Report (provided in 1986 after this contention was admitted) regarding the performance of its leachate collection system.<sup>45</sup> The system is not intended to operate over an extended period because the long-term performance of the cell is governed by the cover, not the liner. In its view, Contention 2(e) is simply misguided and summary disposition should be granted.<sup>46</sup>

The Staff supports Kerr-McGee and asserts that the main reason for the leachate collection system is to detect failures in the cell cap during the early years when most of the settling occurs. The pipe system will be disabled by plugging the risers after settlement in the cell becomes sufficiently small to make the likelihood of cap failure negligible. Further, there is no uncertainty about the pipe specifications. The manifold pipes will be constructed of 6-inch-diameter 100-psi high-density polyethylene.<sup>47</sup>

Illinois' opposition relies generally on pages 9 through 19 of the Affidavit of Dr. Gerald R. Thiers, who reviewed various portions of Contention 4 for Illinois. Illinois believes that Dr. Theirs' analysis is equally applicable to Contention 2(e) but it did not specifically identify the applicable paragraphs. The portions of Dr. Theirs' affidavit that appear to address issues relevant to Contention 2(e) are at pages 14-15, ¶¶ h and j, of his affidavit.<sup>48</sup> Dr. Theirs' concern is that leachate might pass through the collection system into the groundwater undetected because of differential permeabilities between the clay cap and the clay liner. Kerr-McGee's Engineering Report and the Staff's SFES are assertedly deficient because they do not mention or show the manifold pipes embedded in the berm and they do not give design calculations showing a comparison of expected flows and capacities. Illinois also asserts that the cover is inadequate to last for

<sup>45</sup> Details are presented in Engineering Report IV at 4-2 to 4-4; Engineering Report IX at 9-10.

<sup>46</sup> See Kerr-McGee's Cross-Motion at 84-85.

<sup>47</sup> See Affidavit of Paul A. Benioff attached to Staff's Response to Kerr-McGee's Cross-Motion.

<sup>48</sup> See Exh. A to Illinois' Opposition.

an extended period of time without active maintenance and that even with active maintenance the cover could not prevent all infiltration. Illinois concludes that a leachate collection system is necessary to contain contamination that results from cover failure and that it is the only means available to detect cover failure.

Illinois' response does not address the limited assertions of fact contained in Contention 2(e). The contention relates only to the integrity of the collection pipes and to the longevity of operation of the leachate collection system. It says nothing about a need for active maintenance of the cell or the prevention of infiltration. None of Illinois' asserted facts address the question of continued pipe integrity or the pipe's potential for clogging. Therefore, these issues appear abandoned. Neither does Illinois provide any facts showing why Kerr-McGee's design of the system for short-term monitoring is wrong and that the leachate collection system should have been designed for long-term operations.

Several of Illinois' assertions reflect misapprehension of the Kerr-McGee plan. Illinois' assertion that the system will not prevent all leaching even with active maintenance is undisputed. That assertion comports with Kerr-McGee's rationale for its design of the leachate system, whose purpose is to detect leaching. The notion that the leachate collection system must contain all leachate is a misapprehension of the design objective, which is to monitor the performance of the clay cap for a short time after installation until settling of the cell has time to occur. Contrary to Illinois' apparent belief or desire, the system is not designed to be a barrier or diversion for all leachate after the cell is completed.<sup>49</sup>

Illinois' belief that the leachate collection system will fail to detect leachate on account of differential permeability of the clay cap and clay liner rests on a misapprehension of the cell design. The Engineering Report shows that the leachate collection pipes will be embedded in a sand layer which lies above the clay liner. The sand is indisputably more permeable than the clay. The relative permeability of the clay cap and clay liner is therefore irrelevant to the assessment of the leachate collection system's capability to detect a failure in the clay cap.

Contrary to Illinois' assertion, the Board finds that drawings SK-265 and SK-266 in the Engineering Report show both the diameters and the locations of embedded pipes in the berms of the waste cell. This assertion is based on misreading of documents and presents no material issue of fact in need of hearing. Because the intended purpose of the leachate collection system is to provide for monitoring leachate and not to intercept and divert all flow, the assertion that no comparison of flow volume to capacity has been made is

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<sup>49</sup> The leachate collection system will be pumped during construction to prevent leachate from entering the lower clay layer because the clay cap will not be in place. However, this contention specifies no concerns about performance of the leachate system during construction.

immaterial to an evaluation of the system performance. Any large volume of flow could be sufficient to detect a failure in the clay cap. Illinois provides no facts to suggest that the fluid capacity of 6-inch perforated pipes embedded in sand is even definable much less that it is material to the assessment of system function.

The Board concludes that there exists no issue of material fact in dispute on Contention 2(e) and that Kerr-McGee is entitled to a favorable decision with respect to it. Accordingly, Kerr-McGee's motion for summary disposition is granted.

#### Ruling on Contention 2(k)

Contention 2(k) asserts that the disposal cell will not maintain its integrity against natural erosional forces over the long term. Kerr-McGee's motion for summary disposition of Contention 2(k) is granted for the reasons given in connection with Contention 4(c) and (d).<sup>50</sup>

#### Ruling on Contention 2(p)

Contention 2(p) alleges that there will be both short- and long-term impacts on Kress Creek and the West Branch of the DuPage River resulting from deposition of suspended solids, that neither the Staff nor Kerr-McGee has indicated what levels of contamination in runoff will be acceptable from a public health and environmental standpoint, and that neither has shown that measures can and will be taken to limit contaminant releases to such levels.

In its motion, Kerr-McGee asserts that it has developed a construction program that is designed to ensure avoidance of adverse impacts on Kress Creek. The Engineering Report shows that potentially contaminated runoff will be diverted to a temporary detention/sedimentation/treatment system. Discharges from the system will be monitored and all applicable release criteria will be satisfied.<sup>51</sup> In contrast, Illinois' response focuses on an alleged need for long-term control of contaminants in storm runoff.<sup>52</sup>

We have found that Illinois has failed to advance a credible basis for the proposition that the cell will not adequately resist natural erosion and human

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<sup>50</sup> See note 20, *supra*, and accompanying text.

<sup>51</sup> See Engineering Report IX at 9-11 to 9-18; SFES at 3-7, H-524, and H-526. Staff supports Kerr-McGee. See Staff's Response at 17-18.

<sup>52</sup> Illinois alleges that the spillways and sedimentation/detention structures on the periphery of the waste cell are designed for a storm that is less than that required by NRC for long-term control and that failure of these elements could lead to deposition of suspended solids including tailings into the water bodies. Illinois also alleges that Kerr-McGee's plan to monitor and treat runoff water will require active maintenance which is contrary to Kerr-McGee's position that no active maintenance is required. See Illinois' Response to Kerr-McGee's Cross-Motion at 12-13.

intrusion. That being so, we must assume that the cell cap will remain intact and that there will be no long-term impacts from sediment on Kress Creek or the West Branch of the DuPage River beyond the 10-year monitoring period. Surface runoff after the initial construction and monitoring periods will be "clean." The site will be vegetated and landscaped, and therefore it will not be a significant source of suspended solids in runoff water. Nevertheless, runoff water from the site will be directed to a detention pond before water is released to a storm sewer system. SFES at 5-24; Engineering Report IX at 9-10 to 9-18. None of these facts have been controverted by Illinois. We find that there is no potential for long-term impacts on Kress Creek and the West Branch of the DuPage River. Kerr-McGee's motion for summary disposition of Contention 2(p) is granted.

#### **Ruling on Contention 2(s)**

Contention 2(s) alleges that Kerr-McGee did not give serious consideration to below-grade disposal at another site and has not demonstrated that above-grade disposal at West Chicago will provide equivalent isolation. All parties agree that this contention is duplicative of Contention 4(c) and (d). Kerr-McGee's motion for summary disposition of it is granted for the reasons given in connection with Contention 4(c) and (d).

#### **Ruling on Contention 2(u)**

Contention 2(u) alleges that Kerr-McGee's proposed disposal cell will require long-term maintenance. All parties agree that this contention is duplicative of Contention 4(e) and (g). Kerr-McGee's motion for summary disposition of it is granted for the reasons given in connection with Contention 4(e) and (g).

#### **Contention 2(w)**

Contention 2(w) alleges that Kerr-McGee's proposed disposal cell is inconsistent with Criterion 1. All parties agree that this contention is duplicative of Contention 4(a). Kerr-McGee's motion for summary disposition of it will be dealt with in our initial decision following the hearing on Contention 4(a).

## ORDER

In consideration of the foregoing, it is hereby ORDERED:

1. Illinois' and Kerr-McGee's motions for summary disposition of Contentions 3(g)(2) and 4(a) are denied.<sup>53</sup>

2. Illinois' motion for summary disposition is denied and Kerr-McGee's cross-motion for summary disposition is granted with respect to the following contentions: 3(a), 3(b)(i), 3(b)(ii), 3(b)(iii), 3(g)(1), 3(g)(8), 4(b), 4(c), 4(d), 4(e), 4(g), and 9.<sup>54</sup>

3. Illinois' motion for summary disposition is granted in part and Kerr-McGee's cross-motion for summary disposition is denied in part with respect to Contention 4(f).

4. Kerr-McGee's motion for summary disposition of Contention 3(e) is granted.

5. A ruling on motions for summary disposition of Contentions 2(w) and 7 will be given in our initial decision following the forthcoming hearing on Contentions 3(g)(2) and 4(a).

6. Kerr-McGee's motion for summary disposition is granted with respect to Contentions 2(e), 2(k), 2(p), 2(s), and 2(u).

It is so ORDERED.

**ATOMIC SAFETY AND  
LICENSING BOARD**

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

**Dr. James H. Carpenter  
ADMINISTRATIVE JUDGE**

**John H Frye, III, Chairman  
ADMINISTRATIVE JUDGE**

Bethesda, Maryland  
November 22, 1989

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<sup>53</sup> See our unpublished Memorandum and Order of November 14.

<sup>54</sup> The reasons for our rulings on Contentions 3(b)(i), 3(b)(ii), and 3(g)(1) will be contained in our initial decision following hearing on Contentions 4(a) and 3(g)(2).

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

**Before Administrative Judges:**

Ivan W. Smith, Chairman  
Dr. Richard F. Cole  
Dr. Kenneth A. McCollom

In the Matter of

Docket Nos. 50-443-OL

50-444-OL

(ASLBP No. 82-471-02-OL)  
(Offsite Emergency Planning)

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

November 28, 1989

**MEMORANDUM AND ORDER**

In LBP-89-33, the Licensing Board concluded that ALAB-924 did not foreclose the issuance of a full-power operating license for the Seabrook Nuclear Power Station because, *inter alia*, Intervenors' concerns regarding the hearing-impaired had been mooted due to the testing of the emergency notification siren system. LBP-89-33, 30 NRC 656, 666 (1989). The Applicants subsequently advised the Board that while activation of the New Hampshire siren system has been tested, not all of the New Hampshire sirens have been audibly tested.<sup>1</sup>

Applicants argue that the above misconception on the Board's part is harmless in that since there is no regulatory requirement that sirens be audibly tested before a license issues (*Carolina Power & Light Co.* (Shearon Harris Nuclear

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<sup>1</sup> Applicants' Advice to the Licensing Board with Respect to LBP-89-33 (November 22, 1989).

Power Plant), ALAB-852, 24 NRC 532, 546 (1986)), a Special Needs Survey cannot be held insufficient because it is conducted prior to an audible test of the sirens. Stated another way, a prelicense Special Needs Survey cannot logically be found wanting due to the absence of a postlicense siren test. We agree.

Moreover, the focus of the Intervenors' concern regarding the hearing-impaired was that *some* individuals might not know that they cannot hear the emergency sirens because the sirens had not been audibly tested, and thus might not identify themselves as hearing-impaired. In our view, this concern deals not with the adequacy of any Special Needs Survey but rather with the adequacy of the siren notification system, an issue wholly distinct from any of the survey issues remanded by ALAB-924. Finally, to the extent Intervenors appear to argue that, for preaccident planning purposes, the Applicants must devise a survey that somehow identifies people who do not know they are either hearing-impaired or selectively hearing-impaired, we hold that no such requirements reasonably flow from the Commission's emergency planning rules or NUREG-0654.

**FOR THE ATOMIC SAFETY  
AND LICENSING BOARD**

**Ivan W. Smith, Chairman  
ADMINISTRATIVE LAW JUDGE**

Bethesda, Maryland  
November 28, 1989

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

**Before Administrative Judge:**

**Peter B. Bloch**

**In the Matter of**

**Docket No. 70-25  
(ASLBP No. 89-594-01-ML)  
(Request to Renew to  
October 1990)  
(Special Material License No. SNM-21)**

**ROCKWELL INTERNATIONAL  
CORPORATION  
(Rocketdyne Division)**

**November 28, 1989**

The Presiding Officer in this Subpart L proceeding establishes a procedure whereby Applicant, the Intervenors, and Staff will have an opportunity to comment on allegations concerning misleading statements in the application. The occasion for this order was receipt of an inspection report that the Presiding officer concluded was an incomplete approach to this important issue in the case.

**RULES OF PRACTICE: STAFF ORDERED TO PARTICIPATE IN  
SUBPART L CASE**

The Presiding Officer finds, pursuant to 10 C.F.R. § 2.1213, that the Staff's participation would aid materially in the resolution of an issue in the case and that they should therefore be a party with respect to the issue.

## **STAFF PRACTICE IN NOT CONSULTING WITH ORIGINATOR OF A COMPLAINT**

The Presiding Officer noted that, in pursuing a complaint, the Staff had not spoken with the complainant either before or after its investigation but that it had spoken to Applicant's representatives.

## **STAFF INSPECTION: INCOMPLETE EXPLANATION**

The Presiding officer noted that a Staff inspection apparently had exonerated Applicant from charges of misrepresentation but that closer examination of the findings created cause for concern.

### **MEMORANDUM AND ORDER** (Memorandum from Gregory P. Yuhas of November 15, 1989)

Yesterday I received a copy of a Memorandum for Leland C. Rouse, written by Gregory P. Yuhas, Chief, Emergency Preparedness & Radiological Protection Branch, Region V, dated November 15, 1989.<sup>1</sup>

The Memorandum and attached Inspection Report, 70-25/89-05, relates in part to matters raised by Donald W. Wallace at the limited appearance session that I held on September 28, 1989. However, the inspector did not appear to have consulted with Donald W. Wallace either before or after the inspection. As a consequence, the report considers a portion of the transcript of the limited appearance session in this case — without benefit of interaction with the speaker — and a face-to-face interaction with Rockwell personnel.

The Inspection Report appears to exonerate Rockwell. However, a closer reading calls that conclusion into question. Mr. Yuhas transmits to us Mr. C.A. Hooker's conclusion that there was no "adequate review and revision of the offsite support section of the RCP [by Rockwell] following the closure of the DeSoto facility" and that this was not appropriately addressed in the July 1988 revision to the RCP.<sup>2</sup> The report also indicates that Rockwell discovered unspecified inadequacies in its onsite emergency response plan at about the same time that I posed questions to it about its plan. At that time, Rockwell began a task group to review the offsite portion of the onsite emergency plan.

<sup>1</sup>This document will be served on the parties in this case.

<sup>2</sup>Yuhas Memorandum, ¶2.

That group apparently has not yet finished its work, so that its findings were not available to the inspector.<sup>3</sup>

Although the inspector concluded that there were no violations with respect to the inadequacies in the specification of offsite resources in the onsite emergency plan, he did not specify the reasons for reaching this conclusion. Nor is it clear whether he considered the possibility that there had been a violation of NRC regulations by submitting misstatements — apparently negligent or grossly negligent misstatements — in an application for a license.

Under the circumstances, Rockwell should file with this Board a statement concerning the factual accuracy and the adequacy of the onsite emergency plan originally filed as part of its license application. Upon receipt of that statement, which should be filed within 30 days, the Intervenors shall have 15 additional days to respond with respect to this issue, after which Staff may have an additional 10 days within which to comment. (Since Mr. Wallace is an intervenor, it is not necessary for the Staff to consult with him in person about its response but it is encouraged to do so for the sake of courtesy and completeness.)

For the purpose of this issue only, I find pursuant to 10 C.F.R. § 2.1213 that the Staff's participation would aid materially in the resolution of this issue<sup>4</sup> and that they should therefore be a party with respect to this one issue.<sup>5</sup>

Respectfully ORDERED,

Peter B. Bloch  
PRESIDING OFFICER

November 28, 1989  
Bethesda, Maryland

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<sup>3</sup> Inspection 70-25/89-05 at 8. Notice that two hospitals apparently were listed in the plan as "supportive in any emergency situation that may arise" but that no firm agreement existed to corroborate this conclusion. *Id.* at 6-7.

<sup>4</sup> This is a concern of Donald W. Wallace, who is hereby admitted as a party to this case. He lives less than 10 miles from the site, works about 5 miles from the site and owns undeveloped property 2 miles from the site. One of his concerns is "that Rockwell has falsified its on-site radiological contingency plan." Tr. 218-19; "Petition of Donald W. Wallace for Leave to Intervene as a Party," November 22, 1989. Although Rockwell has not responded to the written petition and has a right to do so, it has consistently refused to respond to petitions. If it chooses to respond in this instance, I would reconsider this decision in light of its filing.

<sup>5</sup> I have been encouraged because the parties appear to be favorably disposed toward the settlement of this case. I consider an appropriate settlement, mindful of issues that might affect safety, to be of overriding importance because it can address even those issues that concern the parties but cannot be litigated. (The issues included in this memorandum are, of course, subject to an appropriate settlement among the parties.)

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

**Administrative Judges:**

**Christine N. Kohl, Chairman**  
**Howard A. Wilber**  
**G. Paul Bollwerk, III**

In the Matter of

Docket No. 70-25  
(Special Nuclear Material  
License No. SNM-21)  
(License Renewal)

**ROCKWELL INTERNATIONAL  
CORPORATION  
(Rocketdyne Division)**

December 21, 1989

The Appeal Board instructs the Presiding Officer to comply with the Commission's rules for informal hearings, codified at 10 C.F.R. Part 2, Subpart L.

**RULES OF PRACTICE: INTERLOCUTORY APPEALS (DIRECTED CERTIFICATION)**

**RULES OF PRACTICE: INFORMAL HEARINGS**

In an informal adjudication, the Appeal Board may exercise its directed certification authority under 10 C.F.R. §§ 2.1209(d) and 2.1255 to ensure that a fair hearing is conducted pursuant to Commission rules.

**RULES OF PRACTICE: INFORMAL HEARINGS (DISCOVERY)**

Discovery in informal materials licensing proceedings is explicitly prohibited. 10 C.F.R. § 2.1231(d).

**RULES OF PRACTICE: INFORMAL HEARINGS (WRITTEN QUESTIONS)**

**LICENSING BOARD: AUTHORITY**

After the parties' initial written presentations are submitted in an informal adjudication, the presiding officer may submit follow-up written questions to the parties for the purpose of resolving issues that have been placed into controversy. *See 10 C.F.R. § 2.1233(d).* The authority of a presiding officer to pose such questions, however, is not to be used as a substitute for discovery (which is prohibited), nor is it to serve as a vehicle for raising new issues not previously put into controversy by the parties.

**RULES OF PRACTICE: INFORMAL HEARINGS**

**LICENSING BOARD: RESPONSIBILITY**

The presiding officer may allow or require oral presentations for the purpose of ensuring that an adequate record is created; any direct or cross-examination of witnesses, however, may be conducted solely by the presiding officer. *10 C.F.R. § 2.1235(a).*

**LICENSING BOARD: AUTHORITY**

**RULES OF PRACTICE: INFORMAL HEARINGS**

Generally, the presiding officer may not examine or decide matters that are not put into controversy by the parties. However, if the presiding officer believes that there is "a serious safety, environmental, or common defense and security matter . . . that has not been placed in controversy, [he or she] . . . shall advise the Commission . . ." *10 C.F.R. § 2.1251(d). See also 10 C.F.R. § 2.760a.*

**RULES OF PRACTICE: INFORMAL HEARINGS (HEARING FILE)**

The NRC staff is responsible for preparing and making available a "hearing file" in informal adjudications, which is to consist of the license application, any amendment thereto, the agency's related environmental impact statement or assessment, and any other NRC report and correspondence relevant to the application. *10 C.F.R. § 2.1231(a), (b).*

**RULES OF PRACTICE: INFORMAL HEARINGS (HEARING FILE)****LICENSING BOARD(S): AUTHORITY**

In informal hearings, the presiding officer is authorized to settle disputes over the content of the hearing file, so as to ensure access to relevant agency records. 10 C.F.R. § 2.1231(b).

**APPEAL BOARD: STANDARD OF REVIEW**

Licensing board conclusions on legal issues (such as the correct interpretation and application of the Rules of Practice) that are not explicitly reviewed by an appeal board lack precedential effect. *Duke Power Co.* (Cherokee Nuclear Station, Units 1, 2, and 3), ALAB-482, 7 NRC 979, 981 n.4 (1978).

**RULES OF PRACTICE: DEVIATIONS (NOT AUTHORIZED)**

The Commission's Rules of Practice are intended to be followed and used; fundamental deviations therefrom are not authorized. *Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Unit 1), ALAB-696, 16 NRC 1245, 1262-63 (1982).

**LICENSING BOARD(S): AUTHORITY TO APPROVE  
SETTLEMENT****RULES OF PRACTICE: SETTLEMENT OF CONTESTED  
PROCEEDINGS**

In informal proceedings, a presiding officer is authorized to hold settlement conferences, 10 C.F.R. § 2.1209(c), and to approve any resulting agreement after finding it to be consistent with NRC regulations, and in the public interest, *see* 10 C.F.R. § 2.1241. Unless issues of national or plant security, or classified, privileged, or proprietary information are involved, however, such settlement conferences must be public. See 10 C.F.R. Part 2, App. A, § II(d); *cf. id.* §§ 2.1203, 2.1235(b).

**RULES OF PRACTICE: INFORMAL HEARINGS****ADJUDICATORY BOARD(S): DELEGATED AUTHORITY**

As is the case in formal proceedings, a presiding officer in an informal materials license adjudication is not authorized to direct the NRC staff in the performance of its functions. *See Carolina Power and Light Co.* (Shearon Harris

Nuclear Power Plant, Units 1, 2, 3, and 4), CLI-80-12, 11 NRC 514, 515-16 (1980).

## RULES OF PRACTICE: INFORMAL HEARINGS (WRITTEN ORDERS)

An order granting a petition for hearing should be in writing and should address the factors set forth in 10 C.F.R. § 2.1205(g).

## MEMORANDUM AND ORDER

This proceeding, involving applicant Rockwell International Corporation's request for a renewal of its special nuclear material license issued under 10 C.F.R. Part 70, is one of the first to be conducted pursuant to the Commission's new rules for informal materials licensing adjudications. *See* 54 Fed. Reg. 8269, 8276-80 (1989) (to be codified as 10 C.F.R. Part 2, Subpart L, § 2.1201 et seq.). In an unpublished order dated October 5, 1989, we observed (at 1) that the Presiding Officer assigned to this proceeding "appears to be engaging in a form of judicial activism (i.e., discovery) unprecedented in NRC licensing proceedings, in general, and seemingly not contemplated by the special rules that apply to this proceeding, in particular." In this regard, we referred specifically to three orders issued by the Presiding Officer in which he requested extensive information from primarily the applicant. Invoking our directed certification power under the rules, 10 C.F.R. §§ 2.1209(d), 2.1255, we ordered the Presiding Officer to explain his authority for taking this action.

The Presiding Officer responded on October 13 in a published memorandum and order, LBP-89-29, 30 NRC 299 (1989). Subsequently, he has issued several additional orders that raise still other concerns respecting conformity with the new Subpart L rules for informal adjudications. We now address the Presiding Officer's explanation and set forth our understanding of how the Commission intends informal adjudications such as this to proceed.<sup>1</sup> To this end, we also

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<sup>1</sup> In his October 13 memorandum and order, the Presiding Officer counsels that the "[u]nilateral action" we have undertaken in soliciting his explanation should be exercised "sparingly." We agree. Indeed, it has apparently been almost ten years since the last such reported instance in a formal adjudication. *See Puerto Rico Electric Power Authority* (North Coast Nuclear Plant, Unit 1), ALAB-605, 12 NRC 153 (1980). Nonetheless, when the circumstances call for such action, we will not hesitate to act — on our own or in response to a request — in fulfillment of the responsibility delegated to us by the Commission to assure that the agency's proceedings, both formal and informal, are being conducted by the rules, as intended. Our action here has been undertaken on our own initiative out of necessity: the NRC staff has chosen not to participate as a party; Rockwell has not shown the interest in ensuring compliance with the agency's procedural rules usually demonstrated by an applicant; the intervenors appear to be unfamiliar with NRC proceedings; and the Presiding Officer's orders themselves are essentially *sua sponte*.

(Continued)

issue certain directives to the Presiding Officer vis-a-vis the future course of this proceeding.

## A. Background

On May 25, 1989, Rockwell submitted to the NRC staff an application for a 10-year renewal of its license to possess and use special nuclear material pursuant to 10 C.F.R. Part 70.<sup>2</sup> Three requests for a hearing on the application were filed in June and later referred by the Commission's Secretary to the Atomic Safety and Licensing Board Panel.<sup>3</sup> Administrative Judge Peter B. Bloch was designated Presiding Officer on August 21. 54 Fed. Reg. 35,550 (1989). He immediately scheduled a telephone conference call for September 1 and invited the three petitioners to amend their hearing requests so as to comply with Subpart L and to show how their interests are germane to the proceeding. Memorandum and Order (August 22, 1989) at 5-6; Memorandum (August 31, 1989). The record does not reflect whether the telephone conference took place, but on September 1 the Presiding Officer scheduled a "limited appearance" session in California near the Rockwell facility, followed by a "prehearing conference" for the purpose of conducting oral argument on whether the petitions for hearing should be granted. Memorandum and Order (September 1, 1989). These sessions were held on September 28 and 29.

Before ruling on any of the requests for hearing, however, the Presiding Officer issued two orders requesting substantial information from the applicant. First, on September 15, he directed Rockwell to submit, under oath, specified "information about all significant chemical and radiological contamination incidents or releases at Santa Susana Field Laboratory (with respect to activities pursuant to License SNM-21 or with respect to DOE [Department of Energy] activities conducted in Area IV or in close proximity to licensed activities) since 1969." Memorandum and Order (September 15, 1989) at 1 (footnote omitted). Three days later, the Presiding Officer requested the applicant's response to several questions concerning, inter alia, offsite emergency planning for its facility. Memorandum and Order (September 18, 1989) at 2.

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As set forth below, the Presiding Officer's rather unorthodox orders have "fundamentally alter[ed] the very shape" of this proceeding before it has barely gotten under way, thereby warranting our interlocutory review. *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-675, 15 NRC 1105, 1113 (1982). Moreover, given that this is among the first Subpart L proceedings, the Presiding Officer's actions potentially have greater generic implications. Thus, if such actions are inconsistent with Subpart L, they should be disavowed now, lest they become a blueprint for future informal adjudications. See *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460, 464-65 (1982) (appeal board undertakes interlocutory review of licensing board ruling insofar as it interprets the Rules of Practice), *rev'd in part on other grounds*, CLI-83-19, 17 NRC 1041 (1983).

<sup>2</sup> For a definition of "special nuclear material," see section 11.22 of the Atomic Energy Act of 1954, as amended, 42 U.S.C. § 2014.22.

<sup>3</sup> The hearing requests were filed by Jon Scott, Estelle Lit, and Jerome E. Raskin, et al.

At the conclusion of the September 29 "prehearing conference," the Presiding Officer orally granted the three apparently unopposed hearing requests and admitted those petitioners as intervenors to the proceeding. Tr. 240. No order to that effect, however, has ever been issued. *See ibid.*<sup>4</sup> Then, in a third request to the applicant, the Presiding Officer set forth his own additional concerns and posed still further questions based on his review of Rockwell's response to his earlier inquiry. The Presiding Officer requested the applicant to submit "reports (unusual occurrences, NCRs, RDs, environmental non-conformance reports, etc.) for events that occurred during the past 20 years, involving releases of radioactive materials, . . . regardless of whether or not the standards of 10 C.F.R. §§ 20.105 and 20.106 have been exceeded." Specifying a filing date for intervenors, the Presiding Officer added: "Intervenors may desire to litigate a concern derived from my inquiries." Memorandum and Order (October 4, 1989) at 3. The Presiding Officer also made a request of the NRC staff — not accompanied by an "order," however — that it consider in its forthcoming Safety Evaluation Report each of the comments made by speakers at the limited appearance session and that it refer certain matters to DOE for its consideration. Request (October 3, 1989) at 1-2.

These unusual requests for information at the very outset of the proceeding — particularly the Presiding Officer's orders of September 15, September 18, and October 4 — prompted our October 5 order calling upon the Presiding Officer to explain the authority for his inquisitive actions. In his response, the Presiding Officer first states that his actions were "taken in order to expedite this proceeding pursuant to Commission policy." LBP-89-29, 30 NRC at 301. After conceding that "the orders requesting information from Applicants [sic] may not have been authorized at the time they were issued by 10 C.F.R. § 1233(a) [sic: § 2.1233(a)]," the Presiding Officer contends that "the possible error appears to be largely a technical one and has not harmed any party." *Id.* at 302 (footnotes omitted). He then explains that he properly exercised his authority under Subpart L to ask questions so as to assure a complete record. The Presiding Officer stresses that he is "obligated 'not just to call balls and strikes' . . . but to raise questions that would help to complete the record so that a fair, informed, and efficient decision [can] be made." *Ibid.* *See id.* at 304-05. Indeed, he concludes that the Commission's Subpart L rules place an especially heavy responsibility on a presiding officer to elicit information in informal adjudications like this. *Id.* at 303 & n.10. Citing a number of decisions in which licensing boards (with our assertedly tacit approval) assumed an active role in obtaining information

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<sup>4</sup> In a *Federal Register* notice dated October 2, 54 Fed. Reg. 41,529 (1989), the Presiding Officer noted that "three petitions to intervene were granted last Friday, September 29," but did not indicate who those intervenors are or how they satisfied the requirements of 10 C.F.R. § 2.1205(g). Likewise, the Presiding Officer's October 5 memorandum and order, LBP-89-27, 30 NRC 265 (1989), establishes the schedule and procedures for filings in this case, but does not identify the intervenors, let alone explain the basis of their standing and interest as parties.

from parties in formal adjudications, the Presiding Officer further disputes the suggestion in our October 5 order that his actions are unprecedented in NRC licensing proceedings. *Id.* at 305-07. The Presiding Officer concludes by ordering the staff to "include in the hearing file any materials or studies in its possession (that are not already in the hearing file) that relate to the way in which pollution at the Santa Susana facility was deposited there and to Rockwell's responsibility or lack of responsibility for that pollution." *Id.* at 308.

After receiving and reviewing Rockwell's response to his October 4 request for information, the Presiding Officer acknowledged that "[a] full evaluation of the Response goes beyond my expertise and the expertise of my adviser because we do not know the full extent of Rockwell's operations and because we lack professional expertise in quality assurance." Memorandum (November 22, 1989) at 2. He also noted that his "concerns about quality assurance do not by themselves call into question the issuance of the amended license that Rockwell has requested." *Ibid.* The Presiding Officer then asked the staff to review and provide him with its judgment about the adequacy of the applicant's response in this matter. *Id.* at 2-3. Shifting gears, he also encouraged the parties to explore settlement possibilities. To that end, the Presiding Officer offered his assistance, suggesting that the negotiations under his auspices could be "private and confidential." *Id.* at 3.

Less than a week later, the Presiding Officer once again ordered Rockwell to file certain information, this time about its onsite emergency plan. Invoking 10 C.F.R. § 2.1213, he also directed the agency staff to participate as a party on this issue. The Presiding Officer's action was prompted by his review of an NRC Region V Inspection Report concerning matters raised at the September 28 limited appearance session by a person whom the Presiding Officer went on to admit as a party to the proceeding. LBP-89-37, 30 NRC 706 (1989).<sup>5</sup> Finally, in yet another order and despite his earlier disclaimer of a lack of expertise in the area, the Presiding Officer posed several more questions to the staff concerning quality assurance matters. Memorandum and Order (December 1, 1989).

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<sup>5</sup>In three subsequent orders the Presiding Officer admitted five more intervenors, bringing the total to nine. Memorandum and Order (November 29, 1989); Memorandum and Order (December 7, 1989); Memorandum and Order (December 19, 1989). The occasion for the filing of these late petitions was Rockwell's November 2 amendment to its application, shortening the renewal period for the license from ten years to less than one year (i.e., till October 30, 1990), and the Presiding Officer's *sua sponte* extension of time to petition to intervene. 54 Fed. Reg. 47,846 (1989). We do not decide the issue here, but nonetheless note our doubt about the propriety of allowing or inviting such late petitions to intervene, when the license renewal application amendment that assertedly triggered them substantially *limits* the scope of the license renewal originally requested. See also 10 C.F.R. § 2.1205(j), (k).

## B. Analysis

1. As pertinent here, pursuant to the Subpart L rules for informal adjudications, the proceeding commences with the filing of a detailed request for a hearing on the subject materials license application (§ 2.1205(c), (d)); the applicant and NRC staff may respond (§ 2.1205(f)); and, in deciding whether there will be any hearing at all, the presiding officer “shall determine that the specified areas of concern are germane to the subject matter of the proceeding[,] . . . that the petition is timely[,] . . . [and] that the requestor meets the judicial standards for standing,” based on the consideration of several specified factors (§ 2.1205(g)). If the presiding officer grants a hearing request and a notice of opportunity for hearing was not previously published, a notice of hearing specifying when any additional intervention petitions are to be filed must be published in the *Federal Register* (§ 2.1205(i)). Moreover, within 30 days of the entry of an order granting a hearing request, the NRC staff is to prepare and make available to the presiding officer, parties, and public a “hearing file” consisting of the application, any amendment thereto, the agency’s related environmental impact statement or assessment, and any other NRC report and correspondence relevant to the application (§ 2.1231(a), (b)). Discovery by the parties and any other participants, however, is explicitly prohibited (§ 2.1231(d)).

After publication of the notice of hearing (if necessary) and establishment of the hearing file, the parties are given the opportunity, per the order of the presiding officer, to submit written arguments and other data, information, and evidence (§ 2.1233(a)). These initial written presentations are to be detailed and supported with appropriate references (§ 2.1233(c), (d)). *Thereafter*, additional documentary data, informational materials, or other written evidence may be submitted or referenced by any party . . . in a written presentation or *in response to a written question* only as the presiding officer, in his or her discretion, permits” (§ 2.1233(d)) (emphasis added); *see also* § 2.1233(a)). As the Commission explained in its Statement of Considerations accompanying the final Subpart L rules, “in the vast majority of cases these presentations and *follow-up* written questions, rather than an oral hearing before the presiding officer, will be the vehicle by which the parties . . . are heard and the issues resolved.” 54 Fed. Reg. at 8274 (emphasis added). Indeed, oral presentations, including testimony by witnesses and examination solely by the presiding officer, are authorized only “[u]pon a determination that [such are] necessary to create an adequate record for decision” (§ 2.1235(a)). The presiding officer then renders an initial decision on the issues raised by the parties (§ 2.1251(a)); “[m]atters not put into controversy by the parties may not be *examined* and decided . . .” (§ 2.1251(d)) (emphasis added)). If the presiding officer believes, however, that “a serious safety, environmental, or common defense and security matter exists that has not been placed in controversy, [he or she] . . . shall advise the

Commission promptly of the basis for that view, and the Commission may take appropriate action" (*ibid.*).

2. The Presiding Officer here has departed from this procedure and format in several key respects. Although the parties' initial, detailed written presentations have yet to be filed,<sup>6</sup> the Presiding Officer has already ordered Rockwell to supply substantial information in response to his inquiries on four occasions, and he has requested information from the NRC staff several times as well. Indeed, the Presiding Officer's first two requests to the applicant preceded his ruling on any petition for a hearing, and thereby preceded the determination that there would even be an informal adjudication of Rockwell's license renewal application.

The Presiding Officer's claim that his intent was to expedite the proceeding is at odds with the record thus far. See LBP-89-29, 30 NRC at 301.<sup>7</sup> Suggesting that intervenors may want to "litigate a concern derived from [his] inquiries" appears to be an invitation to broaden the issues beyond those that the parties initially identified, and thus is inherently contrary to any notion of expedition. October 4 Memorandum and Order at 3. Moreover, the September 15 and 18 orders could not logically have been intended to expedite a hearing, the need for which had not yet even been determined. Finally, the schedule for the proceeding was set on October 5, just one day after the October 4 request to the applicant for 20 years' worth of reports on radioactive releases (whether or not in violation of NRC standards); if expedition of the overall proceeding was the purpose of this broad request for information, one would have expected the establishment of the proceeding's schedule to await the receipt of this information.

Nor can the orders here at issue (including several subsequent to our October 5 request of the Presiding Officer for an explanation) be dismissed as merely "technical" or "timing" violations of the rules, having nothing to do with substance. As is evident from the discussion *supra* p. 716, Subpart L clearly contemplates that, in the first instance, it is the NRC staff — not the presiding officer — who determines what information is relevant to a pending application and hearing requests. Likewise, it is the parties who are to make their own *detailed* written presentations, and, *following* the review of this material and the hearing file compiled by the agency, the presiding officer may *then* pose written questions to the parties. The Presiding Officer here has turned this process on its head by requiring the applicant and staff to supply extensive information — of dubious relevance, given the incipient stage of the proceeding — before

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<sup>6</sup> The intervenors' direct cases are due January 3, 1990. LBP-89-27, 30 NRC at 267.

<sup>7</sup> In this connection, the Presiding Officer relies on the Commission's *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 453 (1981). LBP-89-29, 30 NRC at 301. The cited portion of that policy (which was issued in the context of formal adjudications) pertains to those situations, unlike here, where it is clear that a hearing on already well-defined issues is necessary. The policy also stresses that licensing boards are to take action "consistent with applicable rules."

it was clear who the parties would be, what their concerns were, and, indeed, whether any proceeding was even warranted.

The Subpart L rules do vest a presiding officer with substantial discretion and have “enhance[d] the role of the presiding officer as a technical fact finder,” primarily as the inquisitor during any necessary oral presentations. 54 Fed. Reg. at 8270. But the presiding officer’s “responsibility for controlling the development of the hearing record” necessarily begins *after the parties* have been admitted to the proceeding and have made their own initial evidentiary presentations. *Ibid.* See also *id.* at 8269 (“presiding officer has broad discretion in controlling the manner in which the issues *raised by the parties* are to be explored”) (emphasis added). Moreover, when the Commission eliminated discovery by the parties, there is no indication in either the rules themselves or the accompanying explanatory statement that the Commission intended to transfer this *early* record-development function to the presiding officer acting in an essentially investigative role. *See id.* at 8270 (“Although there is no discovery, the . . . rules do provide that the NRC staff is to create and update a hearing file consisting of the materials relevant to the licensing proceeding”).<sup>8</sup> And, by “informalizing” these adjudications, the Commission did not intend, in our view, to encourage “free-form” litigation by any of the participants, including the presiding officer. *See id.* at 8269 (endorsing the “prudent observation” of the United States Court of Appeals for the Seventh Circuit that “the interests of all concerned in the hearing process are better served if the agency formulates regulations that make it clear what procedures will apply to all informal proceedings”).

The opportunity afforded a presiding officer to present the parties, including the applicant, with written questions clearly was intended as a means to clarify his or her understanding of any matter that a party has properly put into controversy through its written presentation, but which is still not amenable to resolution on the existing record. It was not intended as a vehicle to aid an intervenor, prohibited by the rules from engaging in discovery, in preparing the written presentation in which it bears the responsibility for adding the factual meat to the bare bones of any previously unsubstantiated concerns.<sup>9</sup>

Quite simply, the Presiding Officer here jumped the gun by several months and several critical steps in the process. In doing so, he has not only failed

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<sup>8</sup> The Commission expected that “the use of informal procedures will not increase significantly the burden upon licensees to respond to hearing requests.” 54 Fed. Reg. at 8275. It is thus reasonable to assume that the Commission likewise did not anticipate significantly increased burdens on applicants/licensees in responding to presiding officers’ requests for information.

<sup>9</sup> The rules governing informal adjudications give the presiding officer the authority to settle disputes over the contents of the hearing file (§ 2.1231(b)). It seems apparent, however, that the Commission intended this authority to be used to ensure access to the particular types of agency records specified in that provision, having direct relevance to the pending application. It was not intended as a means by which the presiding officer could be used as a surrogate to nullify the prohibition on discovery.

in a significant respect to abide by the procedures the Commission established for informal adjudications, but also surely interfered with the definition, scope, and substance of the issues in this proceeding — rendering his action no mere “technical” error. *See, e.g.*, October 4 Memorandum and Order at 3 (“Intervenors may desire to litigate a concern derived from my inquiries”).<sup>10</sup>

The Presiding Officer has cited a number of court and NRC cases that assertedly provide support for the particularly activist role he has assumed so early in this proceeding. In particular, he quotes a familiar passage from *Scenic Hudson Preservation Conference v. FPC*, 354 F.2d 608, 620 (2d Cir. 1965), *cert. denied*, 384 U.S. 941 (1966), admonishing agencies “not . . . to act as an umpire blandly calling balls and strikes for adversaries appearing before it . . . .” We agree, of course, with this sentiment, having quoted it ourselves on more than one occasion. *See, e.g.*, *Pennsylvania Power & Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-641, 13 NRC 550, 554 (1981) (concurring opinion); *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-443, 6 NRC 741, 752 (1977). *See also Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-772, 19 NRC 1193, 1248 (1984), *rev'd in part on other grounds*, CLI-85-2, 21 NRC 282 (1985). The critical fact in those cases in which this principle has been invoked, however, is that the starting line-ups had been announced (i.e., the party-status of the participants had been determined), and the game was well under way (i.e., the issues to be litigated had been defined by the litigants and the proceedings were at the summary disposition or evidentiary hearing stage). It is in that context that we have approved of licensing boards that have posed questions to the parties or solicited information and documents.<sup>11</sup> As we have seen, that is not the situation here.

The various other proceedings the Presiding Officer mentions as examples of where licensing boards engaged in active questioning of the parties with great success and assertedly tacit appeal board approval (*Comanche Peak, Big Rock, Point Beach*) similarly do not provide precedential authority for the Presiding Officer’s actions here.<sup>12</sup> For one thing, licensing board conclusions on legal issues (such as the correct interpretation and application of the Rules of Practice) that are not explicitly reviewed by an appeal board lack precedential effect. *Duke Power Co.* (Cherokee Nuclear Station, Units 1, 2, and 3), ALAB-482, 7 NRC

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<sup>10</sup> As noted above, if the presiding officer believes “a serious safety, environmental, or common defense and security matter exists that has not been placed in controversy,” the rules provide a mechanism for bringing this to the Commission’s attention. 10 C.F.R. § 2.1251(d).

<sup>11</sup> Indeed, in *Three Mile Island*, we found that “the [Licensing] Board should have pursued [a certain] inquiry . . . more fully on its own.” 19 NRC at 1263. This, however, was because *Three Mile Island* was a special proceeding instituted by the Commission itself to resolve certain Commission-specified issues, not dependent upon the active participation of the parties.

<sup>12</sup> *Comanche Peak, Big Rock, and Point Beach* do have one thing in common with this proceeding — the Presiding Officer here chaired the Licensing Board in each of those cases.

979, 981 n.4 (1978). Further, the board questioning undertaken in all but one of the instances cited appears to have been authorized under the applicable Rules of Practice. That is, it was for the purpose of possibly raising an issue *sua sponte* pursuant to 10 C.F.R. § 2.760a (*Texas Utilities Generating Co.* (Comanche Peak Steam Electric Station, Units 1 and 2), LBP-83-43, 18 NRC 122, 150-53 (1983)), or it occurred at an appropriate later stage of the proceeding (e.g., *Texas Utilities Electric Co.* (Comanche Peak Steam Electric Station, Units 1 and 2), LBP-86-36A, 24 NRC 575 (1986); *id.*, LBP-85-37, 22 NRC 601 (1985); *id.*, LBP-85-32, 22 NRC 434 (1985); *Consumers Power Co.* (Big Rock Point Plant), LBP-82-97, 16 NRC 1439 (1982), vacated and remanded on other grounds, ALAB-725, 17 NRC 562 (1983)).

One remaining case on which the Presiding Officer relies, however, does bear a similarity to the matter at hand. In *Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Units 1 and 2), LBP-81-39, 14 NRC 819 (1981), and *id.*, LBP-81-44, 14 NRC 850 (1981), the Licensing Board posed questions and requested information from the applicant at the very outset of the proceeding, before any intervention request had been granted and discovery undertaken. But the Licensing Board's admittedly "extraordinary" action was taken because the applicant had requested urgent interim relief so that it could begin a steam generator tube sleeving demonstration program. *Id.*, LBP-81-39, 14 NRC at 821. Significantly, on appeal we characterized the Board's procedures (specifically mentioning those in LBP-81-39 and LBP-81-44) as "badly in error" and reminded the Board that the Commission's Rules of Practice, which are sufficiently flexible to have accommodated the urgency in that proceeding, are intended to be followed and used; fundamental deviations therefrom are not authorized. *Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Unit 1), ALAB-696, 16 NRC 1245, 1262-63 (1982). Thus, the agency and court cases in which the Presiding Officer seeks refuge provide no legitimate precedent for his premature and extensive information requests to the applicant and staff here.

3. The Presiding Officer's extraordinary information requests are not the only way in which this proceeding has strayed off the course prescribed by the Subpart L rules. For example, in encouraging a settlement between Rockwell and the intervenors, the Presiding Officer suggested that he was available to facilitate a settlement and that "these negotiations could be private and confidential," as a way of discussing, among other things, "what information should be made available to the public." November 22 Memorandum at 3-4. The Presiding Officer quite properly has encouraged settlement. See 10 C.F.R. § 2.1241. The problem is that the role he suggests for himself as a facilitator of "private and confidential" negotiations, where determinations might be made about matters such as the general public's entitlement to information, is inconsistent with other rules in Subpart L and longstanding Commission policy. Under 10 C.F.R. § 2.1209(c), a presiding officer is clearly

authorized to “[h]old conferences before or during the hearing for settlement.” Although that provision does not specify that such conferences must be public, traditionally all conferences or meetings in connection with the agency’s formal adjudications, held under the auspices and in the presence of an NRC licensing board or presiding officer, have been open to the public, unless matters of national or plant security or classified, privileged, or proprietary information are involved. *See, e.g.*, 10 C.F.R. Part 2, App. A, § II(d). *Cf. id.* § 2.1203 (public availability of records governed by 10 C.F.R. § 2.790, which provides that NRC records and documents relating to licensing proceedings shall be public unless specifically exempted). This practice reflects the fact that NRC proceedings are not merely contests between private litigants, but rather are intended to resolve matters in controversy in a manner that will protect the health and safety of the public generally. As a consequence, we think it unlikely that the Commission intended to give a presiding officer in Subpart L proceedings greater discretion to hold nonpublic, “private and confidential” meetings with the parties. *Cf. id.* § 2.1235(b); 54 Fed. Reg. at 8274 (referring to the Subpart L provision on oral presentations, there was “no intention” “to give a presiding officer more latitude to hold nonpublic informal hearings than is provided for formal adjudications under Subpart G”).<sup>13</sup>

The Presiding Officer’s encouragement of settlement here is thus commendable, provided that he is not a participant in any private and confidential negotiations between the parties, and, conversely, that any such conferences in his presence are open to the public, absent compelling circumstances. *See CLI-81-8*, 13 NRC at 456. If such efforts are successful, the Presiding Officer will then be called upon to approve any resulting agreement if he finds it to be fair, consistent with NRC regulations, and in the public interest. *See* 10 C.F.R. § 2.1241; *Combustion Engineering, Inc.* (Hematite Fuel Fabrication Facility), LBP-89-31, 30 NRC 320 (1989). *See also Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), LBP-89-14, 29 NRC 487, 488-89 (1989); *id.*, LBP-89-22, 30 NRC 137 (1989); *id.*, LBP-89-24, 30 NRC 152 (1989).

Another questionable action is the Presiding Officer’s several requests to the NRC staff, which come close to oversight of the staff’s work. *See* October 3 Request; November 22 Memorandum; LBP-89-37, 30 NRC 706; December 1 Memorandum and Order. But as the Commission explained in *Carolina Power and Light Co.* (Shearon Harris Nuclear Power Plant, Units 1, 2, 3, and 4), CLI-80-12, 11 NRC 514, 516 (1980), adjudicatory boards are not authorized

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<sup>13</sup> Apart from being out-of-step with Commission policy that virtually all NRC proceedings be public, a presiding officer’s involvement in private settlement negotiations has another potential problem. Being privy to such negotiations, particularly in instances that involve frank discussions of the strengths and weaknesses of the parties’ legal and factual positions, could compromise a presiding officer’s role as an impartial adjudicator, should the negotiations fail and the proceeding continue.

to "direct the staff in performance of [its] administrative functions."<sup>14</sup> There is no reason to assume that this principle, which simply recognizes the inherently different functions of the technical staff and neutral adjudicators,<sup>15</sup> would not apply equally to presiding officers in Subpart L proceedings. This does not mean, however, that the Presiding Officer must ignore matters that raise serious safety questions. As discussed *supra* pp. 716-17 and note 10, there is a mechanism for bringing such matters to the Commission's attention, 10 C.F.R. § 2.1251(d). *See also Shearon Harris*, 11 NRC at 517.

Finally, our review of the record discloses no written order granting the first three petitions for hearing. As noted *supra* p. 714, the Presiding Officer granted these petitions at the September 29 prehearing conference, but never committed this ruling to writing, addressing the appropriate factors as required by 10 C.F.R. § 2.1205(g). To be sure, that section does not state in so many words that rulings on requests for a hearing must be in writing, but other provisions of Subpart L clearly assume that to be the case. For example, sections 2.1205(n) and 2.1231(a) refer, respectively, to "service of the order" and "entry of the order." Further, the determinations mandated by section 2.1205(g)<sup>16</sup> — e.g., that the areas of concern specified in a petition for hearing are germane to the subject matter of the proceeding and that the requestor meets the judicial standards for standing — are not readily amenable to oral ruling. *See also* 10 C.F.R. § 2.1205(m) (concerning conditions that might be imposed on the grant of a request for a hearing). Cf. *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 727 n.61 (1985) (criticizing licensing board's oral ruling on the admission of a contention), *aff'd in part on other grounds and review otherwise declined*, CLI-86-5, 23 NRC 125 (1986), remanded in part on other grounds *sub nom. Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719 (3d Cir. 1989). And, for the sake of a complete record, a written order on a ruling as important as the granting of requests for a hearing is a necessary and not unduly burdensome formality.

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As discussed above, the Presiding Officer has taken a number of actions that are contrary to the Commission's rules for informal adjudications, 10 C.F.R. Part 2, Subpart L. No purpose would be served, however, by vacating those actions

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<sup>14</sup> In using the word "administrative," the Commission did not mean "ministerial." The board directive to the staff at issue in *Shearon Harris* was to assess the capability of the applicant's management to operate the facility safely. 11 NRC at 515-16.

<sup>15</sup> Simply put, the staff is to perform the technical review of license applications, and adjudicators are to resolve disputed issues between the parties. The Presiding Officer himself essentially recognized these different responsibilities when he conceded that a full evaluation of certain of the extensive information he requested from the applicant was beyond his expertise. November 22 Memorandum at 2.

<sup>16</sup> It is noteworthy that the language of section 2.1205(g) ("shall determine") is mandatory, apparently even if there is no opposition to a request for hearing — a circumstance contemplated by the permissive language of section 2.1205(f) (the applicant and staff "may file an answer" to a request for a hearing).

now and remanding for remedial action. But, during the future course of this proceeding, the Presiding Officer is instructed to comply with both the letter and intent of the Subpart L rules. In particular, pursuant to 10 C.F.R. § 2.1251(d), the Presiding Officer is to examine and decide only those issues properly put into controversy by the parties, absent some basis for invoking the exception found in that same provision.

It is so ORDERED.

**FOR THE APPEAL BOARD**

Barbara A. Tompkins  
Secretary to the  
Appeal Board



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Ivan W. Smith, Chairman  
Dr. Richard F. Cole  
Dr. Kenneth A. McCollom

In the Matter of

Docket Nos. 50-443-OL

50-444-OL

(ASLBP No. 82-471-02-OL)  
(Offsite Emergency  
Planning Issues)

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

December 11, 1989

MEMORANDUM AND ORDER  
(Ruling on Motions Regarding Onsite Exercise)

INTRODUCTION

The Intervenors have submitted three motions to admit two contentions (JI-Onsite Ex-1 and JI-Onsite Ex-2) on the September 27, 1989 Seabrook onsite

emergency plan exercise.<sup>1</sup> A fourth motion seeks summary disposition on the proffered contentions.<sup>2</sup> The relief sought by the motions is denied in the following order.

## BACKGROUND

A full-participation exercise of the Seabrook radiological emergency response plans was conducted during June 1988. The NRC emergency planning regulations provide, in pertinent part, that:

If the full participation exercise is conducted more than one year prior to the issuance of an operating license for full power, an exercise which tests the licensee's onsite emergency plans shall be conducted within one year before issuance of an operating license for full power.

### 10 C.F.R. Part 50, Appendix E, § IV.F.1<sup>3</sup>

Applicants applied to be exempted from the within-one-year onsite exercise requirement to avoid what they feared would be an "endless loop of litigation," but the Commission denied the application on September 15, 1989. The Commission, also anticipating the possibility of additional litigation, stated:

In order to have any contention on an exercise considered in a hearing, Commission case law establishes the need to allege a fundamental flaw. See *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-903, 28 NRC 499 (1988). In addition, the criteria for late-filed contentions are applicable to any contentions filed on the onsite exercise, as they are to all contentions filed after the original date by which contentions are due.

### CLI-89-19, 30 NRC 171, 174 n.5.

The exercise was conducted on September 27, 1989. The NRC Staff issued its Inspection Report No. 50-443/89-10, October 2, 1989 (hereinafter "Inspection Report"), concluding that:

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<sup>1</sup> Intervenors' Motion to Admit Contentions on the September 27, 1989 Emergency Plan Exercise ("First Motion"), September 28, 1989.

Intervenors' Second Motion to Admit Contentions on the September 27, 1989 Emergency Plan Exercise ("Second Motion"), October 13, 1989.

Intervenors' Motion to Amend Intervenors' Motions of September 29 [sic], 1989 and October 13, 1989 to Admit Contentions on the September 27, 1989 Onsite Emergency Plan Exercise ("Third Motion"), October 16, 1989.

<sup>2</sup> Intervenors' Motion for Summary Disposition on Contentions JI-Onsite Ex-1 and JI-Onsite Ex-2 ("Summary Disposition Motion"), October 18, 1989.

<sup>3</sup> The full text of this provision is set out at p. 742, *infra*.

**Results:** No violations, deviations or unresolved items were identified. The licensee's response actions for this exercise demonstrated the ability to implement the emergency plan in a manner which would provide adequate protective measures for the health and safety of the public.

*Id.*, face page.<sup>4</sup>

Subsequently the Massachusetts Attorney General, on behalf of the Joint Intervenors, filed the motions now pending. *See supra* notes 1 and 2.

Our partial initial decision of November 9, 1989, authorized the issuance of a full-power operating license for the Seabrook Station. LBP-89-32, 30 NRC 375. On November 20, 1989, we issued a Memorandum Supplementing LBP-89-32 in which we explained why a full-power license for Seabrook was authorized despite the pendency before this board of several matters, including the Intervenors' onsite-exercise motions. There we reported that the motions would be denied. LBP-89-33, 30 NRC 656, 674-76.

## DISCUSSION

### The Contentions

Intervenors' Contention JI-Onsite Ex-1 ("Ex-1") was in the first instance based upon information gained through actual efforts to observe the onsite exercise compared to NRC Staff Inspection Procedures 82301 and 82302. In essence EX-1 charges that, because of four major failures in the exercise design, the onsite exercise was not full scale and did not "test all or even a significant number of the major observable portions of the Seabrook Station RERP ('onsite plan' or 'SSRERP')."<sup>5</sup> This, according to Intervenors, is contrary to the provisions of 10 C.F.R. § 50.47(b)(14) which require periodic exercises "to evaluate major portions of emergency response capabilities . . . ." First Motion, Contention Statement.

The Second Motion is said to be predicated upon the receipt of additional information, in particular, the Inspection Report and the Seabrook Station 1989 Graded Exercise Scenario (hereinafter "Scenario"). It would add new bases to Contention Ex-1. It also seeks to have admitted Contention JI-Onsite Ex-2 ("Ex-2"). It is noteworthy that in the body of the Second Motion, Intervenors describe Contention Ex-2 as one of scope:

[C]hallenging the adequacy of the on-site exercise as a meaningful test and an evaluation of whether the SSRERP can be implemented so that there is reasonable assurance of adequate protection or, conversely, whether the SSRERP is fundamentally flawed [emphasis supplied].

<sup>4</sup>Exhibit 1 to Applicants' Response to Intervenors' Motion to Admit Contentions on the September 27, 1989 Emergency Plan Exercise, October 11, 1989.

Continuing with the “fundamental flaw” theme, Intervenors cite *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-900, 28 NRC 275, 285-87 (1988), for support. They accurately cite ALAB-900 for the proposition that “the exercise must be comprehensive enough to permit a meaningful test and evaluation of the emergency plan to ascertain if *that plan* is fundamentally flawed (emphasis in original). *Id.* at 286-87.” Second Motion at 7.

However, as we noted in LBP-89-33, 30 NRC at 675, Intervenors do not deliver on the promise implicit in their citation to ALAB-900. Contention Ex-2 itself makes no mention of any fundamental flaw revealed by the onsite exercise, which, since it is a “scope” contention, is understandable. But the contention does not even allege that the onsite exercise was insufficiently comprehensive to have revealed fundamental flaws, nor does it point to any nonexercised aspect of the onsite emergency plan that had the capacity to reveal fundamental flaws if that aspect had been exercised. Contention Ex-2 charges that “the willingness, availability, training, equipment, capability or performance of the personnel and entities relied upon to implement the plan was not adequately tested.”

While one might speculate that these alleged infirmities in the onsite exercise and its scenario restricted the exercise to the point where it could not have revealed fundamental flaws in the SSRERP, we see no need to draft Intervenors’ contentions for them. They are fully informed on the law. But more importantly, there is no need to construe Intervenors’ contentions. We read Contention Ex-2 to be drafted deliberately to *not* allege that fundamental flaws would have been revealed by a fully scoped exercise. Rather the contention specifically alleges that the scope was deficient because the regulations require that the “major observable portions” must be tested within 1 year of licensing but were not, and that these portions are those set out in 10 C.F.R. § 50.47(b)(1)-(16) as implemented by NUREG-0654, II.A-II.P. In other words, Intervenors allege that the onsite exercise was *legally* deficient in scope. They acknowledge that the contention presents “a question of law rather than fact . . . .” Second Motion at 6. Indeed, Intervenors provide no factual basis for either contention other than the Exercise Report, the Scenario, and the inspection procedures documents.

In the Third Motion, Intervenors address the “significant safety issue” standard for reopening a closed record, 10 C.F.R. § 2.734(a)(2). Consistent with their earlier legal arguments, Intervenors equate a “significant safety issue” with a failure to meet regulatory requirements.

In their Motion for Summary Disposition, Intervenors in effect summarize the factual and legal predicates for their contentions in the Statement of Material Facts Not in Dispute. The following is a partially consolidated and simplified summary of the factual and legal predicates pertinent to the Intervenors’ Summary Disposition Motion.

1. The scenario package for the September 27, 1989 exercise submitted by the Applicants and approved by the Staff (with minor revision) established the scope, content, and extent of play.
2. The scenario, thus the scope, did not require a demonstration by onsite personnel of an actual shift change or a demonstration of continuous 24-hour staffing capability, nor did the NRC evaluate those capabilities.
3. The scope did not require a demonstration of the public notification system for the Massachusetts EPZ nor did the NRC evaluate that capability. Similarly the scope did not require or include a demonstration of the means for alerting and providing prompt instruction to the public within the Massachusetts EPZ including a siren system, even though such a siren system is within the exclusive control of the Applicants and is described within the SSRERP and Appendix E. Nor did the NRC evaluate these capabilities.
4. The scope of the exercise did not require a demonstration of the VANS system for the Massachusetts EPZ, nor did the NRC evaluate the VANS system, which has never been field tested.
5. The exercise did not advance beyond a declaration of Site Area Emergency. The scope did not include a simulated major release of radioactivity.
6. The scope did not require a demonstration by Applicants' onsite personnel to formulate or communicate PARs to offsite officials, or to adjust them upon changed conditions.
7. The scope did not require participation by a medical team from a local support services agency (in this case the Seabrook Fire Department) or by an offsite medical treatment facility (Exeter Hospital).
8. The scope did not require a demonstration of field monitoring or plume tracking.
9. The scope did not require a demonstration by offsite personnel of monitoring and decontamination of onsite personnel at the offsite locations designated for that purpose.

### Broad Issues Presented

The pleadings present two broad legal and factual issues: First, assuming, contrary to our finding below, that the onsite exercise did not comply with NRC regulatory requirements, whether the exercise contentions, in addition to alleging that deficiency, need to comply with more restrictive Commission case law governing the substantive content of contentions and relevant procedural rules. In particular, do the Intervenors' contentions need to allege a fundamental flaw in the SSRERP revealed by the onsite exercise or allege that the exercise was

insufficiently comprehensive in scope to have revealed any such fundamental flaw? Finally as a part of the first broad issue, we must consider whether Intervenors, having met the contention pleading requirements (fundamental flaw or insufficient scope), need also to meet the requirements of a motion to reopen this closed record in accordance with the provisions of 10 C.F.R. § 2.734, or whether they need satisfy only the standards for entertaining nontimely contentions in accordance with 10 C.F.R. § 2.714(a)(1)(i)-(v).

The second broad issue is whether the NRC regulations require an onsite exercise broader in scope than that required by the scenario and carried out on September 27, 1989. A subissue is whether this Board may grant any motion for litigation of the onsite exercise based upon allegations limited to issues of law and regulatory noncompliance, given the Commissions' directive in CLI-89-19 announcing the case law applicable to this very exercise.

### ***First Broad Issue***

It is not disputed that an exercise that "tests the licensee's onsite emergency plans" within 1 year before the issuance of a full-power license is, by the very terms of the regulation, material to the issuance of an operating license in the circumstances of this proceeding. 10 C.F.R. Part 50, Appendix E, § IV.F.1. Such issues may not be eliminated from a hearing as a matter of the unfettered discretion of the NRC. *Union of Concerned Scientists v. NRC*, 735 F.2d 1437, 1446-49 (D.C. Cir. 1984), *cert. denied*, 469 U.S. 1132 (1985) (hereinafter "UCS"). However, the Court in UCS accepted the Commission's argument that a prelicensing exercise is only relevant to a licensing decision to the extent that it indicates a fundamental flaw in the emergency plans and is not relevant as to minor *ad hoc* problems occurring on the day of the exercise. There the Court, having announced its agreement with that substantive relevancy test, went on to discuss various procedural standards the Commission might employ to "shorten the period between the exercise and the date of the license," concluding that the "only central requirement is that there be an opportunity to dispute issues raised by the exercise under the relevant decisionmaking criteria." 735 F.2d at 1448-49.

The Commission subsequently formally instituted the "fundamental flaw" standard. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-86-11, 23 NRC 577, 581 (1986). Also in the *Shoreham* proceeding the Appeal Board explained how a fundamental flaw should be measured. In now familiar language we are told "a fundamental flaw in an emergency plan, as revealed in an exercise, has two principal components. First, it reflects a failure of an essential element of the plan, *and*, second, it can be remedied only through a significant revision of the plan [emphasis in original]."<sup>1</sup> Whether the failure pertains to an essential element of the plan should be determined by reference

to the sixteen elements of 10 C.F.R. § 50.47(b). ALAB-903, *supra*, 28 NRC at 505.

In the onsite phase of this proceeding the Appeal Board stated also that where problems revealed by an exercise "are readily corrected by providing supplemental training . . . such training does not involve any revision, much less a significant one, of the emergency plan." ALAB-918, 29 NRC 473, 486 (1989). The lesson of ALAB-918 has special relevance to the case at bar in that Applicants argue<sup>5</sup> that the most that can be said about Intervenors' allegations is that more training may be needed — a point we address below.

As we have already noted above, ALAB-900 in the *Shoreham* proceeding noted the implicit requirement of CLI-86-11 that an exercise must be comprehensive enough to "ascertain if *that plan* is fundamentally flawed [emphasis in original, footnote omitted]."

Although the Commission case law on the substantive relevance of problems revealed by an exercise (fundamental flaw) is extensive and seemingly explicit, there are areas where our course has not been well charted. In ALAB-900, for example, the Appeal Board having explained about fundamental flaws, went on to rule that:

Assuming that the general subject of such requirements is not otherwise expressly foreclosed from challenge, an intervenor (through the appropriate procedural vehicle) can always raise issues concerning compliance with regulatory requirements.

*Id.*, 28 NRC at 286.

Moreover, those intervenors "cannot be denied the opportunity to challenge [the utility's] compliance with any of the Commission's regulations concerning emergency exercise" in that the assessment of the exercise is (as is the case here) material to a licensing decision. 28 NRC at 286-87, *citing UCS*, 735 F.2d at 1442, 1445-46. Falling into the cracks then, is the distinct situation presented by the instant motions where a fundamental flaw is not alleged, nor is it alleged that a properly scoped exercise would or could have revealed a fundamental flaw.

This is a case of first impression. It is very likely that, if an aspect of the emergency plan is required by Commission regulations, particularly the sixteen planning elements of 10 C.F.R. § 50.47(b)(1)-(16), it is by regulation a matter concerning an "essential element" of the plan as defined in *Shoreham*, ALAB-903, *supra*. Thus the first element of a fundamental flaw would be established. However, even if one or more of the regulatory planning elements are not fully satisfied, the omission does not become a fundamental flaw unless the second

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<sup>5</sup> Applicants' Answer to Intervenors' Second Motion to Admit Contentions on the September 27, 1989 Emergency Plan Exercise, October 20, 1989, at 5.

element is present, that is, the failure can be remedied only through a significant revision of the emergency plan. *Id.*, 28 NRC at 505.

Moreover, we find nothing in either ALAB-900 or ALAB-903 to suggest that a contention alleging that planning elements one through sixteen of 10 C.F.R. § 50.47(b) must be exercised will meet the substantive relevance test of an emergency planning contention. Nor will it satisfy the requirement that contentions be specific. 10 C.F.R. § 2.714(b). We therefore limit our consideration to those aspects of the motions alleging specific voids in the exercise scenario and execution.

### *Standards for Entertaining the Motions*

We also have before us the question of whether the standards for reopening a closed record under 10 C.F.R. § 2.734<sup>6</sup> should obtain, as urged by Applicants and the Staff, or whether the Commission's order in CLI-89-19, *supra*, permits a test under the nontimely contention standard of 10 C.F.R. § 2.714(a)(1). As noted above, in CLI-89-19 the Commission simply stated that the "fundamental flaw" standard and the criteria for nontimely contentions must be met before any contention can be considered. *Id.* at 174 n.5. Since the nontimely contention test must be addressed in both sections, CLI-89-19 does not foreclose consideration under section 2,734.

In this Board's Memorandum and Order ruling on the low-power testing contentions (LBP-89-28, 30 NRC 271 (1989)), we ruled that the standards under 10 C.F.R. § 2.734 for reopening a closed record applied there. But our reasoning there took into account the fact that low-power testing was not material to the issuance of a full-power license. 30 NRC at 277-79, 283. Here of course, the onsite exercise is material to a licensing decision and we must reckon with UCS

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<sup>6</sup>§ 2.734 Motions to reopen.

(a) A motion to reopen a closed record to consider additional evidence will not be granted unless the following criteria are satisfied:

(1) The motion must be timely, except that an exceptionally grave issue may be considered in the discretion of the presiding officer even if untimely presented.

(2) The motion must address a significant safety or environmental issue.

(3) The motion must demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially.

(b) The motion must be accompanied by one or more affidavits which set forth the factual and/or technical bases for the movant's claim that the criteria of paragraph (a) of this section have been satisfied. Affidavits must be given by competent individuals with knowledge of the facts alleged, or by experts in the disciplines appropriate to the issues raised. Evidence contained in affidavits must meet the admissibility standards set forth in § 2.743(c). Each of the criteria must be separately addressed, with a specific explanation of why it has been met. Where multiple allegations are involved, the movant must identify with particularity each issue it seeks to litigate and specify the factual and/or technical bases which it believes support the claim that this issue meets the criteria in paragraph (a) of this section.

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(d) A motion to reopen which relates to a contention not previously in controversy among the parties must also satisfy the requirements for nontimely contentions in § 2.714(a)(1) through (v).

v. NRC, *supra*. As we note above, the UCS court did not limit the Commission's procedural discretion in satisfying the requirement that there be an opportunity to dispute issues raised by the exercise. The Court eschewed only a test of "unfettered discretion." 735 F.2d at 1448-49. See also ALAB-918, *supra*, 29 NRC at 480-81 n.21. In promulgating section 2.734, the Commission explained that it was distinguishing that rule from section 2.206 where the NRC could refuse to entertain *any* motion to reopen. Final Rule, Criteria for Reopening Records in Formal Licensing Proceedings, 51 Fed. Reg. 19,535-38 (May 30, 1986).

In any event, we need not anguish over whether UCS permits the application of the rule governing motions to reopen a closed record. The record of this proceeding is closed, and we must obey the clear provisions of 10 C.F.R. § 2.734 for dealing with closed records. Moreover, the Commission reference to the "fundamental flaw" test is a reference to the substantive relevance of an exercise contention, which must apply whether or not section 2.734 controls.

Therefore, we find that the provisions of section 2.734 should be applied to Intervenors' motions. We also note that, within the context of the allegations, that finding does not force the ultimate disposition of the motions. The issues presented by the motions are not amenable to precise mathematical measurement of their significance. Were we to find that the contentions, with specificity and bases, alleged fundamental flaws in the onsite exercise, or that the exercise was insufficiently comprehensive in scope to have revealed such flaws, we might well also find, by the same reasoning, that Intervenors' motions address a significant safety issue (§ 2.734(a)(2)), and that, given the fact that the onsite exercise is *material* to a licensing decision, "a materially different result . . . would have been likely . . ." had the contention been proffered initially (§ 2.734(a)(3)).

There are, however, important differences between a motion to reopen the record under section 2.734, and a motion to admit a late-filed contention under section 2.714(a)(1). A motion to reopen must be accompanied by affidavits (§ 2.734(b)) which must be tantamount to evidence and in excess of the basis and specificity requirements of section 2.714(b). *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-89-1, 29 NRC 89, 93-94 (1989).

Notwithstanding Intervenors' disavowal of a factual basis for the motions, they do, in fact, provide factual reasons why they believe the onsite exercise was legally inadequate in scope. We summarized those reasons above.

Furthermore, Intervenors argue that legally and factually they meet the standards for reopening. Third Motion, Attach. A. In addressing the safety significance of the onsite motions, Intervenors argue that the issue is safety significant as a matter of law by NRC regulation. Factually they point to the Commission's Order denying Applicants' motion for an exemption, CLI-89-19, *supra*. The flaw in Intervenors' factual argument is that it confuses the significant

safety reasons underlying the Commission's insistence upon an onsite exercise within one year of licensing — reasons not before us or now in dispute — with the safety significance of the *results* of that exercise. Third Motion, Attach. A, at 4-6.

Also, under their safety-significance discussion, Intervenors maintain that the Commission has expressly recognized Intervenors' right to litigate exercise results. Attach. A, at 4, *citing* 52 Fed. Reg. at 16,827 (May 6, 1987). The obvious answer to this argument is that their right to litigate the results of the onsite exercise is subject to the appropriate procedural rule. *E.g.*, CLI-89-19, *supra*, 30 NRC at 174 n.5; ALAB-918, *supra*, 29 NRC at 480-81 n.21.

Resting on their quasi-factual/legal arguments, Intervenors assert that affidavits (§ 2.734(b)) are not required because the factual bases for their claims are set out in the Inspection Report and the Scenario. Third Motion, Attach. A, at 7-8. But we have already invited the Intervenors' attention (LBP-89-28, 30 NRC at 288) to another decision in this proceeding where the Appeal Board explained:

[T]he Commission expects its adjudicatory boards to enforce the section 2.734 requirements rigorously — i.e., to reject out-of-hand reopening motions that do not meet those requirements within their four corners . . . .

ALAB-915, 29 NRC 427, 432 (1989).

The provisions of section 2.734(b) leave no place to hide; “[t]he motion must be accompanied by one or more affidavits . . . .” Intervenors' motions, to the extent that they rest on a factual foundation should be rejected out-of-hand precisely as the Appeal Board in ALAB-915 directed. We rule that the motions would fail for that reason alone. But in the interest of a complete record on this important issue, we note that Intervenors are not denied the relief they seek on a mere technicality. Both the Applicants and the NRC Staff responded to the motions with affidavits of competent individuals with knowledge of the facts and who are experts in the respective disciplines.<sup>7</sup>

### *Significance of Issues Addressed*

As we discuss in greater detail below, Part 50, Appendix E, § IV.F.1 does not specify the requirements for “an exercise which tests the licensee’s onsite

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<sup>7</sup>NRC Response to Intervenors' Motion to Admit Contentions on September 27, 1989 Exercise, October 16, 1989, attaching affidavits of Falk Kantor and Edwin F. Fox, Jr.

NRC Staff Response to Intervenors' Second Motion to Admit Contentions on the September 27, 1989 Emergency Plan Exercise, October 27, 1989, with Kantor Affidavit (Kantor 2) and Fox Affidavit (Fox 2) attached.

Applicants' Answer to Intervenors' Motion for Summary Disposition on Contentions II-Onsite Ex-1, and II-Onsite Ex-2, October 25, 1989, attaching Affidavits of Anthony M. Callendrello (“A”) and S. Joseph Ellis (“B”).

emergency plans . . . ." Consequently, the views of the Staff experts charged with determining the purposes and the results of the exercise are very instructive.

The Staff submitted the affidavits of Falk Kantor, section Chief, Emergency Preparedness Branch, Office of Nuclear Reactor Regulation. He is well qualified to explain the purposes of the onsite exercise and to evaluate its results. Professional Qualifications attached to Affidavit.

Mr. Kantor stated that the requirement to test the major observable portions of the onsite and offsite plans refers to the full-participation exercise conducted within 2 years of full-power licensing and not to the exercise of the onsite emergency plan within 1 year before issuance of a full-power license. From the full context of Mr. Kantor's affidavit, we infer that he is referring here to the manner in which the Staff administers the regulation, not his legal conclusion on the issues before us.

Mr. Kantor also explained that:

[T]he purpose of the one year exercise requirement is to assure that adequate emergency response capability exists at the time of licensing. The Seabrook Station Emergency Response Organization (ERO), which implements the SSRERP, the onsite emergency plan, was established in 1985. In addition to extensive training and drills, the ERO has participated in three emergency preparedness exercises in addition to the September 27, 1989 exercise. A joint exercise of the onsite plan and the New Hampshire Radiological Emergency Response Plan (NHRERP) was held in February 1986. An exercise of the onsite plan was held in December 1987. A full-participation exercise involving the onsite plan, the NHRERP, the Seabrook Plan for Massachusetts Communities, and the State of Maine Ingestion Pathway Plan was held on June 28 and 29, 1988. Each of these exercises involved the testing of the onsite emergency plan which was observed and evaluated by the NRC. These exercises included the activation of the control room, the technical support center, the operational support center, the emergency operations facility, and the media center. All major elements of the onsite plan were demonstrated during these exercises. In addition to the exercise of record, the NRC takes into account the performance demonstrated in previous drills and exercises as well as the adequacy of an applicant's training, procedures, facilities, and equipment in evaluating the adequacy of an applicant's emergency response capability.

### Affidavit at 3.

He explained further that:

This annual emergency preparedness exercise ensures that the licensee's new personnel are adequately and promptly trained and that existing licensee personnel maintain their emergency response capability. The existing requirement of a preoperational onsite exercise within one year prior to full-power license issuance is consistent with this philosophy. The guidance regarding the conduct of the onsite exercise is given in Inspection Procedure (IP) 82301 [revised August 21, 1989, to reflect the flexibility regarding the development of scenarios] which is used by the NRC staff to evaluate the exercise. This guidance states that licensee performance in the control room, the technical support center, the operational support center, and the emergency operations facility should be observed and evaluated. In addition, the NRC regional inspectors may adjust the extent of observation in each area, as

needed, to concentrate on areas where past license performance was considered marginal or in need of observation.

*Id.* at 4.

Mr. Kantor's discussion of the importance of ensuring that new personnel are trained and that existing personnel maintain capability underscores a very important aspect of the Intervenors' motions. True, the regulation states that the within-one-year exercise is to *test the licensee's onsite emergency plans*. But as Mr. Kantor noted, the onsite plans have been tested several times. No fundamental flaw in those plans has been revealed. In CLI-89-19 the Commission itself noted that the onsite plan has previously been exercised and adjudicated. 30 NRC at 174. When the Commission amended its rules to relax the frequency of a full-participation exercise (i.e., with state and local government participation) to 2 years it held fast to the within-one-year onsite exercise requirement. This was because such exercises are best held closer to operation (as Mr. Kantor also explained) to ensure "that licensee's new personnel are adequately and promptly trained and that existing licensee personnel maintain their emergency response capability." Final Rule, Emergency Planning and Preparedness, 52 Fed. Reg. 16,822, 16,825 (May 6, 1987).

Thus it is apparent that a major purpose, the principal purpose, of the within-one-year onsite exercise is to assure training and current competency, not to test an already tested and validated emergency plan. It is not surprising that Intervenors are provided only a very narrow opportunity to mount a litigation based upon *fundamental flaws of that plan* revealed by the onsite exercise — especially since the teaching of ALAB-918 is that any training problems revealed by the exercise are readily correctable and would not involve any revision to the emergency plan. 29 NRC at 486.

But, however narrow Intervenors' opportunity to reopen the record may be, the opportunity does exist as the Commission noted in CLI-89-19, so we continue with a discussion of the merits of their motion with respect to the scope of the onsite exercise and the plan.

The exercise of the onsite plan within one year of licensing is considered by the NRC Staff to be akin to the annual exercise of the onsite plan specified in section IV.F.2 of Appendix E to 10 C.F.R. Part 50. The Staff recognizes that the regulations do not set forth specific requirements for the scope of an onsite exercise. However, as Mr. Kantor stated, the Staff has formulated guidance in NRC Inspection Manual, IP 82302, for delineating the scope of an exercise. Each exercise is evaluated in accordance with the guidance in IP 82301, dated August 21, 1989. Kantor Affidavit at 5. The evaluation criteria of NUREG-0654/FEMA-REP-1 supporting the planning standard are reflected in IPs 82301 and 82302. The NRC Staff reviewed the objectives and scenario for the 1989 onsite exercise. The Staff utilized the guidance of IP 82302 in performing this

evaluation, the same guidance used to evaluate other onsite emergency plan exercises. IP 82302 provides the major onsite elements that should be exercised each year. Mr. Kantor stated that:

The NRC review of the objectives and scenario for the 1989 Seabrook onsite exercise indicated that the exercise was in conformance with the guidance of IP 82302 and all of the major onsite elements would be exercised.

#### Kantor Affidavit at 5.

Mr. Kantor then addresses specific examples alleged by Intervenors to demonstrate that the exercise was too narrow in scope. First he comments on the fact that the September 27, 1989 onsite exercise did not advance beyond a declaration of Site Area Emergency (SAE) which was alleged by Intervenors to be an exercise failure. NRC guidance to licensees and applicants on the conduct of "off-year exercises" of onsite emergency plans (i.e., exercises other than the full-participation biennial exercises) specifies that the onsite exercises are not required to proceed to a General Emergency condition. (*See* NRC Information Notice No. 87-54, attached to Mr. Kantor's affidavit.) As noted in the guidance, the flexibility within the requirements contained in the emergency planning rules allows for the development of realistic scenarios that can improve emergency response capability. Kantor Affidavit at 11-12.

Aside from the Staff's expert judgment that a Site Area Emergency is a realistic scenario for the off-year onsite exercise, the Board believes that there is a patent flaw in the logic of Intervenors' allegation that the scenario *must* include a major release of radioactivity. We would expect that at least sometimes a demonstration of adequate training and current competency to execute the onsite plan would not begin with a General Emergency and a major release. The capability to avoid such a situation should also be demonstrated. *See also* Fox Affidavit at 3-4.

Mr. Kantor addressed Intervenors' objections that the exercise did not involve a medical team from local support services, did not involve the dispatch of any field monitoring teams, and did not involve any monitoring and decontamination centers for onsite personnel. Mr. Kantor reported that field monitoring teams were in fact a part of the exercise scenario. *See* Inspection Report No. 50-443/89-10. *See also* Ellis Affidavit, ¶¶ 17-20. It seems that Intervenors are simply mistaken on this point.

Mr. Kantor stated further that the exercise of medical support teams and the monitoring and decontamination of onsite personnel are elements of the plan that need not be performed in conjunction with each onsite exercise. Medical support services have been satisfactorily demonstrated in previous exercises and drills. (*See* Findings and Determinations for the Seabrook Nuclear Power Station, FEMA, dated December 1988, at 39.) Monitoring and decontamination

of onsite personnel are activities that are routinely performed as part of plant operation activities. The demonstration of this activity as part of an exercise is an element that can be tested over a 5-year period. Kantor Affidavit at 5-6.

Finally, Mr. Kantor offers the expert opinion, unchallenged by any evidence, that the September 27, 1989 exercise of the Seabrook onsite plan was of sufficient scope to test the adequacy of the Applicants' emergency response capability. *Id.* at 6. Mr. Kantor's additional conclusion that the exercise was in conformance with 10 C.F.R. § 50.47(b)(14) and 10 C.F.R. Part 50, Appendix E, § IV.F.1 (*id.*) is valid to the extent that he is an NRC official who must see to the implementation of those regulations. But we do not accept it as a substitute for the legal conclusion at which we must arrive on the record before us. For the same reasons we note, but do not adopt, his conclusion that Intervenors' motion does not raise a significant safety issue. *Id.* at 7.

The Staff also submitted the affidavit of Edwin F. Fox, Jr., who was the Team Leader of the NRC Inspection Team during the observation and evaluation of the September 27, 1989 "partial participation exercise" at Seabrook. Mr. Fox's affidavit is largely a corroboration of Mr. Kantor's affidavit. He explains in greater detail why it is not necessary for the exercise scenario to reach the General Emergency classification so long as the major portions of the response plan can be tested. These major portions are specified in NRC Inspection Manual, Inspection Procedure 82302 ("IP 82302") as Accident Detection and Assessment; Emergency Classification; Notification of Onsite and Offsite Emergency Responders; Communications; Radiological Exposure Control; Protective Action Recommendations; Staff Augmentation; and Shift Staffing. These items are evaluated during each annual exercise. The other portions of the plan are considered to be of lesser significance and are observed and evaluated over a 5-year period. Fox Affidavit at 4.

Mr. Fox also addressed Intervenors' assertion that the scope of the exercise was insufficiently comprehensive in that it did not require a demonstration of Applicants' personnel to formulate or communicate PARs to offsite officials. *E.g.*, Motion for Summary Disposition, Statement of Material Facts, at 3. Mr. Fox noted that the Inspection Report (at 6), states that "[d]iscussions were held regarding the potential need for protective actions and at what point they would become necessary if conditions worsened." Mr. Fox notes also that:

I also observed the Recovery Manager discuss with the designated representatives of the State of New Hampshire and the New Hampshire Emergency Response Organization (State of Massachusetts) on several occasions the need for protective actions. These discussions included those that had already been taken or recommended by the States and those that the utility would be recommending if conditions degraded at the plant. The scenario events were sufficient to trigger meaningful offsite protective action decision making.

Fox Affidavit at 4-5.

Moreover, as Mr. Fox states in his second affidavit, since the scenario did not call for an offsite release, no PARs were required.<sup>8</sup> Fox 2, at 3-4. In addition, section 50.47(b)(10) does not, contrary to Intervenors' suggestion, require that PARs be prepared or implemented during an onsite exercise. The plan need only contain a range of protective actions. *Id.* In any event, consistent with the guidance in IP 82301, dose assessment capability was promptly established in the EOF.

Mr. Fox also challenges Intervenors' dependence upon NRC's Inspection and Enforcement Manual ("IE Inspection Procedure 82301") with its attachment, NRC's Exercise Evaluation Criteria for Onsite Exercises, dated July 1, 1983, which states: "Sections 1, 2, and 3 [of the Evaluation Criteria] (control room, technical support center, and emergency operating facility) must be evaluated annually *and the entire program must be evaluated in the initial exercise prior to escalation of power beyond 5%*" (emphasis added by Mr. Fox). He explained that the July 1, 1983 version of IP 82301 was superseded by the August 21, 1989 version utilized as guidance for the September 1989 Seabrook Exercise. The section quoted above is not in the current version of IP 82301.

The NRC Staff submitted a second set of affidavits of Messrs. Kantor and Fox directed to Intervenors' Second Motion and Contention Ex-2. Kantor 2 and Fox 2.

Mr. Kantor counters the Intervenors' allegation that shift-change capability must be demonstrated during the onsite exercise (but was not) with the observation that Applicants' capability to perform a shift change was demonstrated in the June 1988 full-participation exercise and that given the large number of persons qualified to staff the emergency response organization there is no need to demonstrate shift-change capability during each onsite exercise. Kantor 2, at 3. *See also* Fox 2, at 7-8 (capability for 24-hour staffing). In addition the affidavit of Mr. Ellis, presented by the Applicants, notes that the capability to provide 24-hour emergency response was included as an objective of the exercise, but that no specific objective regarding actual replacement of personnel was included. Ellis Affidavit, §§ 4-9.

Intervenors claim that the scope of the onsite exercise should have included, but did not include, a demonstration of the capability of early notification of the public; that the public notification system (sirens) was not tested; nor was the capability to mobilize and deploy the VANS system demonstrated. Statement of Material Facts at 2. Mr. Kantor addresses this allegation, with the simple, adequate, and unrefuted explanation that those activities require the involvement of an offsite organization, and "hence, is not appropriate for an exercise of the onsite plan." Kantor 2, at 4.

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<sup>8</sup> Applicants' expert, Mr. Ellis, states that the capacity to formulate and communicate PARs to offsite officials was demonstrated. Ellis Affidavit, ¶ 10.

We have also considered the Affidavit of Mr. Anthony M. Callendrello, Emergency Planning Licensing Manager for New Hampshire Yankee. Although we concentrate on the evidence provided by the Staff's experts because of their official regulatory responsibilities, Mr. Callendrello's statements are entitled to substantial weight. He has established his credibility with this Board by testifying many times over the entire spectrum of emergency planning issues. He concludes that flaws alleged by Intervenors regarding the scope of the onsite exercise did not result in any major portion of the plan not being tested nor would any fundamental flaws result. His affidavit, in conjunction with that of his colleague, Mr. Ellis, provides a well-reasoned basis for that conclusion. Callendrello Affidavit, *passim*.

### ***Conclusions on Significance***

Accordingly, the Board concludes that the Intervenors' motions do not allege with bases, or at all, that the 1989 onsite exercise revealed fundamental flaws in the respective emergency plan. The contentions do not allege with the requisite bases, or at all, that the 1989 exercise was insufficient in its scope to reveal fundamental flaws in the plan. We find that the exercise was sufficient in scope and no fundamental flaw was revealed. Intervenors' motions do not address a significant safety issue. They have defaulted in their burden to establish by affidavit or otherwise that their motion addresses a significant safety issue. The Affidavits of Messrs. Kantor, Fox, Callendrello, and Ellis are credible, relevant, and sufficient. They establish by a preponderance of the evidence that the 1989 exercise was sufficiently comprehensive in scope, and that no fundamental flaws in the plan were revealed by that exercise.

### ***Five Factors***

Having found that the contentions do not meet the threshold substantive relevance standards required for exercise contentions, and having found that the motions do not present a significant safety issue, our disposition of the motions will not turn on the five factors to be considered in entertaining nontimely contentions. Nevertheless we note our agreement with the NRC Staff that the arguments supporting Intervenors' legal theory underlying the contentions, submitted with the Motion for Summary Disposition, could and should have been submitted with the earlier motions seeking admission of the contentions.<sup>9</sup> Since these legal arguments are essential, albeit unavailing, to Intervenors' position,

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<sup>9</sup> NRC Staff Response to Intervenors' Motion for Summary Disposition of Proffered Contentions JI-Onsite Ex-1 and JI-Onsite Ex-2, November 8, 1987, at 4-5.

the motions seeking the admission of the contentions are late without good cause for the failure to file on time.

Intervenors' failure to discuss the technical significance of the contentions bodes ill for any prospect that their participation might reasonably be expected to assist in developing a sound record.

However, the other three factors do not weigh against Intervenors. While we might fear that the Attorney General's announced intention to delay the proceeding would have that effect, it would be the responsibility of the Board to prevent that from happening solely as a license-blocking strategy. Where, as here, the opportunity to litigate is ensured in matters material to a licensing decision, the potential for a necessary and proximate delay in the proceeding to afford that opportunity may not be a factor in denying the opportunity. But since the Intervenors have not established the right to litigate their contentions, that factor is of no moment. Clearly there are no other means whereby Intervenors may protect their interests, nor will other parties do so. On balance, the five factors weigh against admitting the contentions.

#### *Motion for Summary Disposition*

The Summary Disposition rule, 10 C.F.R. § 2.749, permits disposition of matters involved in the proceeding. In a literal sense, Intervenors are correct in their claim that, in the words of the regulation, "there is no genuine issue to be heard." But this is because the Intervenors have failed to have any such issue accepted. Therefore the Motion for Summary Disposition should be denied for that reason alone. Even if such an issue had been accepted by the Board, the affidavits of Messrs. Callendrello and Ellis, submitted with Applicants' Response to the Motion for Summary Disposition establish material facts as to which there would be a genuine issue. The Motion for Summary disposition is denied on both scores.

#### *Second Broad Issue*

The second broad issue presented by the Motions is whether the NRC Regulations require, at a minimum, an onsite exercise broader in scope than that conducted on September 27, 1989.<sup>10</sup> As we understand Intervenors' argument, the Commission's "fundamental flaw" standard is applicable only to the results

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<sup>10</sup>There is considerable doubt whether the Board should entertain the Intervenors' purely legal bases for their contentions. First, as we concluded in the preceding section, the essential legal bases for the contentions were submitted late without good cause and should be rejected on that account alone. Moreover, it appears that the Commission did not contemplate a purely legal approach to onsite exercise litigation when it announced the substantive "fundamental flaw" standard for such contentions at this stage of the proceeding. See CLI-89-19, 30 NRC at 174 n.5. However, absent some clear Commission guidance to the contrary, this Board clearly has  
(Continued)

of an exercise which itself satisfies minimum exercise scope standards as set out in section IV.F.1. Absent such an exercise, which they argue is always a material issue subject to prelicense litigation, there is no compliance with section IV.F.1 regardless of whether the results of the inadequate exercise that was conducted did or could reveal fundamental flaws. We find that Intervenors have come before us empty-handed.

In reaching this conclusion, we begin, as do Intervenors in mounting their legal challenge, with the language of 10 C.F.R. Part 50, Appendix E, § IV.F.1. See *Shoreham*, ALAB-900, *supra*, 28 NRC at 287. However, unlike Intervenors, we believe that it is important to clearly indicate the actual structure of section IV.F.1, including the relationship of footnote 4 to the specific words and phrases of this controlling guidance:

A full participation<sup>4</sup> exercise which tests as much of the licensee, State, and local emergency plans as is reasonably achievable without mandatory public participation shall be conducted for each site at which a power reactor is located for which the first operating license for that site is issued after July 13, 1982. This exercise shall be conducted within two years before the issuance of the first operating license for full power (one authorizing operation above 5% of rated power) of the first reactor and shall include participation by each State and local government within the plume exposure pathway EPZ and each State within the ingestion exposure pathway EPZ. If the full participation exercise is conducted more than one year prior to issuance of an operating license for full power, an exercise which tests the licensee's onsite emergency plans shall be conducted within one year before issuance of an operating license for full power. This exercise need not have State or local government participation.

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<sup>4</sup> "Full participation" when used in conjunction with emergency preparedness exercise for a particular site means appropriate offsite local and State authorities and licensee personnel physically and actively take part in testing their integrated capabilities to adequately assess and respond to an accident at a commercial nuclear power plant. "Full participation" includes testing the major observable portions of the onsite and offsite emergency plans and mobilization of State, local and licensee personnel and other resources in sufficient numbers to verify the capability to respond to the accident scenario.

On its face, section IV.F.1 appears to set out a straightforward and logical structure for the nature and timing of required prelicense exercises. As we read the first sentence and its accompanying footnote, a "full participation" exercise of the onsite and offsite emergency plans must be conducted before a full-

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jurisdiction to consider any meritorious challenge, legal or factual, to the adequacy of the 1989 onsite exercise. See *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-825, 22 NRC 785, 791-92 (1985).

Despite our conclusion that the Intervenors have failed to satisfy the provisions of 10 C.F.R. § 2.734(a)(2) (motions to reopen record), we elect to consider the merits of Intervenors' underlying construction of 10 C.F.R. Part 50, Appendix E, § IV.F.1. The Commission did not specifically address the question of whether a "fundamental flaw" must be alleged at this juncture before prelicense litigation of exercise contentions is proper. Because of this, we hesitate to reject Intervenors' legal argument without any evaluation of the merits of their construction of the regulatory requirement at issue. More importantly, we believe that this proceeding is better served if we address all the bases advanced by Intervenors in support of their contentions.

power license is issued. Pursuant to the second sentence, that "full participation exercise" must occur within 2 years prior to any licensing authorizing operation above 5 percent and must include both plume and ingestion exposure state and local governments. Where *the* integrated onsite and offsite exercise occurs more than one year prior to a full-power license, the third sentence requires that *an* exercise of the licensee's onsite emergency plan must be conducted within one year before the full-power license. The fourth sentence provides that state and local governments need not participate in this supplemental test of the onsite emergency plan. From this, the fundamental purpose of section IV.F.1 is to ensure that a "full-participation" integrated exercise of the onsite and offsite emergency plans involving the licensee and all relevant governments must take place no more than 2 years before a full-power license notwithstanding the timing of any subsequent supplemental (and presumably, limited) exercise of the licensee's onsite plan.

Intervenors suggest that a construction of section IV.F.1, such as ours above, is in error. Based on a segmented analysis of each sentence or portion of a sentence, Intervenors assert that the true meaning and exact requirements of section IV.F.1 flow, not from the face of the paragraph, but rather lurk within its interstices. Under the Intervenors' approach, the phrase "full participation" as used in the first sentence of the paragraph and in its accompanying footnote define the Commission's generic requirements regarding the necessary "scope, level or extent of the participation of the participants (the 'how' of participation in an exercise)" of *any* exercise.<sup>11</sup> Memorandum<sup>12</sup> at 11. Intervenors go on to construe that the second, third, and fourth sentences of the paragraph as addressing "what entity or entities must participate (the 'who' of such participation)" in a *particular type* of exercise. *Id.* at 11-12.

From this, Intervenors argue that while section IV.F.1 permits the "who" to change depending upon the type of exercise being conducted (i.e., prelicense or postlicense and annual or biennial), it is clear to them that the paragraph requires the "how" to remain the same for each participant regardless of the type of exercise undertaken. Thus, according to Intervenors, a licensee-only onsite exercise (whether the prelicense one-year exercise or a postlicense annual exercise) "must still be a 'full-participation' exercise in the sense that it would test as much of the licensee onsite plan as is reasonably achievable without mandatory public participation, test the major observable portions of that plan, and otherwise meet the requirements of footnote 4." Memorandum at 14. It is a credit to the rhetorical talents of Intervenors' counsel that they advance a

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<sup>11</sup> While Intervenors characterize this asserted aspect of section IV.F.1. as the "how" of participation, they in fact deal with "what" aspects of the onsite emergency plan must be exercised no more than one year prior to the issuance of a full-power license.

<sup>12</sup> Memorandum of the Intervenors in Support of Their Motion for Summary Disposition of the Scope Contentions Filed in Response to the September 27, 1989 Onsite Exercise ("Memorandum"), October 18, 1989.

*possible* (but not the only) interpretation of Appendix E, § IV.F.1 which, on first blush, appears reasonably plausible yet is, upon analysis, devoid of merit.

The illogic of Intervenors' proffered construction of section IV.F.1 is demonstrated by applying it to the particular provision of the paragraph applicable to the specific facts now before this Board. The third sentence of the paragraph provides that:

If the full participation exercise is conducted more than one year prior to issuance of an operating license for full power, an exercise which tests the licensee's onsite emergency plans shall be conducted within one year before issuance of an operating license.

Notwithstanding the fact that the sentence appears to make a clear distinction between "*the full participation exercise*" in its first clause, and "*an exercise which tests the licensee's onsite emergency plans*" in its second clause, Intervenors invite us to simply modify every reference to an "exercise" with the phrase "*full participation*."<sup>13</sup>

Thus, if Intervenors' reading were to be correct, this sentence must be read to mean (as distinguished from what it appears on its face to state) that in the absence of a "*full participation*" exercise of both onsite and offsite emergency plans testing the major observable portions of the plan within one year prior to the issuance of a full-power license, the applicant must conduct a *full participation* exercise of its onsite emergency plan testing the major observable portions of the plan within one year prior to the issuance of a full-power license. In essence, Intervenors argue that section IV.F.1 requires a "*full participation*" integrated exercise of *either* the onsite/offsite emergency plans or the onsite emergency plan within one year prior to a full-power license.

To adopt Intervenors' approach would require that we assume the Commission was incapable of drafting even a marginally clear regulatory requirement. We are further required to assume that the Commission has chosen to remain silent as to the true meaning of section IV.F.1 in the face of numerous opportunities to address the NRC Staff's, applicants' and licensees' long-standing and, according to Intervenors, incorrect application of the paragraph. We find neither assumption reasonable.

Moreover, both the Applicants and the Staff advance a compelling argument that the purpose of the supplemental, 1-year prelicense onsite exercise was substantially identical to that of the annual, postlicense onsite exercise: to ensure that emergency response personnel retain sufficient knowledge and

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<sup>13</sup> In addition to this requested act of semantic magic, Intervenors ask us to ignore the fact that the second sentence of footnote 4 refers to "the major observable portions of the onsite and offsite emergency plans." If Intervenors' construction is correct, one would have assumed that the Commission would have used the conjunctive "or" or "and/or" to indicate that the requirement of a full-participation exercise applied to exercises involving just the onsite emergency plan.

expertise to actuate an emergency already determined through a reasonably current "full participation" exercise to be adequate and without fundamental flaws. See Applicants' Answer at 14-17 and NRC Staff Response at 8-13. To the extent Intervenors cite and characterize isolated snippets of administrative history to support their strained reading of section IV.F.1, we are bound to reject their construction in favor of the clear import of the language of the section. *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460, 469 (1982).

While section IV.F.1 may not represent the zenith of draftsmanship,<sup>14</sup> we find that Intervenors' construction of the paragraph, which exacerbates its acknowledged ambiguities, is mandated neither by the clear language of section IV.F.1, nor by the administrative history underlying that regulatory requirement. We conclude that the 1-year, prelicense onsite exercise need not encompass all "major observable portions" of the onsite emergency plan "as is reasonably achievable without mandatory public participation."

## ORDER

For the reasons set out herein, Intervenors' motions to admit contentions regarding the September 27, 1989 Seabrook onsite exercise are denied. Intervenors' motion for summary disposition is also denied.

ATOMIC SAFETY AND  
LICENSING BOARD

Richard F. Cole  
ADMINISTRATIVE JUDGE

Kenneth A. McCollom  
ADMINISTRATIVE JUDGE

Ivan W. Smith, Chairman  
ADMINISTRATIVE LAW JUDGE

Bethesda, Maryland  
December 11, 1989

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<sup>14</sup> See *Shoreham*, ALAB-900, 28 NRC at 295 n.20.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

**Before Administrative Judges:**

**Charles Bechhoefer, Chairman**  
**Dr. Jerry R. Kline**  
**Frederick J. Shon**

In the Matter of

Docket No. 9999004  
(ASLBP No. 89-582-01-SC)  
(General License Authority  
of 10 C.F.R. 40.22)  
(EA 97-223)

**WRANGLER LABORATORIES,  
LARSEN LABORATORIES,  
ORION CHEMICAL COMPANY  
and JOHN P. LARSEN**

December 22, 1989

In an Initial Decision in a show-cause proceeding, the Licensing Board modifies an order of the NRC Staff revoking the authority of the Licensees to engage in activities involving the chemical processing of depleted uranium under a general license authorized by 10 C.F.R. § 40.22. The Board permits, subject to certain specified conditions appropriate for a general license, the Licensees to operate under such a general license.

**GENERAL LICENSE: STANDARDS**

Under the general license for small quantities of source material authorized by 10 C.F.R. § 40.22, a licensee may "use and transfer" not more than 15 pounds of source material at one time and may "receive" no more than 150 pounds in

any one calendar year. There are no limits on possession, *per se*, either at a given time or annually.

### **GENERAL LICENSE: STANDARDS**

A general licensee is exempt from the requirements of 10 C.F.R. Part 20, unless the licensee also holds source material under a specific license.

### **GENERAL LICENSE: STANDARDS**

The circumstance that a specific source-material license is suspended does not activate the exemption from 10 C.F.R. Part 20 applicable to a licensee's operation under a general license, as set forth in 10 C.F.R. § 40.22(b).

### **GENERAL LICENSE: STANDARDS**

Although the NRC Staff may impose additional source material license requirements to protect health under 10 C.F.R. § 40.41, those requirements may not undermine the regulatory authority that permits a licensee to operate under a general license and cannot be used to require a specific license where the general license authorization is applicable.

### **GENERAL LICENSE: APPLICABLE RADIATION STANDARDS**

For general source-material licenses that are subject to the radiation standards of 10 C.F.R. Part 20, standards that are applicable for unrestricted use of a facility and for license termination, even though more stringent than those normally expected for an operating facility, are appropriate for a facility under a general license, where no access controls are in force or required and where unrestricted access may thus be presumed.

### **ENFORCEMENT ACTIONS: SCOPE OF PROCEEDINGS**

Where an enforcement order recites that the issue in a proceeding is whether the order should be sustained, the issue inherently includes whether the order should only be sustained in part (e.g., subject to certain conditions). A condition or penalty more severe than that sought by the enforcement order could not be imposed.

## **RULES OF PRACTICE: SHOW-CAUSE PROCEEDING (GROUNDS)**

Where a show-cause order seeks to revoke a license on the basis of violations of regulatory requirements, the violations must pertain to requirements properly imposed by the license sought to be revoked.

### **APPEARANCES**

**Mr. John P. Larsen**, Provo, Utah, for Wrangler Laboratories, Larsen Laboratories, Orion Chemical Company, and John P. Larsen (Licensees).

**Ann P. Hodgdon, Esq., and Norman D. Romney, Esq.**, for the U. S. Nuclear Regulatory Commission Staff.

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## **INITIAL DECISION (Show-Cause Proceeding)**

### **Opinion**

This proceeding involves a challenge to an order issued by the NRC Staff on August 15, 1988<sup>1</sup> (hereinafter Revocation Order), revoking the authority of Wrangler Laboratories, Larsen Laboratories, Orion Chemical Company, and Mr. John P. Larsen (hereinafter collectively referred to as Licensees) to carry on certain activities involving depleted uranium (DU) under a general license authorized by 10 C.F.R. § 40.22. The order was made immediately effective. On September 2, 1988, the Licensees filed a timely request for a hearing. For reasons hereinaster set forth, we are modifying the Staff's revocation action

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<sup>1</sup> 53 Fed. Reg. 32,125 (Aug. 23, 1988). See Findings of Fact 1-2.

but permitting further operations only when subject to conditions of the type described herein (to which the Licensees have agreed<sup>2</sup>).

We are reaching this conclusion with some reluctance, for we agree with the Staff that the Licensees have indeed carried on certain of their activities in a manner contrary not only to proper industrial practices but also to the public health and safety. In our view, however, the standards with which the Staff is seeking to have the Licensees comply in many instances are not applicable to general licensees. Moreover, the Licensees do not appear to have intended to violate the rules; their violations appear to have been the result of carelessness and inexperience and, indeed, in some circumstances, a lack of knowledge of what courses of action they should have been following. That being so, it is impermissible to revoke a general license — the most severe of the penalties that may be imposed for violation of the terms of a license — for violation of terms not appropriately imposed through such licenses, notwithstanding our agreement with the Staff that many of them are warranted for the nature of the operations that the Licensees seek to carry out.

In short, we agree with the Staff that operations of the sort carried out by the Licensees should not be permitted under a general license. But it is within neither the Staff's authority nor ours to subject activities falling within the authorization of a general license to conditions otherwise imposable only under a specific license. Only the Commission can make that determination, and only through the medium either of a revised rule (excluding the activity in question from the general license authorization) or a waiver for the purposes of this proceeding (modifying the existing rule for purposes of this proceeding). In the absence of a proper request for a waiver or a record to support such a request, we strongly urge the Commission to initiate rulemaking proceedings to delete this type of activity from the general license authorization.<sup>3</sup> We recognize that such a rulemaking may involve a lengthy proceeding, but had such a proceeding been initiated in the early 1980s, when the need became apparent, a rule would now be in place.

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<sup>2</sup>Tr. 356-57 (J. Larsen).

<sup>3</sup>We have in mind a provision such as 10 C.F.R. § 40.22(c), which deletes from the general license authorization the administration of source material, or the radiation therefrom, to human beings. This deletion was put into effect to prevent the use of Thorotrast, containing alpha-emitting thorium-232 dioxide, in humans without a specific license. It resulted from an increase in knowledge on the radiobiological hazards of alpha-emitting radionuclides. See 45 Fed. Reg. 55,419 (Aug. 20, 1980) ("Deletion of Source Material Medicinals from the General License for Small Quantities of Source Material").

## I. BACKGROUND (Findings 1-13)

The Licensees are firms that have been using source material under general licenses granted by the NRC pursuant to 10 C.F.R. § 40.22. The owner and sole proprietor of each of these firms is Mr. John P. Larsen, of Provo, Utah.<sup>4</sup>

According to the August 15, 1988 Revocation Order, as well as an earlier February 25, 1988 Suspension Order,<sup>5</sup> the firms have been involved in the chemical processing of depleted uranium (DU). When in operation, using a process developed by Mr. Larsen, the Licensees received slugs of DU, dissolved the material in nitric acid, precipitated uranyl acetyl acetate (UAA) by adding 2,4-pentanedione, dissolved the UAA precipitate in hot benzene, cooled the benzene to allow precipitation of purified UAA crystals, and then dried, ground, filtered, packaged, and shipped the pure UAA product, for ultimate use as a catalyst in the production of Department of Defense munitions.

The Licensees have attempted to carry on these activities under the general license authorized by 10 C.F.R. § 40.22. That authorization in general permits specified types of users (including "commercial and industrial firms" such as are involved here) to "use and transfer" limited quantities of source material for "research, development, educational, commercial or operational purposes." We will review the precise scope of the activities permitted by this authorization later in this Opinion.

The Staff, through its Revocation Order, seeks to revoke the Licensees' authority to carry on their activities under a general license, as a result of a long history of alleged violations of the general license authority extending as far back as 1982.<sup>6</sup> According to the Revocation Order, an August 23, 1982 inspection by the Staff of Orion Chemical Co., Provo, Utah, uncovered a number of asserted violations, including

possession of source material at one time in excess of the 15-pound limitation on such material, refusal to make records available to NRC, unauthorized disposal of DU, and failure to maintain complete records.

As a result, the Staff issued a Show-Cause Order temporarily suspending the general license authority. Following corrective action, the Staff rescinded the Show-Cause Order but issued a Notice of Violation and proposed civil penalty, which was paid on March 16, 1983.

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<sup>4</sup> Since the close of hearings, Mr. Larsen has moved to Orem, Utah.

<sup>5</sup> 53 Fed. Reg. 7452 (Mar. 8, 1988). This order also was made immediately effective. See Finding of Fact 3.

<sup>6</sup> The record reflects that there may have been violations at a licensee facility as far back as November 1979 (Staff Exh. 1 at Exh. 5; J. Larsen, ff. Tr. 342, at 3). Because there was no reference to these earlier alleged violations in the Revocation Order, we are not reviewing or placing any weight on any such violations that may have occurred.

Based upon these asserted violations, however, the NRC

determined that Mr. Larsen's chemical processing activity should be conducted under a specific license, due to the potential for contamination of workers and the environment.

Although the Licensees did not wish to operate under a specific license, they were convinced (or pressured) by the Staff to take that course of action.<sup>7</sup> A specific license (SUB-1436) was issued to Larsen Laboratories, Provo, Utah, in December 1983. When Utah became an Agreement State, it assumed responsibility for the specific license and reissued it on May 13, 1985.

Thereafter, as a result of violations, Utah suspended the license on November 5, 1986. A settlement agreement was signed on January 15, 1987, under which Larsen Laboratories would comply with five specified conditions and pay a civil penalty. Those conditions were that the Licensee (1) not receive or use source material except to secure or transfer such source material in its possession, (2) dispose of radioactive wastes, (3) decontaminate two facilities in the Orem area, (4) move to approved production facilities, and (5) obtain a qualified radiation protection officer.

The Licensee paid the civil penalty but has not yet completed the last two of the five specified conditions. The Utah license remains in existence, although suspended.

Even prior to the suspension, the Licensees had been attempting to develop a new production facility. During the early years of control by Utah, they had operated in a series of temporary facilities. They had purchased five acres of land in Lindon, Utah, but found that they could not construct a facility because of the lack of an available sewer system. Since that time, they have been allowed to build a storage-type facility and this year had electricity installed into the facility.<sup>8</sup> But they still have not been able to obtain a sewer/water permit and hence have not been able to operate the facility for production purposes.

Following suspension of their Utah license, the Licensees, who were unable to utilize the Lindon, Utah facility, next tried to carry out their activities in Wyoming, under an NRC general license. They adopted this course of action in order to complete the processing of materials for a customer, which they believed they could not accomplish under the Utah suspension order. Before

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<sup>7</sup> J. Larsen, ff. Tr. 342, at 3; Tr. 397-98 (J. Larsen). Although we question whether the Staff, under regulations then extant, had authority to require that the Licensees operate under a specific rather than general license, that specific license is not within our jurisdiction, and we have no authority to rescind or alter it. Whether or not the specific license was validly required, we must honor its existence and validity.

<sup>8</sup> Response to Revocation Order, dated December 26, 1988, ff. Tr. 350, at 4-5.

taking this action, Mr. Larsen contacted several NRC officials by telephone to ascertain its validity.<sup>9</sup>

The operations in Wyoming led eventually to the Suspension Order and Revocation Order. To evaluate the validity of the Revocation Order being challenged, we must first turn to an analysis of what activities are permitted and what activities are not permitted by 10 C.F.R. § 40.22, the general license authorization, and the type of regulatory infractions that properly may be used to invoke the severe remedy of license revocation.

## II. GOVERNING REGULATORY REQUIREMENTS

There are two types of regulatory requirements that are applicable to this proceeding. First, the general license authority establishes the substantive requirements that govern a general license. Second, there are separate regulations that set forth standards that are to be applied in determining whether revocation is an appropriate remedy in a particular case. We turn to these requirements *seriatim*.

### A. Scope of General License Authority

The general license authority under 10 C.F.R. § 40.22 that the Staff is seeking to revoke in this proceeding is applicable to "small quantities of source material." In relevant part, it provides:

- (a) A general license is hereby issued authorizing commercial and industrial firms . . . to *use and transfer* not more than fifteen (15) pounds of source material at any one time for . . . commercial or operational purposes. A person authorized to use or transfer source material, pursuant to this general license, may not *receive* more than a total of 150 pounds of source material *in any one calendar year*.
- (b) Persons who receive, *possess*, use, or transfer source material pursuant to the general license issued in paragraph (a) of this section are exempt from the provisions of Parts 19 [Notices, Instructions, and Reports to Workers; Inspections], 20 [Standards for Protection Against Radiation], and 21 [Reporting of Defects and Noncompliance] of this chapter to the extent that such receipt, possession, use or transfer are within the terms of such general license: *Provided, however,* That this exemption shall not be deemed to apply to any such person who is also in possession of source material under a specific license issued pursuant to this part.

10 C.F.R. § 40.22 [emphasis supplied]. The regulations explain that a "general license" is one that is "effective without the filing of applications with the

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<sup>9</sup> Mr. Larsen contacted two Staff officials — Messrs. Michael A. Lamstra and Bruce Carrico — but in the Staff's view did not provide sufficient information to have received meaningful responses. Tr. 312-14 (Flack). See also Findings 28-29, *infra*.

Commission or the issuance of licensing documents to particular persons." 10 C.F.R. § 40.20.

Very few conditions or limitations are applicable to a general license. The Licensees here do not qualify for the exemption set forth in 10 C.F.R. § 40.22(b), because (as stated above) they possess a specific license issued under Part 40 for their operations in the State of Utah.<sup>10</sup> In their activities under a general license, therefore, they are thus subject to the requirements of 10 C.F.R. Parts 19, 20, and 21, of which only Part 20 is applicable to the matters on which the Revocation Order is based. Further, general licensees are also subject to the transfer provisions set forth in 10 C.F.R. § 40.60, the record-keeping requirements set forth in 10 C.F.R. § 40.61, and to the general provisions appearing at 10 C.F.R. § 40.41.

Among the provisions of Part 40 applicable to specific (although *not* to general) licenses are those concerning the adequacy of equipment, facilities, and procedures (10 C.F.R. § 40.32(c)), and the qualifications of the licensee (10 C.F.R. § 40.32(b)). The following *general* provision is, however, applicable:

- (e) The Commission may incorporate in any license at the time of issuance, or thereafter, by appropriate rule, regulation or order, such additional requirements and conditions with respect to the licensee's receipt, possession, use, and transfer of source or byproduct material as it deems appropriate or necessary in order to:
  - (1) Promote the common defense and security;
  - (2) Protect health or to minimize danger of life or property;
  - (3) Protect restricted data;
  - (4) Require such reports and the keeping of such records, and to provide for such inspections of activities under the license as may be necessary or appropriate to effectuate the purposes of the act and regulations thereunder.

10 C.F.R. § 40.41. As far as is reflected by this record, however, the general license utilized by the Licensees has never incorporated any provision such as is contemplated by this authority — to do so would require amendment of 10 C.F.R. § 40.22, the source of general license authority. On the other hand, the Staff on several occasions has attempted to impose additional conditions on the Licensees through Confirmation of Action Letters (CALs). Even if a CAL were considered an "order" authorized by 10 C.F.R. § 40.41, however, the terms imposed by such "order" would have to be consistent with the general license authorization. In particular, we find that the CAL procedure cannot be used essentially to eliminate the general license authority where such license is otherwise authorized.

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<sup>10</sup> When Utah became an Agreement State, the specific license issued by NRC in 1983 was assumed by the State and reissued. We agree with the Staff (Conclusions of Law, ¶A.1) that the Utah license may be deemed one "issued" pursuant to Part 40 and that the circumstance that the Utah license is suspended does not activate the § 40.22(b) exemption.

Thus, as we understand the general license authority, by its terms it imposes quantity limits only on the "use and transfer" and on the annual receipt of source material. It refers to "possession" only in terms of the applicability to possessors of Parts 19, 20, and 21 (when not otherwise exempt from those Parts), as set forth in 10 C.F.R. § 40.22(b). The general license authorization does not, by its terms, limit the amount a general licensee may "possess" at any one point in time.

The NRC Staff, however, construes the general license authorization differently. It states that 10 C.F.R. § 40.22 includes an annual *possession* limit of 150 pounds.<sup>11</sup> Beyond that, however, the Staff considers "possession" alone to be a type of use or transfer and thus would limit "possession" at any one time to no more than 15 pounds.<sup>12</sup>

In support of its interpretation, the Staff cites the legislative history of 10 C.F.R. § 40.22. It attributes the 150-pound annual limit to the Statement of Considerations. It goes on to assert that the general license authorization reflected the Commission's finding that possession and use of source material in these quantities "are not significant to the common defense and security," *citing* 25 Fed. Reg. 8619 (Sept. 7, 1960).<sup>13</sup> The Staff then contrasts that finding with the additional authority under the Atomic Energy Act for the NRC Staff to issue orders to protect the public health and safety.

We do not believe that the general license authorization may be construed in this manner. In making its argument, the Staff ignores the further Commission finding that general source material license activities in the specified quantities "can be conducted without any unreasonable hazard to life or property." *Id.* In other words, the Commission has specified that authorized general license activities do not create an unreasonable hazard; that being so, the Staff cannot rely on public health and safety concerns to impose additional public health and safety conditions. Even more so, the Staff cannot, on public health and safety grounds, require a specific license for activities for which a general license authorization exists.

The language in the Statement of Considerations upon which the Staff relies states, in pertinent part:

The proposed amendment would generally license possession and use of up to 15 pounds of contained uranium or thorium or any combination thereof at any one time by certain classes of users, namely . . . . This general license is subject to an annual possession limit of 150 pounds of contained uranium or thorium or any combination thereof. Under this provision many users of small quantities of uranium would be relieved of the necessity of obtaining a specific license. . . .

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<sup>11</sup> Staff Proposed Conclusions of Law, ¶2.

<sup>12</sup> Tr. 200, 206, 299-300 (Spitzberg); Tr. 398 (J. Larsen).

<sup>13</sup> Staff Proposed Conclusions of Law, ¶2.

25 Fed. Reg. 8619 (Sept. 7, 1960). This language is at best unclear. The only statement bearing upon a possession limit appears to refer to possession solely in terms of an annual possession limit (which does not specifically appear in the terms of the regulation). The statement also refers to possession in terms of the applicability or nonapplicability of Parts 19, 20, and 21, a reference that is confirmed by the words of the regulation. Other restrictions are applicable to "use and transfer" and annual receipt.

To construe "use and transfer" to include "possession" in effect would limit possession at any one time to no more than 15 pounds and be contrary to the above-quoted Statement, which appears to authorize "possession" generally and "use of up to 15 pounds." To accept the Staff interpretation not only ignores the only interpretation of the Statement of Considerations that is consistent with the wording of the regulation but also would eviscerate the intended purpose of the general license authorization.

Furthermore, the annual possession limit language, which is not reflected in the words of the regulation, is at best ambiguous. Does possession refer to a given point in time during the course of a year, or does it refer to total quantities of material possessed during any one year?

Because of the ambiguity in the legislative history, as well as the rather clear meaning of the words of the regulation as written, we believe the best course, in determining whether the Licensees have violated 10 C.F.R. § 40.22, is to construe the regulation as written — i.e., as imposing no possession limits either annually or at any given time. We do not construe the 15-pound limit as one on "possession," only on "use and transfer." Furthermore, we construe the 150-pound annual limit as applicable only to "receipt." Indeed, the reference to an annual "possession" limit in the Statement of Considerations may well have been intended to refer only to a "receipt" limit, as stated in the regulation. As acknowledged by the Staff, such "receipt" applies on a facility-by-facility basis (irrespective of common ownership), assuming the facilities are operated under different licenses, and includes material obtained at a particular facility from any source.<sup>14</sup>

In asserting that certain of the Licensees' facilities were "contaminated," the Staff makes use of standards set forth in "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," issued by NRC in July 1982 (Finding 80). These standards are regulatory guidelines and do not have the force of regulatory requirements. Although the standards focus upon unrestricted use and are more stringent than would normally be expected for an operating facility, we find them to be appropriate for a facility under a general

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<sup>14</sup> Tr. 302-03 (Spitzberg).

license, where no access controls are in force or required and where unrestricted access may thus be presumed.

## B. Revocation as a Penalty for License Violations

Penalties for violation of source-material licenses are contained in 10 C.F.R. Part 2, Appendix C — “General Statement of Policy and Procedure for NRC Enforcement Actions.” Violations are categorized into five levels of severity within each of eight activity areas (of which area VI, Fuel Cycle and Materials Operations, is here applicable). Under this policy statement (which does not bear the force of a rule but nonetheless must be taken into account), license revocation is the most severe penalty and is specifically denominated as a penalty that may be imposed only for severity level I or II violations.

Examples of severity level I and II violations for materials licenses appear in 10 C.F.R. Part 2, Appendix C, Supplement VI, §§ A and B. They state:

A. Severity I — Violations involving for example:

1. Radiation levels, contamination levels, or releases that exceed 10 times the limits specified in the license;
2. A system designed to prevent or mitigate a serious safety event not being operable when actually required to perform its design function; or
3. A nuclear criticality accident.

B. Severity II — Violations involving for example:

1. Radiation levels, contamination levels, or releases that exceed five times the limits specified in the license; or
2. A system designed to prevent or mitigate a serious safety event being inoperable.

Beyond the specific violations for which revocation is a specified penalty, revocation may also be imposed under certain general provisions of the NRC Enforcement Policy. Under section V.C(2), a Suspension Order may be used, *inter alia*:

- (a) To remove a threat to the public health and safety, common defense and security, or the environment;
- (c) When the licensee has not responded adequately to other enforcement action.

A Revocation Order, pursuant to section V.C(3), may be used, *inter alia*:

- (a) When a licensee is unable or unwilling to comply with NRC requirements;
- (b) When a licensee refuses to correct a violation.

The Statement further provides for escalation of enforcement sanctions for “recurring similar violations.”

Suspension or revocation is normally imposed only for violations that are "willful." Under section III of the Enforcement Policy, "willfulness" is defined as embracing "a spectrum of violations ranging from deliberate intent to violate or falsify to and including careless disregard for requirements." "Willfulness does not include acts which do not rise to the level of careless disregard, e.g., inadvertent clerical errors in a document submitted to the NRC." In ascertaining severity level of a willful violation, consideration is given to, *inter alia*, the significance of any underlying violation, the intent of the violator, and any economic advantage gained as a result of the violation.

Finally, the Revocation Order states that the issue in this proceeding is "whether [the Revocation] Order should be sustained." This issue inherently includes the authority to decide, in the event that revocation is found not to be warranted, whether the Order should be sustained in part — i.e., whether revocation should be upheld unless certain specified conditions are imposed and satisfied. *See Consumers Power Co. (Midland Plant, Units 1 and 2), LBP-82-35, 15 NRC 1060, 1066 n.21 (1982).*<sup>15</sup>

Using this legal background, we turn now to whether the violations alleged and proved by the Staff are sufficient to support revocation (in whole or in part) of the Licensees' right to use the general license authorized by 10 C.F.R. § 40.22.

### III. ALLEGED VIOLATIONS (Findings 26-97)

The Revocation Order sets forth a variety of alleged violations as the basis for revocation. In addition, the Order recites that, because of the variety and extent of the violations, the Staff has lost confidence in the ability of the Licensees properly to carry out their licensed activities.

The alleged violations fall into the following general categories: (1) exceeding the 15-pound use or transfer limit; (2) exceeding the annual receipt limit; (3) exceeding what the Staff believes is a 15-pound possession limit; (4) violation of the Utah suspension order referenced above; (5) failure of facilities to include certain protective equipment; (6) high levels of uranium in workers' urine samples, and violation of various CALs with respect to urine sampling and reporting; (7) contamination of the Wyoming facility; and (8) a history of continuing violations of various sorts. We have found, however, that not all of the alleged violations relied on by the Staff in support of license revocation in fact amount to violations of applicable regulatory requirements.

Thus, with respect to overweight shipments, we have found three shipments that violated the general license limit of 15 pounds. We have also found that

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<sup>15</sup> We could not, of course, impose any condition more severe than that sought by the Revocation Order. *Public Service Co. of Indiana (Marble Hill Nuclear Generating Station, Units 1 and 2), CLI-80-10, 11 NRC 438 (1980).*

the Licensees received more than 150 pounds of material at their Wyoming facility during 1987 and hence violated the general license annual receipt limit for 1987. But of the five shipments that were alleged to have violated the Utah suspension order, only one was proven as in violation of the NRC general license requirements. The existence of the Utah suspension order does reflect on the Licensees' ability to comply with regulatory requirements (*see Finding 97, infra*).<sup>16</sup>

With respect to the alleged violations of a purported 15-pound possession limit, we have found no such possession limit to be included among general-license requirements and hence no violation. The low-level contamination of the Wyoming facility that was proved establishes only an inconsistency with an NRC guideline and does not represent a violation of a regulatory requirement. No showing was made that the levels of radiation known to have existed even came close to the limits established in 10 C.F.R. Part 20, which govern the Licensees' operations. And the alleged facility deficiencies, although established, do not transgress any regulatory requirements applicable to general licensees and, hence, do not constitute violations.

Finally, we have found that the Licensees did not adhere completely to the urine testing and reporting requirements imposed on them by various CALs. But they had a plausible explanation for these deficiencies. Nor do the occasional high readings that did occur reflect a violation of any general-license requirement, although we agree with the Staff that there are potential health implications for the workers involved.

With respect to the alleged history of violations, three of the four alleged 1982 violations may not be considered as adverse to the Licensees in this proceeding. The first involves possession of more than 15 pounds of source material and does not violate applicable standards. Two others involve the availability of records and are essentially the same violation. A violation did occur with respect to records, but the asserted "refusal" to make records available was not proved, only an inability to do so in a timely fashion. The fourth, involving the unauthorized disposal of material, was not proved; the spillage of a small amount of material outside the facility does not, in our view, constitute unauthorized disposal.

At this point, a comment on the Staff's investigative process in developing its alleged violations in this proceeding is in order. In reviewing Mr. Larsen's

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<sup>16</sup> Through a Board Notification dated December 11, 1989 (which we received on December 18, 1989), the Staff advised us that it had been notified by the Utah Bureau of Radiation Control that it had uncovered DU contamination in the residence recently vacated by Mr. Larsen. The State advised NRC that removable alpha contamination up to 800 dpm/100 cm<sup>2</sup> existed in the garage and basement, and that higher levels of beta-gamma contamination were found but were still being assessed. Because Utah would have regulatory authority over any potential violation, we express no opinion and place no regulatory significance on this matter. We note, however, that the asserted 800 dpm/100 cm<sup>2</sup> of removable alpha contamination is lower than the 1000 dpm/100 cm<sup>2</sup> of removable alpha contamination that is deemed significant by the guideline utilized by the Staff in this proceeding. *See Finding 80, infra.*

explanations of the violations or alleged violations, we are cognizant of his claims (and those of his wife) that the Staff investigators or inspectors were biased against him and unprofessional in the conduct of their investigation. See J. Larsen, ff. Tr. 342, at 2; Tr. 381-84 (J. Larsen); Tr. 640-46, 649-53 (S. Larsen). The Staff strongly denied all the claims of lack of professionalism (Tr. 710-12, 714-15 (Spitzberg)).

Although there is a conflict between the testimony of the parties, we do not believe that either party or any witness was knowingly untruthful in the testimony presented. Our explanation of the seeming inconsistency is that the Larsens were overwhelmed by the potential consequences that could eventuate from the investigation or inspections, by the proliferation of allegations which eventually appeared in the Suspension and Revocation Orders, and their feeling that small businesses such as the Licensees were engaged in should not be subject to the stringent standards sought to be imposed by the Staff. See Findings 76-77, *infra*. Indeed, as Ms. Larsen observed, she was "frightened" by the circumstance that the businesses were being subject to a federal investigation, not by the conduct of the investigators (Tr. 644 (S. Larsen)). However, we find no basis for believing that the Staff representatives acted other than professionally in the conduct of investigations or inspections, although their allegations in the Suspension and Revocation Orders (made in good faith) went further than we have concluded is legally warranted.

#### IV. REMEDY (Findings 98-99)

The most severe of the proven violations — the receipt and use of source material beyond the limits set forth in 10 C.F.R. § 40.22 on several occasions — is Severity Level III. Record-keeping violations of the type involved here are Severity Level IV. Normally, however, revocation is authorized only for Severity Level I or II violations.

Penalties may be escalated, however, on the basis of a large number of repeated violations. The Staff here has attempted to rely on a large number of alleged violations and the escalation in penalties that may result therefrom. Many of the violations alleged by the Staff, however, do not constitute violations of the general-license requirements.

Furthermore, although the Licensees intended to carry out the acts that they carried out, they never intended to violate or disregard the regulations. They clearly did not understand what was expected of them by the Staff. Moreover, many of the requirements sought to be enforced by the Staff (e.g., the equipping of the facility with specified types of equipment, such as fume hoods) are appropriate only if a specific license were involved. We agree that a specific license is appropriate for the type of activities involved, but it is not mandated

by the regulations as they now exist. We reiterate our recommendation that the regulations be modified to exclude from the general-license authorization activities of the type in which the Licensees seek to participate.

For these reasons, we find that *at this time*, revocation is too severe a penalty to be imposed for the violation of *general-license* requirements that has been established. Although multiple violations of general-license requirements have been demonstrated, none of them may be regarded as extreme or *per se* disqualifying. The most significant of the alleged violations do not represent deviations from applicable general-license requirements. Moreover, a general licensee would not be put on notice by the terms of the regulations of the requirements that the Staff sought to have observed.<sup>17</sup> Accordingly, we are modifying the remedy imposed by the Revocation Order.<sup>18</sup>

We also find that the Licensees should be permitted to operate under a general license as long as their activities remain comprehended by such a license — a result we recommend be changed — but that operation should be subject to conditions appropriate for a general license. This finding does not apply in the State of Utah, or any other Agreement State, where any activities would be regulated by the State and not by NRC.

In particular, the Staff is authorized to impose routine and systemic urine testing and reporting requirements covering all workers (full- or part-time), including Mr. Larsen, comparable although not necessarily identical to those previously imposed by the Staff under various CALs. These requirements are authorized by virtue of the applicability of 10 C.F.R. Part 20 to the particular license. To enable the Staff to put these conditions into effect, the Licensees are hereby directed to inform the NRC Staff, at least 30 days prior to commencing operations involving DU, of the proposed location of such activities and the person or persons who will be involved.

One further note to the Licensees: in evaluating their ability to operate under a general license (as long as such authority remains sanctioned by the regulations), any *future* violations of general-license requirements, including the urine-testing requirements outlined above, may, of course, be considered in conjunction with the violations we have found to exist during the course of these proceedings.

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<sup>17</sup> The Staff concedes this to be so. *See* Tr. 188-89 (Flack).

<sup>18</sup> As a result of this ruling, the Licensees may be deemed to be a "prevailing party," at least in part, under the Equal Access to Justice Act (EAJA), as amended, 5 U.S.C. § 504. They thus may be eligible to recover from NRC a portion of their litigation fees and/or costs. *See Advanced Medical Systems, Inc.* (One Factory Row, Geneva, Ohio 44041), LBP-89-11, 29 NRC 306, 311 n.9 (1989). Application for such fees must be filed promptly — within 30 days — and should conform to guidelines proposed by the Commission in 46 Fed. Reg. 53,189 (Oct. 28, 1981).

## V. CONCLUSION

In summary, we are permitting further operations by the Licensees, but only subject to the terms set forth above, with respect to urine testing and reporting. The quantity limits for "use and transfer" and "receipt" are, of course, also applicable. Finally, the Licensees have agreed to install certain equipment;<sup>19</sup> although such equipment cannot be compelled under a general license, we urge the Licensees to install it and would regard its installation or lack of installation as demonstrative of their intent to conduct a safe operation. (Should the activities ever become subject to a specific license, the equipment could, of course, be properly mandated by the Staff.)

This Opinion is based upon, and incorporates, the Findings of Fact and Conclusions of Law that follow. Any proposed findings or conclusions submitted by the parties that are not incorporated directly or inferentially in this Initial Decision are rejected as being unsupportable in law or in fact or as being unnecessary to the rendering of this Decision.

### Findings of Fact and Conclusions of Law

#### I. FINDINGS OF FACT

##### A. Procedural Background

1. This proceeding involves a challenge to an Order Revoking Licenses (hereinafter Revocation Order), issued by the NRC Staff on August 15, 1988, and made immediately effective. The Revocation Order was published in the *Federal Register* at 53 Fed. Reg. 32,125 (Aug. 23, 1988).

2. The Revocation Order was directed at the activities of Wrangler Laboratories, Larsen Laboratories, Orion Chemical Company, and John P. Larsen (hereinafter Licensees), using source material pursuant to the general license granted by 10 C.F.R. § 40.22. These firms were engaged in the chemical processing of depleted uranium (DU), with the end product being used as a catalyst in the production of Department of Defense munitions. Revocation Order at 1.

3. Prior to the Revocation Order, the Licensees were the subject of an NRC Staff Order Suspending Licenses, dated February 25, 1988, and published in the *Federal Register* at 53 Fed. Reg. 7452 (Mar. 8, 1988) (hereinafter Suspension Order). That Order was made immediately effective. It offered the Licensees an opportunity for a hearing, but the Licensees requested no hearing

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<sup>19</sup> Tr. 356-57 (J. Larsen).

on the Suspension Order. The Licensees' response to the Suspension Order was set forth in a letter to the NRC Region IV office, dated March 18, 1988 (Licensees' Response to Suspension Order, ff. Tr. 348; hereinafter, March 18, 1988 Response).

4. The Revocation Order offered the Licensees an opportunity to request a hearing on the Order. On September 2, 1988, the Licensees filed a timely request for a hearing.

5. On October 24, 1988, an Atomic Safety and Licensing Board was constituted to preside over the hearing. This Board was comprised of Administrative Judge Charles Bechhoefer, Chairman; Administrative Judge Jerry R. Kline; and Administrative Judge Frederick J. Shon. 53 Fed. Reg. 43,791 (Oct. 28, 1988).

6. On October 26, 1988, the Licensing Board issued a Memorandum and Order (Response to Order Revoking License) (unpublished), which granted the Licensees' request for a hearing and established schedules for various filings, including a response by the Licensees to the Revocation Order. A Notice of Hearing was issued the same date and published at 53 Fed. Reg. 44,136 (Nov. 1, 1988).

7. After some delay, the Licensees, on December 26, 1988, filed their response to the Revocation Order (Licensees' Response to Revocation Order, ff. Tr. 350; hereinafter December 26, 1988 Response). On February 1, 1989, the NRC Staff filed a Reply to the December 26, 1988 Response.

8. On February 22, 1989, the Licensing Board held a prehearing conference in Provo, Utah. Notice of the Prehearing Conference, dated February 9, 1989, was published at 54 Fed. Reg. 6980 (Feb. 15, 1989). The Licensees and the NRC Staff were present at the Conference. At the Prehearing Conference, the Board defined the precise matters at issue and established discovery schedules and a tentative hearing schedule. Prehearing Conference Order (Setting Forth Issues and Schedules), dated March 1, 1989 (unpublished).

9. The parties engaged in one round of discovery. Discovery closed on May 22, 1989. Written testimony was filed by the Staff on April 25, 1989, and by the Licensees on May 30, 1989.

10. The evidentiary hearing was held in Provo, Utah, on June 13-15, 1989, pursuant to notice dated April 24, 1989, and published at 54 Fed. Reg. 18,618 (May 1, 1989). The NRC Staff, as proponent of the Revocation Order, has both the burden of proof and the burden of going forward with evidence. 10 C.F.R. § 2.732; Tr. 3-4. In support of the Revocation Order, the NRC Staff presented five witnesses, the affidavit of another (accepted by the Licensees, Tr. 209), and extensive documentary evidence. The Licensees presented three witnesses, its responses of March 18, 1988, to the Suspension Order and December 26, 1988, to the Revocation Order, and other documentary evidence.

11. Proposed findings of fact and conclusions of law were filed by the Staff on August 9, 1989, and by the Licensees on September 11, 1989.<sup>20</sup> The Staff filed Reply Findings on October 3, 1989.<sup>21</sup>

## B. Nature of Licensees' Business

12. The Licensees have been involved in the chemical processing of DU. Mr. John P. Larsen, who at the time of the hearing resided in Provo, Utah (and who has advised the Board by telephone that he now resides in Orem, Utah), is the owner and sole proprietor of each of the other listed Licensees. Orion Chemical Company and Larsen Laboratories are located in Provo, Utah. Wrangler Laboratories is located in Evanston, Wyoming. Staff Exh. 1, Office of Investigations Report 4-88-002 at 9; Larsen Statement of Qualifications, ff. Tr. 344.

13. These firms have been engaged in a process in which they received slugs of DU, dissolved the material in nitric acid, precipitated uranyl acetyl acetate (UAA) by adding 2,4-pentanedione, dissolved the UAA precipitate in hot benzene, cooled the benzene to allow precipitation of purified UAA crystals, and then dried, ground, packaged, and shipped the pure UAA product (Larsen Exh. 1).<sup>22</sup> The process was one developed by Mr. Larsen himself (Tr. 374-75 (J. Larsen)). In the course of carrying it out, uranium is present in many forms: as a metal, as an aqueous solution of uranyl nitrate, as UAA dissolved in an organic solvent, as crystalline UAA, and as ground UAA crystals, some of which may form a dust. Although the pure UAA product may be produced in a number of ways, Mr. Larsen claims that his procedure "produced the best quality" (Tr. 375 (J. Larsen)).<sup>23</sup>

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<sup>20</sup> As the Staff observes (Reply Findings at 1), the Licensees' proposed findings fail to conform to the technical requirements for such findings, as set forth in 10 C.F.R. §§ 2.708 and 2.754(c). Because of the Licensees' *pro se* representation, and the importance of this proceeding to their future livelihood, we are taking their filing into consideration in our Decision notwithstanding its technical deficiencies. We note, however, that the technical deficiencies in the Licensees' proposed findings, particularly the failure to include transcript references to the matters appearing in the record, have made our task in preparing this Decision more difficult and have delayed its issuance.

<sup>21</sup> By unpublished Orders dated August 1, 1989, and August 10, 1989, respectively, we granted the Staff's requests for an extension of time within which to file its proposed findings and for leave to file those proposed findings 1 day late. The Licensees' proposed findings were filed 3 days late (by express mail), along with a motion for acceptance of the late filing. We grant that motion. Subsequently, we were requested by the Staff by telephone for an extension of time to October 3, 1989, for the Staff to file its Reply Findings. Confirming telephone advice to the Staff on September 27, 1989, we grant that motion.

<sup>22</sup> This exhibit demonstrates both the process as it was used in 1983, under an NRC specific license, and as it was proposed by Mr. Larsen to be modified to conform to Utah requirements for a specific license (Tr. 354-57 (J. Larsen)).

<sup>23</sup> Although Mr. Larsen is alleged by the NRC Suspension Order to have stated that his companies were the only ones supplying UAA to the Department of Defense (Flack, ff. Tr. 91, at 7), Mr. Larsen clarified that his companies were the only ones supplying UAA of the quality and on the schedules sought by the Department of Defense contractor (March 18, 1988 Response to Suspension Order, ff. Tr. 348, at 3). We find that explanation to be credible.

### C. Identification of Witnesses

14. In support of the Revocation Order, the NRC Staff presented the testimony of five witnesses: Mr. Edwin D. Flack, Dr. Darrell R. Fisher, Dr. D. Blair Spitzberg, Mr. Brooks Griffin, and Mr. Craig Jones. In addition, the Staff presented the affidavit of Michael A. Lamastra. The Licensees presented three witnesses: Mr. John P. Larsen, Mr. Kevin P. Noack, and Ms. Sally Larsen.

15. Mr. Edwin D. Flack is a Senior Health Physicist in the NRC Office of Nuclear Material Safety and Safeguards (NMSS), a position he has held since January 20, 1989. He served as a Senior Enforcement Specialist in the NRC Office of Enforcement from 1982 to 1989 (Flack, ff. Tr. 91 at 1 and Appendix). He has an M.S. in Health Physics from Colorado State University and over 20 years' experience as a Health Physicist (*id.*, Appendix). Mr. Flack's testimony described the NRC enforcement policy and his role in the application of that policy to the Licensees (*id.* at 5-10). Mr. Flack also presented separate testimony that responded to particular questions posed by the Board at the prehearing conference, concerning application of the enforcement policy to the Licensees (Flack Response to Board Questions, ff. Tr. 92<sup>24</sup>).

16. Dr. Darrell R. Fisher is a Senior Research Scientist in the Inhalation and Internal Dosimetry Research Group of the Health Physics Department of Battelle Pacific Northwest Laboratories, Richland, Washington (Fisher, ff. Tr. 98, at 1 and attached *Curriculum Vitae*). He is also a consultant in nuclear medicine (*id.*, *Curriculum Vitae*). He has a Ph.D. in Nuclear Engineering Sciences (health physics) from the University of Florida (*id.*). Dr. Fisher's testimony dealt with the radiation hazards and toxicological effects of uranium in the body, including (1) how uranium is metabolized into the body, (2) methods for determining the amount of uranium in the body, (3) identification of unsafe levels of uranium in urine, (4) standard practices followed after detection of unsafe levels of uranium in urine samples, and (5) standard occupational practices for working safely with uranium, such as those that have been implemented by major uranium processing facilities (*id.* at 2-20 and Attachments).

17. Dr. D. Blair Spitzberg is a Senior Radiation Specialist in the Division of Radiation Safety and Safeguards, Nuclear Materials Inspection Section of Region IV (Spitzberg, ff. Tr. 101, at 1-2 and attached *Curriculum Vitae*). He has a Ph.D. in Environmental Sciences (Environmental Radiation) from the University of Texas at Dallas (*id.*, *Curriculum Vitae*). Dr. Spitzberg performed an inspection of the Licensee facility in Evanston, Wyoming, on November 4-7, 1987 (Inspection Report 99990004/87-04, ff. Tr. 102) and he participated in the development of several Confirmation of Action Letters (CALS) resulting from

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<sup>24</sup>The testimony responding to Board questions also appears as an attachment to the direct testimony of Mr. Flack, ff. Tr. 91.

that inspection (Spitzberg, ff. Tr. 101, at 3, 12). He also assisted the Office of Investigations (OI) in a parallel investigation of the Licensees' past activities (*id.* at 2).

18. Mr. H. Brooks Griffin is a Senior Investigator, Office of Investigations Field Office, NRC Region IV, Arlington, Texas. He has 18 years of experience as an investigator with various federal agencies. Professional Qualifications of H. Brooks Griffin, ff. Tr. 106. Mr. Griffin authored an Office of Investigations Report, dated August 23, 1988, concerning certain of the Licensees' activities (Staff Exh. 1).

19. Mr. Craig Jones is a Health Physicist with the Utah Bureau of Radiation Control, Division of Environmental Health. He is a Certified Radiation Protection Technologist and obtained an M.S.P.H. degree in Industrial Hygiene from the University of Utah at Salt Lake City. Mr. Jones' duties include providing technical support for the control of radioactive materials in Utah's agreement state program. He also participates in the review and issuance of Utah Specific Licenses for the possession and use of radioactive material, and in enforcement activities involving Utah regulations. Jones, ff. Tr. 660, *Curriculum Vitae*. He provided rebuttal testimony regarding the Licensees' activities in Utah.

20. Mr. Michael A. Lamastra is the Section Leader of the Commercial Section in the Medical, Academic, and Commercial Use Safety Branch of the NRC Division of Industrial and Medical Nuclear Safety, NMSS. His responsibilities include the oversight of inspection and licensing activities associated with the industrial use of byproduct, source, and special nuclear material in each of NRC's five regional offices. He presented an affidavit concerning several telephone conversations that he had had with Mr. John P. Larsen (Lamastra Aff., ff. Tr. 210). The Licensees and NRC Staff stipulated to the factual accuracy of Mr. Lamastra's affidavit (ff. Tr. 209).

21. The Board finds that all of the foregoing Staff witnesses and affiant were highly qualified in their respective fields of expertise and presented credible testimony in this proceeding. The Board also finds that, notwithstanding their technical expertise and credibility, the Staff employees who were witnesses also engaged in certain activities (hereinafter set forth) that were beyond the scope of their authority *vis-a-vis* a general licensee.

22. Mr. John P. Larsen is the sole proprietor of each of the other three named Licensees in this proceeding. He has been engaged in activities of the type carried on by the Licensees for over 10 years. He has a B.A. in Chemistry from Brigham Young University, attended an Occupational and Radiation Seminar at Harvard University in 1986 and is a member of the American Chemical Society. Statement of Qualifications, ff. Tr. 344; Staff Exh. 1, Office of Investigations Report No. 4-88-002 at 9; Tr. 378 (J. Larsen). Mr. Larsen presented testimony concerning his licensed activities, his alleged violations, and his attempts to comply with regulatory requirements of the NRC and of the State of Utah

(J. Larsen, ff. Tr. 342; March 18, 1988 Response, ff. Tr. 348; December 26, 1988 Response, ff. Tr. 350). Through the foregoing testimony, as well as at the hearing, Mr. Larsen also presented allegations that the Staff's inspections and investigations lacked objectivity.

23. Mr. Kevin J. Noack is a former part-time employee of Mr. Larsen, who worked as a lab assistant or lab technician in Mr. Larsen's facilities in Utah and Wyoming. He presented testimony concerning Mr. Larsen's facilities, including safety equipment and procedures that were utilized, and concerning the nature of the processes followed in those facilities (Noack, ff. Tr. 559; Tr. 557, 560-63, 565-66 (Noack)).

24. Ms. Sally Larsen is the wife of Mr. John P. Larsen. She testified with respect to his operations as well as her interview by Mr. Griffin and Dr. Spitzberg for the NRC Report of Investigation (Staff Exh. 1) (Tr. 636-47 (S. Larsen)).

25. The Board finds that the three Licensee witnesses were truthful in their testimony, to the best of their knowledge and belief, but not technically expert in all of the matters they addressed. To that extent, the Board regards their testimony as credible.

#### D. Violations Alleged in Revocation Order

26. The Revocation Order included alleged violations of various types, including (1) exceeding the 15-pound use or transfer limit; (2) exceeding the annual receipt limit; (3) exceeding what the Staff believes is a 15-pound possession limit; (4) violation of a Utah suspension order; (5) failure of facilities to include certain protective equipment; (6) high levels of uranium in workers' urine samples, and violation of provisions of various CALs with respect to urine sampling and reporting; (7) contamination of Wyoming facility; and (8) a history of continuing violations of various sorts. We will deal with each category of violation *seriatim*.

##### (1) Exceeding 15-Pound Use or Transfer Limit

27. The Revocation Order alleged that the Licensees exceeded the 15-pound use or transfer limit established by 10 C.F.R. § 40.22 on several occasions. On June 1, 1987, and December 20, 1987, respectively, Mr. Larsen allegedly shipped 16.7 and 16.3 pounds of DU, respectively, from his Evanston, Wyoming facility (Spitzberg, ff. Tr. 101, at 9-10). The Licensees provided the documentary source of these allegations (March 18, 1988 Response, ff. Tr. 348, at 10<sup>25</sup>). The December 20, 1987 overweight shipment was also established through an

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<sup>25</sup>Page numbers did not appear on many pages of the March 18, 1988 Response but have been added for identification purposes to the copies bound into the transcript.

investigation conducted by the NRC Office of Investigations. NRC Staff Exh. 1 at 18.

28. The Licensee claimed, however, that he never shipped more than 15 pounds at one time from Wyoming but that these shipments were returned to Provo, Utah, and "[c]rystals from the waste that was being processed for disposal, were added separately in Provo, Utah" and collectively shipped to the customer (December 26, 1988 Response, ff. Tr. 350, at 1). The Licensee added that he was relying on telephone advice from the NRC that the 15-pound limit applied separately to various locations.

29. Mr. Larsen initiated the foregoing telephone inquiries, which were taken in NRC by Messrs. Michael A. Lamastra and J. Bruce Carrico (Tr. 364 (J. Larsen); Lamastra Aff., ff. Tr. 210).<sup>26</sup> Mr. Larsen's understanding of the conversation with Mr. Lamastra was that, as a general rule, a licensee could operate under a general license even though it possessed a specific license in another jurisdiction, as long as the intent of the general-license operation was not to avoid specific-license obligations. Tr. 414-17, 426-31, 432-33 (J. Larsen); Lamastra Aff., ff. Tr. 210.

30. We accept Mr. Larsen's factual explanation of why he did not believe his shipments to be overweight shipments. Since the Licensee's specific Utah license was suspended at the time of those shipments, they could only be made pursuant to the NRC general-license authority (Spitzberg, ff. Tr. 101, at 9). Nonetheless, we find that the shipments from Provo constituted technical violations of the NRC general-license requirements but represent a misunderstanding of the requirements rather than an attempt to avoid compliance.

31. Mr. Larsen allegedly transferred DU from his Utah facility on December 9, 1986, February 2, 9, and 17, 1987, and March 3, 1987 (Revocation Order at 5). These transfers allegedly took place after the State of Utah's Order of November 3, 1986, which suspended his specific license and required, *inter alia*, that he immediately place all source material in his possession in locked storage or transfer such material to an authorized recipient. These transfers were recorded in the Licensees' records (March 18, 1988 Response, ff. Tr. 348, at 10). As in the case of the above transfers, they could only be made pursuant to NRC's general license authority. Only the March 3, 1987 shipment (16.01 pounds) appears to violate the 15-pound use or transfer requirement. See Staff Exh. 1 at 18.

32. The Licensees' position that there was no transfer exceeding 15 pounds from the Wyoming facility (December 26, 1988 Response at 1-2) applies as well to the March 3, 1987 shipment. Fifteen pounds were shipped to Utah

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<sup>26</sup>The affidavit of Mr. J. Bruce Carrico, concerning a telephone conversation with Mr. Larsen, was transmitted to the Board and parties by the Staff on February 1, 1989, but was not offered into evidence. See Tr. 417 (Hodgdon). We are not relying on the substance of Mr. Carrico's affidavit.

from Wyoming, combined with waste product crystals, and shipped from Utah. The shipment from Utah violated the 15-pound limit. Because of Mr. Larsen's belief that the 15-pound limit applied separately to material from each location, however, this violation may also be denominated as inadvertent.

**(2) *Exceeding Annual Receipt Limit***

33. The Revocation Order claimed that the Licensees received more than 150 pounds of source material in calendar year 1987, at the Evanston, Wyoming facility. Dr. Spitzberg reviewed records of source material received in 1987 at that facility during an inspection on November 4-5, 1987 (Spitzberg, ff. Tr. 101, at 3, 4; NRC Inspection Report 99990004/87-04, ff. Tr. 102, at 5). The records were also reviewed during an NRC investigation during 1987-88 (Staff Exh. 1).

34. Those records showed that Mr. Larsen received a total of 150 pounds of DU during 1987, from Nuclear Metals, Inc., a supplier. Staff Exh. 1 at 19, 21; March 18, 1988 Response at 10. In addition, the Licensee received at its Wyoming facility during 1987 additional source material in waste crystals transferred from the suspended Utah operations. Spitzberg, ff. Tr. 101, at 10. Mr. Larsen explained that this material had been purchased in prior years and that it was his understanding that the 150-pound limit "was for new materials received from suppliers during a one year period" (December 26, 1988 Response at 2). The Licensees' records further indicated that at least 155.8 pounds of source material had been shipped from the Evanston, Wyoming facility during 1987 (March 18, 1988 Response at 10).

35. Based on the foregoing, the Licensees received at their Wyoming facility during 1987 more than 150 pounds of source material. The general-license receipt limits are not dependent upon a transfer of ownership of the material but apply to annual physical receipt of material at a facility. The Licensees were thus in violation of the requirements of 10 C.F.R. § 40.22. Because of Mr. Larsen's mistaken belief that the 150-pound limit related only to purchases during a calendar year from an outside supplier, the Board finds this violation not to be willful.

**(3) *Exceeding Purported 15-Pound Possession Limit***

36. The Revocation Order alleged that the Licensees possessed more than 15 pounds of uranium at various times and thereby violated the 15-pound use or transfer limit of 10 C.F.R. § 40.22. Specifically, the Revocation Order stated that, as a result of an inspection of Licensee Orion Chemical Company on August 23, 1982, the NRC determined that the Licensee was in violation of several regulatory requirements, of which one was "possession of source material at one

time in excess of the 15-pound limitation on such material" [emphasis supplied]. The Staff deemed mere possession of uranium to be synonymous with and to constitute a "use" within the meaning of 10 C.F.R. § 40.22. Tr. 200 (Spitzberg).

37. The Licensees in 1983 "did not deny" that they possessed more than 15 pounds of uranium "at one time." Staff Exh. 1 at Exh. 4. As set forth in the Opinion section of this Decision, however, such possession does not constitute an infraction of NRC license conditions. Thus, the Staff's alleged violation has not been proved.

#### *(4) Violation of Utah Suspension Order*

38. The Revocation Order alleged that the Licensees had violated the order of the State of Utah which suspended their specific license, through shipments from Utah on December 9, 1986, February 2, 9, and 17, 1987, and March 3, 1987. This information on shipments was derived from the March 18, 1988 Response (ff. Tr. 348, at 10). The first of these shipments apparently involved a shipment to Nevada, where a small amount of material was processed in a desert location on the back of a pickup truck (*id.* at 11; Tr. 674-75 (Jones)). This operation was carried out because the Utah suspension precluded performance of the work in Utah and a customer needed the material (March 18, 1988 Response at 11). The other four shipments were apparently shipments to the Licensees' facility in Evanston, Wyoming (J. Larsen, ff. Tr. 342, at 6). However, records of shipments of source material from Utah to Wyoming under the suspended Utah license, and records of receipt of this material in Wyoming, were not maintained (Spitzberg, ff. Tr. 101, at 10-11).

39. In December 1983, a specific license (SUB-1436) had been issued to Larsen Laboratories, of Provo, Utah (one of the Licensees). The responsibility for overseeing this specific license was transferred to the State of Utah upon its becoming an Agreement State in 1984; the NRC license was replaced by Utah Department of Health Radioactive Material License No. UT 2500183, issued May 13, 1985. Flack, ff. Tr. 91, at 5-6; Staff Exh. 1 at Exh. 10; J. Larsen, ff. Tr. 342, at 4.

40. On June 10, 1986, the State of Utah issued a Notice of Violation, Order, and Order to Show Cause why License UT 2500183 should not be revoked (Staff Exh. 1 at Exh. 6). On November 5, 1986, the State of Utah issued an Order Suspending License (Effective Immediately) and Order Imposing Civil Monetary Penalties, in the amount of \$13,000 (Staff Exh. 1 at Exh. 10). Under this Order, the Licensee was directed to not receive or use source material, except for "plac[ing] all source material in its possession in locked storage or transfer[ing] such material to a person authorized to receive such material" (*id.* at 3).

41. A Settlement Agreement with the State of Utah, dated January 15, 1987, provided that five specified conditions be satisfied by April 15, 1987, and that \$8000 of the Civil Penalty would be suspended (Staff Exh. 1 at Exh. 11). Those conditions were that the Licensee (1) not receive or use source material except to secure or transfer such source material in its possession, (2) dispose of radioactive wastes, (3) decontaminate two facilities in the Orem area, (4) move to approved production facilities, and (5) obtain a qualified radiation protection officer (*id.*). The Licensee paid the civil penalty in the amount of \$5000 but as yet has failed to fulfill the last two of the five specified conditions (Flack, ff. Tr. 91, at 6; Tr. 672 (Jones)).

42. The allegations in the Revocation Order concerning the five shipments from Utah appear to be premised upon the circumstance that each of the shipments from Utah postdated the effective date of the Utah suspension order. Mr. Craig Jones, of the Utah Department of Health, expressed the opinion that the December shipment to Nevada was in violation of the Suspension Order, because it was not a shipment to an authorized recipient (Tr. 674-75 (Jones)). Mr. Jones could not give an opinion whether the other four shipments, which followed the effective date of the settlement agreement, would constitute a violation of the suspension order. He indicated that he would have to get a legal opinion from the State Assistant Attorney General (Tr. 676 (Jones)). Mr. Larsen expressed his understanding that these shipments from Utah to Wyoming were in compliance with the Utah suspension order (Tr. 464 (J. Larsen)).

43. We lack jurisdiction to determine whether the Licensees have, under Utah law, in fact violated the Utah suspension order. For purposes of assessing the Licensees' performance under the NRC general license, and based on Mr. Jones' testimony, we find the shipment of December 9, 1986, to be in apparent violation of the suspension order and subject to consideration in our assessment of the Revocation Order. Because it is unclear whether the other four shipments were in conformance with the suspension order, and because Mr. Larsen believed they were in conformance with the order, we decline to rely in any way on the asserted inconsistency of these shipments with the Utah suspension order. We regard the allegations in this regard to be unproven. (We note, however, that we have taken into account one of these shipments, that of March 3, 1987, in the context of its being an overweight shipment. See Finding 31, *supra*. We also note that the existence of the Utah suspension order may be indicative of the Licensees' past performance and their ability to conform to license requirements generally. See pp. 759-60, *supra*.)

#### **(5) Failure of Facilities to Include Protective Equipment**

44. The Revocation Order alleged that the Wyoming facility was inadequate for the purposes for which it was being used. Specifically, the facility was

described as lacking "prudent engineering controls" such as those the Licensees were committed to in their Utah operations, in particular, ventilation and air filtration units or filtered fume hoods. The facility was further described as having no plumbing. Revocation Order at 7, 53 Fed. Reg. at 32,127.

45. As set forth in the Opinion section of this decision, the regulatory requirement governing the adequacy of equipment (10 C.F.R. § 40.32(c)) is applicable to specific licenses but not general licenses. Thus, the allegations concerning the adequacy of equipment and facilities, even if true, cannot be utilized to revoke a *general* license. For this reason, we are dismissing this allegation as not pertinent to the current licensing action.

46. Although the allegation of lack of protective equipment cannot be used to establish a violation of the general license, the record on protective equipment may be relevant to the Licensees' intent to comply with NRC requirements. The record reflects that the Licensees had made attempts to improve the equipment used in their facilities, particularly the Wyoming facility. Mr. Larsen's December 26, 1988 Response (ff. Tr. 350, at 6-8) states that TLD badges were worn, that new monitoring instruments (including a high-volume air sampler<sup>27</sup>) were purchased for the Wyoming operation, that four new fume hoods had been purchased, and that a fluorimeter had been purchased. *See also* Tr. 366-69 (J. Larsen).

47. Dr. Spitzberg testified that, at the time of his inspection of November 4-5, 1987, there were no fume hoods, ventilation systems, or filtration units at the Wyoming facility (Spitzberg, ff. Tr. 101, at 7). Mr. Larsen testified that the high-volume air sampler and one lapel air sampler had only recently been purchased and had been used on November 11, 1987, and December 6, 1987 (Tr. 361-63). Mr. Larsen further testified that the four new hoods were in addition to one "home-built" hood which had been put into use in Utah and later moved to Wyoming (J. Larsen, ff. Tr. 342, at 4; Tr. 399-405, 421 (J. Larsen)).

#### **(6) Urine Sampling Violations**

48. The Revocation Order asserts that Mr. Larsen's activities under the general license were conducted with a significant disregard for the safety of himself and his employees, and for the public health and safety, as indicated by the uranium levels in the employee bioassay samples. The Order further alleges that there was evidence of internal contamination of workers. Revocation Order at 4, 5; 53 Fed. Reg. at 32,126. Specifically, the personnel bioassay samples (i.e., urine samples) obtained by the Licensees by virtue of CALs imposed by the

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<sup>27</sup>The high-volume air sampler is shown in Staff Exhs. 10 and 14. Tr. 132 (J. Larsen; Spitzberg).

Staff were alleged to have shown "unacceptably high uranium concentrations" (*id.* at 7; 53 Fed. Reg. at 32,127).

49. The Revocation Order also asserts that the Licensees violated various CALs with respect to urine sampling and reporting requirements. Specifically, the Licensees were alleged to have (1) failed to obtain baseline urine samples from two individuals, (2) failed to have submitted a background sample, (3) failed to follow the prescribed urine testing schedule, and (4) failed to submit certain test results to Region IV, as required (Revocation Order at 6; 53 Fed. Reg. at 32,127).

*(a) Failure of Licensees to Take Urine Samples*

50. As provided by NRC Manual Chapter 0400-05.07d, the NRC Staff utilizes Confirmation of Action Letters (CALs) where a problem requires immediate corrective action of a short-term nature and a licensee has agreed to take such action. Following Dr. Spitzberg's November 4-5, 1987 inspection of Mr. Larsen's Wyoming facility, which revealed extensive facility contamination (*see Finding 81, infra*), the Staff in quick succession issued three separate CALs dated November 12, 1987, December 8, 1987, and December 31, 1987. Flack, ff. Tr. 91, at 6; Spitzberg, ff. Tr. 101, at 12, 15-16; CALs, ff. Tr. 102.

51. The November 12, 1987 CAL effectively suspended the processing and receipt of licensed material after November 13, 1987 (Spitzberg, ff. Tr. 101, at 12; March 18, 1988 Response, ff. Tr. 348, at 13). The CAL also required urine bioassays of Mr. Larsen and his employees for the determination of uranium content. Included specifically was Mr. Bruce Noack, who in February 1987 had produced a urine sample that showed concentrations above NRC guidelines (Spitzberg, ff. Tr. 101, at 12-13). The CAL required, *inter alia*, a baseline sample. (Baseline samples were to be taken from persons previously involved with some aspect of uranium processing, before they begin a new phase of work.) Based on the results of the CAL, the Staff issued its further CALs dated December 8 and 31, 1987 (*id.* at 15-16).

52. The second CAL, issued December 8, 1987, required further urine samples from three individuals still working in the cleanup operation; and the third, issued December 31, 1987, required samples from Mr. Larsen and his son to be taken at 3-day intervals until results of two consecutive samples were below 30 micrograms per liter ( $\mu\text{g/l}$ ) in uranium content. That CAL also required Mr. Larsen to obtain background samples for quality assurance and because Mr. Larsen believed previous high bioassays were due to contamination of containers. CALS dated December 8, 1987, and December 31, 1987, ff. Tr. 102; March 18, 1988 Response, ff. Tr. 348, at 16, 18. (Background samples were to be taken from individuals known to be free of uranium contamination.)

53. Mr. Larsen obtained and reported the results to NRC of most of the urine samples required of him during the periods covered by the three CALs. However, he failed to obtain (or report to NRC) data for samples from himself scheduled to be obtained on January 3 and January 6, 1988, and for his son on January 6, 1988, as required by the December 31 CAL. He also failed to obtain several baseline and background samples as ordered. Spitzberg, ff. Tr. 101, at 17; March 18, 1988 Response, ff. Tr. 348, at 5; December 26, 1988 Response, ff. Tr. 350, at 3. There is no material dispute between the Staff and Mr. Larsen as to whether the missing samples were collected or required.

54. Mr. Larsen asserted for the first time at the hearing that he had obtained the January 3 and 6, 1988 samples but discarded them without having them analyzed because he suspected his containers were contaminated (Tr. 523-28 (J. Larsen); Tr. 161-64 (Spitzberg)). Whether the samples were not taken, as alleged by the Staff, or taken but not analyzed, as asserted by Mr. Larsen, is immaterial to Board findings concerning the taking of urine samples because, in either case, the objective of the December 31, 1987 CAL to obtain bioassay data was not fulfilled.

55. The analyses of urine from Mr. Larsen and his employees showed that persons who worked at the Wrangler facility had internal contamination with uranium during the period of sampling. Results are given in the following table (March 18, 1988 Response, ff. Tr. 348, at 14, 15, 17, 19-20):

	Nov	Dec	Dec	Dec	Dec	Jan	Jan	Jan	Jan
J. Larsen	19	1	9	28	31	3	6	10	13
	53	12	31	36	161	*	*	<5	<5
			22						
M. Larsen	41	26	88	63	59	282	*	<5	<5
B. Noack	26	7							
K. Noack	46	45	10						
	14	(baseline)							

\*Samples not collected and analyzed, as required by Dec. 31 CAL. (All analyses are reported in micrograms uranium per liter of urine,  $\mu\text{g/l}$ ).

56. Although we find that the Licensees were subject to the requirements of 10 C.F.R. Part 20, no violations of radiation standards have been alleged or found. Standards for control of radiation effects from internal deposits of soluble uranium are far less stringent than those required for control of chemical toxicity. Tr. 262, 266-67, 269-70 (Fisher). No standards that specifically regulate chemical toxicity of DU from internal deposits are found in 10 C.F.R. Part 20. But cf. 10 C.F.R. Part 20, Appendix B, note 4.

57. Chemical damage to kidneys is the most likely health hazard from internal uranium contamination (Fisher, ff. Tr. 98, at 4, 6; Tr. 256-57 (Fisher)). Uranium in urine in excess of 60  $\mu\text{g/l}$  is an indicator of possible kidney damage (Fisher, ff. Tr. 98, at 11-12). The potential health hazard depends on the amount of uranium actually present and its time of residence; a threshold of kidney damage occurs at about 3  $\mu\text{g}$  of uranium per gram of kidney tissue in prolonged exposure (*id.* at 4, 7-12). There is about a 15-to-1 ratio of total uranium in kidneys (3  $\mu\text{g/g}$  in kidney tissue corresponds to a total of 900  $\mu\text{g}$  in kidneys and 60  $\mu\text{g/l}$  in urine) relative to concentration in urine; concentration in urine can be used as an indicator of concentration in kidney tissue (*id.* at 10-12). The Staff used 30  $\mu\text{g/l}$  in urine as an action level to require enhanced monitoring and cleanup at Wrangler Laboratory based on guidance given in Regulatory Guide 8.22, which is applicable principally to uranium milling operations but which was applied to the Wrangler workers by the Staff (Fisher, ff. Tr. 98, at 4-12, 15-16; Tr. 238-39 (Fisher)). There is no dispute between the Staff and Mr. Larsen as to the potential health hazards of elevated uranium in kidneys as indicated by concentrations in urine or the appropriateness of the 30- $\mu\text{g/l}$  action level used by the Staff based on applying the criteria of Reg. Guide 8.22. Based on the foregoing and the analytical results obtained from urine sampling, the Board finds that the Staff had a valid technical basis for concern that a health hazard from internal uranium contamination existed for personnel working at Wrangler Laboratory in December 1987 (Fisher, ff. Tr. 98, at 15).

58. Mr. Larsen does not dispute that the samples scheduled for January 3 and 6, 1988, should have been taken and analyzed but were not (December 26, 1988 Response, ff. Tr. 350, at 3; March 18, 1988 Response, ff. Tr. 348, at 5). He claimed in defense that the samples were not analyzed because his previous sampling showed in his view that his sample containers were contaminated with uranium or some other fluorescent substance and this accounted for results in excess of 30  $\mu\text{g/l}$  that were obtained in November and December (March 18, 1988 Response at 5). He delayed sampling on January 3 and 6, 1988, in order to obtain uncontaminated sample containers and upon receiving them resumed sampling on January 10 and 13, 1988 (March 18, 1988 Response at 3). Samples from himself and his son taken on both of those dates showed levels below 5  $\mu\text{g/l}$  and his obligation for continued sampling under the December 31 CAL was therefore fulfilled (*id.* at 3-4).

59. All required background or baseline samples were not taken in accordance with the November 1987 CAL or in the December 28-31 and January 3-6 sampling periods. However, a baseline sample was submitted for K. Noack in partial compliance with the CAL of November 12, 1987, and background samples were submitted for Mr. Larsen and his son on January 10 and 13, 1988 (Spitzberg, ff. Tr. 101, at 14, 20). Results from those samples were less than 30  $\mu\text{g/l}$  (December 26, 1988 Response at 3). No others were taken, although

Mr. Larsen had been ordered to obtain them for other workers in the November 12 and December 31 CALs. Mr. Larsen claims variously that the samples were not taken because of oversight, because for some workers they were unnecessary or because the analytical laboratory provided its own baseline samples. March 18, 1988 Response at 3; December 26 Response at 2-3. Mr. Larsen does not dispute that they should have been taken as required. He conceded that background samples would have helped to resolve the question of whether his sample containers were contaminated (Tr. 468-69 (Larsen)). The Staff ordered baseline and background samples for quality assurance and to link contamination of individuals to specific periods of work (Tr. 331-32 (Spitzberg)). The Staff did not assert a specific health reason for requiring baseline samples, however, and the Board finds none. Tr. 230-35 (Fisher); Tr. 237-38 (Spitzberg). The Board finds, however, that the need to monitor specific work practices and for quality assurance in sampling, particularly where Mr. Larsen made claims of extraneous contamination, was a reasonable basis for ordering background and baseline samples to be taken and that Mr. Larsen violated the CALs of November 12 and December 31, 1987, by not taking all of the required samples. Fisher, ff. Tr. 98, at 14-15; Spitzberg, ff. Tr. 101, at 17.

60. Uranyl acetyl acetoneate (UAA) is an organic compound belonging to a class of compounds known to be soluble in body fluids although its exact solubility either *in vitro* or *in vivo* has not been measured. By analogy with other uranyl acetate compounds the Staff concluded that UAA is likely to be at least partially soluble in body fluids. Fisher, ff. Tr. 98, at 5; Tr. 263-64 (Fisher); Tr. 170-75 (Spitzberg, Fisher). Uranium in soluble chemical forms is rapidly excreted from the body through both urine and feces (Fisher, ff. Tr. 98, at 10, 13, Fig. 1). The kidney burden of soluble uranium reaches an equilibrium with continuous intake but it declines quickly when intake stops (*id.* at 9-13; Tr. 267 (Fisher)). Concentration in urine can fall to 2% of initial values within 2 days after the cessation of intake (*id.* at 13). Because of the rapid turnover of soluble uranium in the body, a frequent urine sampling schedule is necessary to record the contamination history of an exposed individual (*id.* at 12-13; Tr. 180 (Spitzberg); Tr. 252 (Fisher)).

61. Rapid excretion of uranium occurred in two individuals after January 3, 1988, when their exposure to uranium had ended, and for K. Noack between December 1 and December 9, 1987 (Board Finding 55). The rapid excretion tends to confirm that the Staff conclusion of at least partial UAA solubility in body fluids is correct (Tr. 173 (Fisher)). Mr. Larsen's belief that UAA was insoluble in body fluids and that it would have internal persistence on the order of months was based on his perception of general UAA insolubility in his manufacturing process and not on biological evidence. Tr. 176-77, 467, 470-71 (J. Larsen). The rapid excretion of uranium by himself and others tends to demonstrate that his perception of biological insolubility was incorrect.

62. The Board finds that the contamination data obtained prior to December 28, 1987, gave the Staff a reasonable technical basis for concern for the health and safety of Wrangler workers and for imposing requirements in the December 31, 1987 CAL to cease all operations and obtain urine samples from two persons on a 3-day schedule until concentrations fell to safe limits (Fisher, ff. Tr. 98, at 15). The failure to obtain three samples required by that CAL was a violation of an agreed requirement.

63. The Board finds that the record of urine sampling as a whole does not support Mr. Larsen's belief that there was general contamination of samples from an extraneous source. Three background or baseline samples that were taken were below action levels. Extraneous fluorescent substances that can cause positive interference with uranium measurement and that seriously concerned Mr. Larsen are routinely destroyed chemically before the uranium measurements are made, and they could not cause false results even if present initially. Tr. 254-55 (Fisher). Mr. Larsen was unaware of the pretreatment step for fluorescent substances at the time he was taking urine samples and trying to obtain "clean" containers. Tr. 471 (Larsen). Moreover, as described in Board Findings 81-85, *infra*, the Wrangler Laboratory building showed general low-level contamination on initial and subsequent inspections, which could account for intake of uranium by workers even though NRC guidelines for surface contamination were not exceeded in most measurements (Spitzberg, ff. Tr. 101, at 5, 7; Attachment to Spitzberg testimony, ff. Tr. 102, "Radiological Survey Results," January 1988; Tr. 328 (Spitzberg).

64. While no other direct measurements of background exist, the trend of data from sequential sample measurements is helpful in determining whether there was contamination of samples (Spitzberg, ff. Tr. 101, at 12-13). In this case, the trend of data for Mr. Larsen and other workers collectively supports a conclusion that there was variable periodic uranium intake by workers and rapid response in urine concentrations that fluctuated closely with intake on a day-to-day basis. The variation in urine concentrations in the November-December 1987 period reflected variation in uranium intake, not sample contamination. Elevated uranium levels, sample variation over short time periods, and lack of operational spills, misled Mr. Larsen to conclude that personnel could not have contamination and that two different sets of sample containers were contaminated. Tr. 527-36 (Larsen). This view was supported by his prior erroneous belief that, because UAA was insoluble in water, it was also insoluble in body fluids. Tr. 419, 466-68, 470-71 (J. Larsen).

65. The record of urinalyses for Mr. Larsen and his son shows that the missing samples of January 3 and 6, 1988, likely would not have provided information of practical significance to the health of the two individuals if they had been provided. Assuming all cleanup operations (and further uranium intake) ceased as ordered on December 31, 1987, the contaminated individuals

would have commenced a rapid excretion of their respective uranium body burdens. Uranium levels would fall to about 2% of initial values in 2 days. The missing samples would likely have shown significantly lower levels by January 6, which were confirmed in any event on January 10, 1988. Tr. 175 (Fisher). However, at the time the CAL was issued, the Staff had uncertainty about the solubility and clearance rate of UAA and it could not know with certainty that the missing data would not be critical. Tr. 179-81 (Fisher). The Staff therefore had a reasonable technical basis for ordering that samples be obtained at 3-day intervals.

66. The samples collected on December 28 and 31, 1987, and on January 3, 1988, were sent to a commercial laboratory in a single batch on January 6, 1988. The laboratory reported that some sample containers were leaking upon arrival and that the leaking samples might be contaminated. The analyses were nevertheless performed. March 18, 1988 Response, ff. Tr. 348, at 5. The results for two samples are consistent with the possibility of contamination because they stand as significant outliers to the otherwise generally consistent trend and range of analyses that reflected chronic periodic intake by the two individuals. The two suspect samples show levels of 161  $\mu\text{g/l}$  for J. Larsen on December 31 and 282  $\mu\text{g/l}$  for his son on January 3, three days after exposure ended (Board Finding 55). The latter is an unlikely result for soluble uranium having high biological turnover. Moreover, the dates of occurrence of peak values are inconsistent for individuals exposed together. However, whether the samples were contaminated or accurate cannot be determined now with certainty. The Board finds it unnecessary to pursue the matter because those samples have no practical health significance for the two individuals. The high biological turnover rate of soluble uranium would lead to a rapid return to safe levels even if the high levels were correct. Mr. Larsen's concern that samples in that group might be contaminated had a factual foundation; however, the Staff could not know with certainty at the time the analyses were performed whether they were contaminated or not.

*(b) The Data Reporting Issue*

67. The CAL of December 31, 1987, required that Mr. Larsen report results of the urinalyses to the NRC Staff as he received them from the commercial laboratory (Spitzberg, ff. Tr. 101, at 17). However, upon receiving the results of the five samples of December 28 and 31, 1987, and January 3, 1988, Mr. Larsen was upset by the high concentrations and he concluded that his concern for contaminated sample containers was confirmed (March 18, 1988 Response, ff. Tr. 348, at 5). Under the belief that the results were spurious, Mr. Larsen did not report them to NRC (*id.* at 17-21; Tr. 165 (J. Larsen)). Subsequently, the January 10 and 13 samples showed less than 5  $\mu\text{g/l}$  of uranium. Because these

samples were taken in containers thought to be free of contamination, the latest results confirmed to Mr. Larsen that his hypothesis of contaminated containers for previous samples was correct. December 26, 1988 Response, ff. Tr. 350, at 3-4. When first requested by NRC to report the results of urinalyses, Mr. Larsen reported only the low values on February 4, 1988 (Spitzberg, ff. Tr. 101, at 18-19; Tr. 169-170 (Spitzberg)).

68. Mr. Larsen reported the higher values of December 28-31, 1987, under prompting from the NRC Staff on February 9, 1988 (Spitzberg, ff. Tr. 101, at 20-21). When the Staff learned that other results showing high uranium concentrations had not been reported, it concluded that there had been willful noncompliance with the December 31, 1987 CAL by Mr. Larsen. Tr. 194 (Spitzburg). It was immaterial to the Staff that Mr. Larsen thought the high results were in error and should not be reported. According to the Staff, he was under obligation by the December 31 CAL to obtain and report the results of urinalysis on a prescribed schedule and he willfully failed his obligation. Even if some basis did exist for thinking the high results were inaccurate, the Staff felt entitled to scrutinize the data and reach its own independent conclusion as to its validity. Tr. 194-97 (Griffin). The samples not taken on January 3 and 6, 1988, and the failure to obtain background samples reinforced to the Staff that Mr. Larsen had willfully disregarded its orders (Flack, ff. Tr. 91, at 6-10).

69. The Board finds that the Staff was entitled to receive analytical results from all urine samples promptly after they were obtained by Mr. Larsen. *See* 10 C.F.R. Part 2, Appendix C, III. Even samples suspected of being contaminated should have been reported promptly, along with Mr. Larsen's explanation as to why he considered them invalid.

70. Mr. Larsen's failures in his urine sampling efforts might have led to kidney damage in himself and his son had the chronic intake continued. Tr. 383 (Fisher). It is only through review of a now-complete record that we find that the missing samples likely had no significance in preventing that outcome because the Staff had ordered that operations at Wrangler Laboratory be halted on December 31, 1987, and there was rapid biological excretion of uranium by the two individuals thereafter. Mr. Larsen is not excused from his obligation by our conclusion because the importance of the missing samples could not be known at the time the failures occurred. We agree with the Staff that it was imperative for the Licensee to give meticulous attention to detail and to assure that a complete and accurate urine sampling program be carried out. When the program was not executed as ordered, additional action was appropriate. However, the Staff gave inadequate consideration to the role played by error in the failure and to the ultimate significance of the failed obligation when it chose revocation as a remedy. 10 C.F.R. Part 2, Appendix C, V.E.

(c) *Willfulness*

71. The Board finds that Mr. Larsen's failures were not evidence of careless disregard of NRC regulations or of willful intent to violate NRC regulations. Beginning with the November 12, 1987 CAL, Mr. Larsen made serious albeit defective efforts to obtain urine samples as ordered. The record he generated was adequate for the Staff to assess the degree of contamination of himself and his workers and to conclude in the December 31, 1987 CAL that all operations at Wrangler Laboratory should be halted. Mr. Larsen's belief concerning the accuracy of samples was incorrect. His unilateral determination not to obtain required samples and not to report suspect samples was based on multiple incorrect assessments and misapprehension of his regulatory obligations. Nevertheless, reasons credible to Mr. Larsen existed for not doing these things and, even though factually incorrect, they are sufficient to defeat a conclusion of willful violation of NRC requirements or of careless disregard of regulations.

10 C.F.R. Part 2, Appendix C, V.E.

72. The record taken as a whole supports an alternative conclusion that Mr. Larsen lacked critical knowledge and organizational capability that was needed to carry on a business and effectively respond to multiple regulatory demands. He handled both technical and business decisions alone as a sole proprietor. He has not studied NRC regulations and does not understand them. Tr. 428-36, 473 (J. Larsen). He has only cursory training in the health physics principles and practice applicable to his business. Tr. 470-73; Tr. 537-41 (J. Larsen). His situation was deteriorating because of "adversarial" enforcement actions, inability to construct a laboratory (*see* p. 752, *supra*), closure of Wrangler Laboratory, and adverse results from urine sampling. Tr. 656-57 (S. Larsen); J. Larsen, ff. Tr. 342, at 1-8; December 26, 1988 Response, ff. Tr. 350, at 4-6, 8. The Board concludes that, while under stress and erroneous technical belief and judgment, he preferred to believe his samples were contaminated rather than confront realistically the unwelcome information from urine sampling which could only add to his burdens.

73. Adding to his burdens was his unrealistic expectation of sympathetic instruction rather than citation from inspectors who discovered safety deficiencies or violations of regulations. Tr. 480-81 (J. Larsen). The Staff was unwilling to assist (Tr. 317-18 (Flack)). His regulatory history shows that he learned of essential technical information and regulatory requirements the "hard way," through repeated cycles of violation and citation rather than serious study of what was expected and could be demanded of him (Tr. 473-76 (J. Larsen); Tr. 276-84 (Flack)). Indeed, even the hearing on his license revocation was a significant learning experience for him (Tr. 256, 465, 470-71, 473 (J. Larsen)). While he understands his own process for making UAA and showed substantial

insight in developing the process, his overall technical knowledge and concern were limited (Tr. 453-58 (J. Larsen)).

70. The Board finds that Mr. Larsen's manufacturing operation was of submarginal adequacy regarding concept of operations, facilities in which to conduct them, resources and equipment, and availability of reliable technical knowledge or advice. The operation required too much of one person working alone if he was to cope with all his business obligations while being held to all of the regulatory requirements demanded by the Staff. J. Larsen, ff. Tr. 342, at 2-3; Tr. 365-66, 399-403, 408-09, 412, 425 (J. Larsen). A result of this overburden is that Mr. Larsen perceived himself as under siege from the NRC staff and he suspected that it was biased against him. J. Larsen, ff. Tr. 342, at 8; Tr. 380-81 (J. Larsen).

75. The Board finds no evidence of Staff bias against Mr. Larsen and concludes that the Staff requirements for urine sampling were technically necessary and in accordance with NRC regulations. Tr. 273-84 (Flack). Requirements for bioassays were properly issued because Mr. Larsen's general license was subject to the provisions of 10 C.F.R. Part 20 by virtue of his possession of a specific license (suspended) in Utah. 10 C.F.R. §§ 20.108, 20.502, 40.22(b). Moreover, Mr. Larsen's manufacturing operation constituted a potential health hazard to Mr. Larsen and his employees.

76. The Board finds that Mr. Larsen's troubles in the urinalysis episode arose from his incorrect expectations, assessments, and lack of critical knowledge and inadequate resources and facilities. NRC regulations provide that a license may be revoked "[w]hen a licensee is unable or unwilling to comply with NRC requirements." 10 C.F.R. Part 2, Appendix C, § V.C.3(a). Mr. Larsen's assessment of his situation was that he was unable to comply with all of NRC's requirements in spite of substantial struggle to do so. Tr. 365-66, 370 (J. Larsen); J. Larsen, ff. Tr. 342, at 1-8. His conclusion applied generally to the problems of a small businessman in a demanding regulatory environment and specifically to his inability to obtain permission to construct a laboratory building and the consequent effects. Mr. Larsen freely acknowledged error whenever confronted with an alleged violation but pleaded inadequate capability and understanding throughout the proceeding as mitigating circumstances.

77. The Board finds that Mr. Larsen's self-assessment was correct and that the Wrangler enterprise as a whole was effectively too complex to be operated by one man with limited equipment, resources, and technical knowledge. The State of Utah apparently sought to enhance essential organizational capability when it imposed a requirement that Mr. Larsen obtain a radiation safety officer as a condition for lifting its suspension order. The Staff acknowledged the possibility that Mr. Larsen was unable to comply with its requirements rather than being unwilling to do so (Tr. 289 (Flack)). It would consent to a specific license only if a third party were to supervise the business (Tr. 185 (Flack)).

The Staff conclusion that chemical processing operations such as those engaged in by the Licensees should be conducted under a specific license was technically correct. Tr. 288, 311-12 (Flack).

78. The Board finds that Mr. Larsen was unable to comply adequately with requirements imposed by the Staff because of inadequate technical qualifications and resources within his company. Where there are violations of sufficient severity, that finding could be grounds for revocation of a specific license, under requirements imposed by 10 C.F.R. §§ 40.32(b), (c), and (d). However, this case does not involve a specific license. There are no NRC requirements for technical competence or institutional capability comparable to those listed above that a general licensee must meet. Tr. 189 (Flack). No license application or other demonstration of sufficiency is required to obtain a general license. Under the current regulations, Mr. Larsen's lack of technical qualifications and institutional capability are not violations of 10 C.F.R. § 40.22 and could not serve as the basis for denial of a license initially. Accordingly, the Board finds that, although the failures in the urine sampling program occurred as alleged by the Staff, they occurred because of a misunderstanding and inability of the Licensee to comply with NRC requirements. NRC rules do not provide for the sanction of revocation of a general license on the grounds of lack of technical and institutional capability and the violation of requirements on those subjects, which are not applicable to general licenses.

#### (7) *Contamination of Wyoming Facility*

79. The Revocation Order charges the Licensees with an apparent use of inadequate controls (at the Evanston, Wyoming facility) that resulted in facility contamination exceeding NRC guidelines (Revocation Order at 5; 53 Fed. Reg. at 32,126). Examples of "internal contamination of workers," as set forth in Finding 55, *supra*, and data from various contamination surveys, as described in Findings 81-85, *infra*, are relied on for this charge.

80. The referenced guidelines are "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," NRC, July 1982 (Radiological Survey Results, Table 1, Attachment to CAL 88-02, dated March 18, 1988, Docket 99990004/87-04, ff. Tr. 102; Spitzberg, ff. Tr. 101, at 22). As set forth in the Opinion section of this Decision, these standards are regulatory guidelines and do not have the force of regulatory requirements.

81. Surveys for possible contamination of the Wyoming facility were performed on November 4-5, 1987, by Dr. Spitzberg, and on January 19-20, 1988, by Oak Ridge Associated University (ORAU), as contractor for NRC Region IV. The November 1987 survey for alpha contamination showed levels above NRC guidelines in three areas. That survey also showed low-level contami-

nation below NRC guidelines throughout the facility. No contamination was shown outside the facility. The Staff regards these findings as consistent with the later findings of the ORAU survey. Spitzberg, ff. Tr. 101, at 5.

82. Specifically, the ORAU survey, through surface scans, identified seven small isolated floor areas of elevated direct beta-gamma radiation (three of which appear in the table set forth below). No elevated radiation levels were identified on wall surfaces. Radiological Survey Results, attached to CAL dated March 18, 1988, at 3.

83. A summary of surface contamination measurements on floor grid blocks is as follows:

Grid	Total Contam. (dpm/100 cm <sup>2</sup> )				Removable Contam. (dpm/100 cm <sup>2</sup> )	
	Alpha	Beta/Gamma		Alpha	Beta	
Blocks	Aver.	Max.	Aver.	Max.		
A,0	210	440	2500	5150	5	18
A,4	790	1100	3700	7030	45	80
B,2	490	790	5080	16400	61	130
B,5	570	870	2150	2850	9	13
B,8	580	870	6530	7940	3	18
D,2	240	290	3580	5730	<2	6
D,6	320	570	4120	6550	5	15
E,0	230	1350	1620	3030	9	18
E,8	230	590	4720	8180	<2	12
F,4	190	370	2780	3150	<2	<4
F,9	110	270	6190	9090	21	31
NRC GUIDE	5000	15000	5000	15000	1000	1000

*Id.*, Table 1 (emphasis supplied).

84. The ORAU survey expressed the opinion that the beta-gamma measurements are more representative of the true surface contamination levels and it recommended use of these data for comparison with guidelines, rather than the alpha data (*id.* at 3). With respect to the grid blocks listed in Finding 83, the beta-gamma measurements revealed three measurements above the average-contamination guideline and only one above the maximum-contamination guideline. The ORAU survey concluded that there were three grid blocks and two additional small areas on the floor having residual contamination levels in excess of NRC guidelines, as well as seven pieces of equipment and several supply items also contaminated above release limits (*id.* at 4). Chemical spills giving

rise to contamination are demonstrated by Staff Exhs. 9, 11, and 16 (Tr. 126, 129, 133 (Spitzberg)).

85. The Board finds that, based on the above measurements, the Wyoming facility exhibited contamination levels that exceeded NRC guide levels in certain areas and, in general, reflected low-level contamination in other surveyed areas. No showing has been made that the demonstrated contamination levels resulted in a violation of the dose standards of 10 C.F.R. Part 20. Because the contamination guides do not represent regulatory requirements, and because there are no contamination levels governing facilities operating under general licenses, the demonstrated contamination does not in itself represent a violation or violations of regulatory standards for which a penalty may be imposed.

#### *(8) History of Continuing Violations*

86. As bases for license revocation, the Revocation Order relied not only on recent violations but on a history of violations extending as far back as 1982. Specifically, the Revocation Order first pointed to an August 1982 inspection, during which the NRC determined that the Licensee (Orion Chemical Co., one of the Licensees in this proceeding) was in violation of "several regulatory requirements." Those violations were asserted to include

possession of source material at one time in excess of the 15-pound limitation on such material, refusal to make records available to NRC, unauthorized disposal of DU [depleted uranium], and failure to maintain complete records.

Revocation Order at 2; 53 Fed. Reg. at 32,126; Staff Exh. 1 at Exh. 1, pp. 2-3; Flack, ff. Tr. 91, at 5.

87. As a result of those asserted violations, the NRC on September 3, 1982, issued an Order to Show Cause and Order Temporarily Suspending License (Effective Immediately) (Staff Exh. 1 at Exh. 1). On October 25, 1982, based on the Licensee's promised corrective actions, the NRC issued an Order Rescinding Order to Show Cause and Order Temporarily Suspending License (Staff Exh. 1 at Exh. 2, and Staff Exh. 1A). Thereafter, on December 15, 1982, the NRC issued a Notice of Violation (NOV) and Proposed Imposition of Civil Penalty for the aforementioned violations in the amount of \$500 (Staff Exh. 1 at Exh. 3). On March 11, 1983, the Licensee filed a response to the NOV and paid the proposed civil penalty (Staff Exh. 1 at Exh. 4).

88. The Staff takes the position that the Licensee (i.e., Orion Chemical Co), in its March 11, 1983 response, admitted the four violations and expressed the intent not to violate any regulations in the future (Staff Proposed FOF, ¶ 14). Although technically accurate, we do not regard three of the four so-called

admissions as matters that can be considered adverse to the Licensees in this proceeding, for the reasons that follow.

89. The Licensee stated that it did not deny the allegation of having more than 15 pounds of source material at one time. As we concluded in the Opinion section of this Decision, however, the possession of more than 15 pounds at one time does not, in itself, constitute a violation of the general-license authorization. For this reason, this alleged violation is not considered adverse to the Licensees in this proceeding.

90. The Licensee stated that it did not deny the allegation of not making records available to NRC but it denied having "refused" to do so. Mr. Larsen explicitly denied the statement in the OI Report (Staff Exh. 1 at Exh. 5; Tr. 279 (Flack)) that he had refused to produce the documents because they were "proprietary" (Tr. 392-93 (J. Larsen)). The Licensee explained that the records were "at different places when the inspector arrived" and were not "together in any one place." Also, the records were explained as needing updating. The Licensee offered to make the records available the next morning, but the inspector stated that he needed them immediately. Staff Exh. 1 at Exh. 4; Tr. 391-93 (J. Larsen).

91. There is insufficient record support for us to find that the Licensee "refused" to make records available. The author of the statement in Exhibit 5 of Staff Exh. 1 did not testify, and we are unwilling to evaluate the credibility of that statement against the sworn statements of Mr. Larsen.

92. We find, however, that he was unable to make records available in a timely manner and hence was in violation of the requirements of 10 C.F.R. §§ 40.61 and 40.62(b), which are applicable to general licensees. Although this violation does not involve the willfulness of a "refusal," it nevertheless must be taken into account in assessing whether the general license should be revoked. Since it is essentially the same violation as the fourth one listed here, it will be taken into account only once.

93. With respect to the allegation of "unauthorized disposal of DU," the Licensee acknowledged spillage outside the facility during the course of performing work, but it denied unauthorized disposal of compounds (Staff Exh. 1 at Exh. 4). We do not equate spillage with unauthorized disposal and find no evidence that the Licensee disposed of material in an unauthorized manner during the 1982-83 time frame. To the extent that this allegation concerns improper disposal, it cannot adversely be taken into account in the Revocation Order.

94. The Licensee acknowledged that it failed to maintain updated records but indicated that it would improve its record-keeping. This is essentially the same type of violation as the recording-keeping violation listed above and will be taken into account by us as one instance of an improper practice.

95. Apart from the shipment violations discussed in Findings 38-43, *infra*, the history of violations was also asserted to include other violations of the Utah

specific license that led to the Utah suspension order. The Revocation Order states that, on April 15, 1986, NRC received an allegation of improper activities at Larsen Laboratories, and that this allegation was transferred to the State of Utah, which performed inspections and found numerous violations. Revocation Order at 3; 53 Fed. Reg. at 32,126.

96. The Revocation Order goes on to recite that Utah found five of the Licensees' facilities to be contaminated and that, at one of these facilities, contaminated liquids were leaking from drums that had been stored on a truck for approximately 2 years. Revocation Order at 3; 53 Fed. Reg. at 32,126; Staff Exh. 1 at Exh. 6. The State of Utah was never notified regarding the use of licensed material at the five facilities, as required by the Utah license (Tr. 699-701 (Jones)). As a result, Utah issued the suspension order that is still in effect, imposing conditions on further operations (some of which have not yet been satisfied) (*see* Finding 41, *supra*).

97. The Licensees have raised certain questions concerning the events that led to the Utah suspension order (Larsen Test. at 5). We are making no independent findings with respect to whether any of the Licensees have violated Utah requirements or whether (apart from shipments, as set forth *supra*) those violations would constitute violations of NRC general-license requirements. We note that, under a general license, a Licensee would not be required to notify the licensing authority that licensed operations were being carried on at a given facility, although certain records would have to be maintained concerning receipt or shipment of materials. We accept the Utah suspension order as indicative that some violations occurred (albeit of Utah standards) and thus as reflective of the Licensees' ability to comply with governing regulatory requirements.

#### E. Penalties for Violations

98. The NRC Staff did not categorize the level of severity of any of the individual alleged violations that collectively led to the Revocation Order (Flack Response to Board Questions at 2-4, Question 2). In 1982, the Staff described the "receipt and use" of source material beyond the limits of 10 C.F.R. § 40.22 as a Severity Level III (Supplement VI) violation, the alleged "refusal" to make records of transfer of source material available to an NRC inspector as a Severity Level IV (Supplement VI) violation, improper disposal of source material as a Severity Level IV (Supplement VI) violation, and the failure to keep complete records of the receipt of source material as a Severity Level IV (Supplement VI) violation (Staff Exh. 1 at Exh. 3, pp. II-36 and II-37). The Staff described the "most significant" of the 1982 violations as those involving the receipt and use of excessive amounts of source material and the failure to make available records of source material transfer (*id.* at Exh. 3, p. II-36).

99. None of the proven violations as set forth herein individually meets the criteria of Severity Levels I or II (Supplement VI). We find that the most severe of any of the proven violations is Severity Level III (Supplement VI).

## **II. CONCLUSIONS OF LAW**

### **A. Applicability of 10 C.F.R. Part 20 to the Licensees**

1. The proviso of 10 C.F.R. § 40.22(b) limits the exemption of general licensees from the requirements of 10 C.F.R. Part 20 to general licensees who are not in possession of source material under a specific license. The exemption is not applicable to the Licensees because one of them was in possession of source material under a suspended Utah specific license, which had been initially issued under 10 C.F.R. Part 40 at a time prior to Utah's becoming an agreement state. The circumstance that the Utah specific license is suspended does not defeat the applicability to Licensees of the exemption limitation set forth in 10 C.F.R. § 40.22(b).

2. The Licensees in their operations under a general license are subject to the requirements of 10 C.F.R. Part 20.

### **B. Possession Limits for General Licenses Under 10 C.F.R. § 40.22**

3. The general license authorized by 10 C.F.R. § 40.22 limits the "use and transfer" of source material at any one time by a general licensee to not more than 15 pounds, and it limits the "receipt" of source material by a general licensee to not more than 150 pounds in any one calendar year. The general-license authorization places no limits on "possession" of source material, either at any one time or annually. The legislative history which refers to a possible annual limit is not sufficiently clear to overcome the clearly stated language of the regulation as written.

### **C. Adequacy of Facilities and Qualifications of Personnel Under a General License**

4. No regulatory requirement governs the adequacy of facilities or the qualifications or training of personnel under a general license authorized by 10 C.F.R. § 40.22. The requirements of 10 C.F.R. §§ 40.32(b) (concerning qualifications of a proposed licensee) and 40.32(c) (concerning adequacy of equipment, facilities, and procedures) are applicable only to specific licenses.

## D. Authority for Prohibiting Activities Under a General License

5. In enacting a predecessor version of the general-license authorization currently appearing at 10 C.F.R. § 40.22, the Commission determined that activities utilizing small quantities of source material, to the extent specified therein, "can be conducted without any unreasonable hazard to life or property." 25 Fed. Reg. 8619 (Sept. 7, 1960).

6. Although the Commission is generally authorized to issue orders establishing safety standards and modifying or revoking any license because of conditions that would warrant the refusal of an initial license or for violation of Commission regulations (see Atomic Energy Act of 1954, as amended, §§ 161b, 161i, 186, and 187, 42 U.S.C. §§ 2201(b), 2201(i), 2236, and 2237), that authority does not authorize the Commission, through its Staff, to place additional restrictions on licenses beyond those determined by the Commission to be adequate in Rules governing such licenses (including general licenses). Nor does that authority authorize revocation of a license for violation of regulations not governing the license in question.

7. None of the Licensees' activities have been found to violate the standards of 10 C.F.R. Part 20. The activities that have been shown to violate 10 C.F.R. § 40.22 do not represent significant violations of that regulation and are not sufficiently serious, absent any showing of intentional violation, to warrant the severe penalty of revocation.

## Order

On the basis of the foregoing Findings of Fact, Conclusions of Law, and Opinion, and the entire record, it is, this 22d day of December 1989, ORDERED:

1. The Staff's Revocation Order, dated August 18, 1988, is hereby *sustained in part and reversed in part*.

2. The Licensees shall not be permitted to carry on operations involving the chemical processing of DU under authority of 10 C.F.R. § 40.22 until the Staff determines that they have complied with conditions as described in Part IV of the Opinion portion of this Decision.

3. In accordance with 10 C.F.R. §§ 2.760, 2.762, 2.785, and 2.786, as amended, this Initial Decision shall become effective immediately and will constitute the final decision of the Commission thirty (30) days after issuance hereof, subject to any review pursuant to the above-cited Rules of Practice.

4. Any party may take an appeal from this Initial Decision by filing, within ten (10) days of service of this Decision, a Notice of Appeal with the Atomic Safety and Licensing Appeal Board. Each appellant must file a brief supporting its position on appeal within thirty (30) days after filing its Notice of Appeal (forty (40) days if the Staff is the appellant). Within thirty (30) days after the

period has expired for the filing and service of the briefs of all appellants (forty (40) days in the case of the Staff), a party who is not an appellant may file a brief in support of, or in opposition to, any such appeal(s). All briefs must be in substantial compliance with requirements as to form and content set forth in 10 C.F.R. § 2.762(d) and (e).

**THE ATOMIC SAFETY AND  
LICENSING BOARD**

**Charles Bechhoefer, Chairman  
ADMINISTRATIVE JUDGE**

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

**Frederick J. Shon  
ADMINISTRATIVE JUDGE**

Bethesda, Maryland  
December 22, 1989



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Thomas E. Murley, Director

**In the Matter of**

<b>BOSTON EDISON COMPANY</b> (Pilgrim Nuclear Generating Station)	<b>Docket No. 50-293</b>
<b>CAROLINA POWER &amp; LIGHT COMPANY</b> (Brunswick Station, Units 1 and 2)	<b>Docket Nos. 50-324 50-325</b>
<b>CLEVELAND ELECTRIC ILLUMINATING COMPANY, <i>et al.</i></b> (Perry Nuclear Power Plant, Unit 1)	<b>Docket No. 50-440</b>
<b>COMMONWEALTH EDISON COMPANY</b> (Dresden Nuclear Power Plant, Units 2 and 3) (Quad Cities Nuclear Power Plant, Units 1 and 2) (LaSalle County Station, Units 1 and 2)	<b>Docket Nos. 50-237 50-249 50-254 50-265 50-373 50-374</b>
<b>CONSUMERS POWER COMPANY</b> (Big Rock Point Plant)	<b>Docket No. 50-155</b>
<b>DETROIT EDISON COMPANY</b> (Enrico Fermi Atomic Power Plant, Unit 2)	<b>Docket No. 50-341</b>

<b>GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION</b> <b>(Oyster Creek Nuclear Generating Station)</b>	Docket No. 50-219
<b>GEORGIA POWER COMPANY</b> <b>(Hatch Nuclear Power Plant, Units 1 and 2)</b>	Docket Nos. 50-321 50-366
<b>GULF STATES UTILITIES COMPANY</b> <b>(River Bend Station, Unit 1)</b>	Docket No. 50-458
<b>ILLINOIS POWER COMPANY</b> <b>(Clinton Power Station)</b>	Docket No. 50-461
<b>IOWA ELECTRIC LIGHT &amp; POWER COMPANY</b> <b>(Duane Arnold Energy Center)</b>	Docket No. 50-331
<b>LONG ISLAND LIGHTING COMPANY</b> <b>(Shoreham Nuclear Power Plant, Unit 1)</b>	Docket No. 50-322
<b>MISSISSIPPI POWER &amp; LIGHT COMPANY</b> <b>(Grand Gulf Nuclear Station, Unit 1)</b>	Docket No. 50-416
<b>NEBRASKA PUBLIC POWER DISTRICT</b> <b>(Cooper Station, Unit 1)</b>	Docket No. 50-298
<b>NIAGARA MOHAWK POWER CORPORATION</b> <b>(Nine Mile Point Plant, Units 1 and 2)</b>	Docket Nos. 50-220 50-410
<b>NORTHEAST UTILITIES</b> <b>(Millstone Unit 1)</b>	Docket No. 50-245

<b>NORTHERN STATES POWER COMPANY</b> (Monticello Nuclear Generating Plant, Unit 1)	<b>Docket No. 50-263</b>
<b>PENNSYLVANIA POWER &amp; LIGHT COMPANY</b> (Susquehanna Steam Electric Station, Units 1 and 2)	<b>Docket Nos. 50-387 50-388</b>
<b>PHILADELPHIA ELECTRIC COMPANY</b> (Peach Bottom Atomic Power Station, Units 2 and 3) (Limerick Generating Station, Unit 1)	<b>Docket Nos. 50-277 50-278 50-352</b>
<b>POWER AUTHORITY OF THE STATE OF NEW YORK</b> (James A. Fitzpatrick Nuclear Power Plant)	<b>Docket No. 50-333</b>
<b>PUBLIC SERVICE ELECTRIC &amp; GAS COMPANY</b> (Hope Creek Generating Station, Unit 1)	<b>Docket No. 50-354</b>
<b>TENNESSEE VALLEY AUTHORITY</b> (Browns Ferry Nuclear Plant, Units 1, 2, and 3)	<b>Docket Nos. 50-259 50-260 50-296</b>
<b>VERMONT YANKEE NUCLEAR POWER CORPORATION</b> (Vermont Yankee Nuclear Power Station)	<b>Docket No. 50-271</b>
<b>WASHINGTON PUBLIC POWER SUPPLY SYSTEM</b> (WNP Unit 2)	<b>Docket No. 50-397</b> <b>December 4, 1989</b>

The Director of the Office of Nuclear Reactor Regulation denies a petition filed by Ms. Anna Harlowe on behalf of the Ecology Center of Southern California (Petitioner), who requested the Nuclear Regulatory Commission

(NRC) to fix or close all nuclear reactors designed by the General Electric Company (GE). Based on evaluations of previous NRC safety studies of GE-designed reactors, and based on the Commission's method for evaluating severe accidents, as opposed to design-basis accidents, the Director determined that the NRC had previously reviewed and satisfactorily resolved all technical issues raised by Petitioner. The Director also determined that the NRC had no jurisdiction to take enforcement action on the basis of the economic issues raised by Petitioner, and that enforcement action regarding the GE Advanced Boiling Water Reactor was not yet ripe for consideration.

## **REGULATIONS: LICENSING STANDARDS**

The Commission's regulations require plant design to satisfy certain standards, as specified in the General Design Criteria (GDC) in 10 C.F.R. Part 50, Appendix A. Specific information is provided in the NRC's Standard Review Plan (SRP) which details acceptable methods for complying with the requirements established in the GDC.

The scenarios for postulated accidents, to which all plants are designed to adequately respond, are known as design-basis accidents and are detailed in the NRC's Standard Review Plan, which is used to evaluate the design of each nuclear power plant before the granting of a construction permit or an operating license.

## **NUCLEAR REGULATORY COMMISSION: AUTHORITY**

The NRC has authority to govern any activity authorized pursuant to the Atomic Energy Act of 1954, as amended, in order to protect health and to minimize danger to life or property. Because economic problems and cost overruns raise no threat to public health and safety, they do not provide the NRC with a basis on which to act.

## **RULES OF PRACTICE: SHOW-CAUSE PROCEEDING**

The institution of proceedings pursuant to 10 C.F.R. § 2.202 is appropriate only when substantial health and safety issues have been raised.

## **TECHNICAL ISSUES DISCUSSED**

Defense in Depth;  
Design-Basis Accidents;  
Severe Accidents;

Probabilistic Risk Assessment;  
BWR Mark I Containment Failure;  
Combustible Gas Control in Light-Water Reactors;  
Hydrodynamic and Safety-Relief Discharge Loads;  
Generic Issue 61;  
Individual Plant Examination Program;  
Hardened Wetwell Vent Capability.

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

### I. INTRODUCTION

On March 8, 1989, Ms. Anna Harlowe, on behalf of the Ecology Center of Southern California (Petitioner), filed a Petition in accordance with 10 C.F.R. § 2.206 with the Nuclear Regulatory Commission (NRC). The Petition was referred to the Director, Office of Nuclear Reactor Regulation (NRR), for consideration.

The Petition asked the Director, NRR, to fix or close all nuclear reactors designed by the General Electric Company (GE). As a basis for this request, the Petitioner alleged the following:

(1) In 1972, a member of the NRC Staff recommended that GE-designed reactors be banned in the United States; (2) in 1975, GE engineers generated the "Reed Report" that detailed dozens of safety and economic problems with GE-designed reactors and recommended that GE stop selling those reactors; (3) in 1986, an NRC official admitted that twenty-four GE reactors with Mark I containments had a 90% chance of failure in a nuclear accident; (4) in 1987, an NRC task force confirmed that Mark I containments were virtually certain to fail in an accident; (5) according to NRC safety studies, Mark II reactors have many possible scenarios for early containment failures; and (6) Mark II designs, on which the Reed Report focused, have dozens of safety and economic problems and have suffered massive cost overruns during construction as a result of design problems. Ms. Harlowe also expressed concern that the GE Advanced Boiling Water Reactor design "fails to address many of the shortcomings identified by General Electric's own engineers as far back as the 1975 Reed Report" (Petition at 2).

On June 5, 1989, I acknowledged receipt of the Petition. I informed Ms. Harlowe that (1) the Petition would be treated under 10 C.F.R. § 2.206 of the Commission's regulations, and (2) appropriate action would be taken

within a reasonable amount of time. For reasons discussed below, the Petition is denied.

## II. BACKGROUND

The Petitioner alleges that in 1972, a Nuclear Regulatory Commission staff member recommended that GE-type reactors be banned in the United States. It appears that the Petitioner is making reference to a memorandum by Dr. Steven Hanauer, dated September 20, 1972. Specifically, Dr. Hanauer was concerned that then recently highlighted safety disadvantages of pressure-suppression containments might outweigh the safety advantages. He recommended that the Atomic Energy Commission (predecessor to the Nuclear Regulatory Commission) adopt a policy to discourage further use of pressure-suppression containments and that such designs not be accepted for construction permits filed 2 years after the policy would be adopted.

The Petitioner also refers to a 1975 GE document known as the "Reed Report." The Reed Report was a self-critical study performed by GE staff in 1975. It was intended as a product improvement study to enhance the availability and performance of GE's boiling water reactors (BWRs). The report, by its nature a candid self-analysis, was intended for GE's internal use only. It had always been held by GE to be "proprietary," and thus not subject to public disclosure. The principal author of the report was Dr. Charles E. Reed, a Senior Vice President of GE. Contributors included technical and professional personnel from a variety of GE departments. Their efforts resulted in the Nuclear Reactor Study, referred to today as the Reed Report, and a set of ten subtask reports that provided the detailed technical information used to develop the Nuclear Reactor Study.

The Reed Report addressed operating BWRs and the design of future GE products and services in the nuclear field. For reactors in operation at the time, the report discussed ways to improve a plant's availability and its electrical generating capacity factor through improvements in plant hardware and also in service, fuel, equipment, and operating procedures. For future reactors, the report considered GE's then-new BWR design, the BWR-6, and discussed problems regarding final design details, licensing, and full-power operation of BWR-6 plants.

The Petitioner also refers to an early 1986 statement by a senior NRC official that the containment vessels on twenty-four GE reactors have a 90% chance of failure in a nuclear accident. Ms. Harlowe most likely is referring to a quote from Harold Denton in *Inside NRC*, Vol. 8, No. 12, June 9, 1986, wherein Mr. Denton was quoted as saying:

I don't have the same warm feeling about GE containment that I do about the larger dry containments. There has been a lot of work done on those containments, but Mark I containments, especially being smaller with lower design pressure — and in spite of the suppression pool — if you look (at the) WASH 1400 reg safety study, you'll find something like a 90% probability of that containment failing."

The Petitioner also alleges that a late 1987 finding of an NRC task force confirmed that the failure rate of these twenty-four Mark I reactors is such that their containments are "virtually certain" to fail in an accident. Although it is not clear which specific study the Petitioner is referring to, it is presumed that she refers to the "Reactor Risk Reference Document," Draft NUREG-1150, dated February 1987. NUREG-1150 estimated the probability of total core damage frequency for the Peach Bottom reactor, which is similar in design to the typical Mark I reactor, to be  $8.2 \times 10^{-6}$  per reactor year. However, NUREG-1150 went further and evaluated Mark I and other reactor design risk scenarios given that a severe (core-melt) accident (low-probability event) had already taken place. Accounting for comments received from the public and three formal peer reviews, a second draft for peer review titled "Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants, Summary Report, Second Draft for Peer Review," NUREG-1150, was issued in June 1989 in two volumes. Volume 1 provides summaries of the risk analysis results for the five plants studied, perspectives on these results, and a discussion of the role of these risk analyses in the NRC Staff's severe-accident regulatory program. Volume 2 provides a more detailed discussion of the methods used in the risk analyses, additional discussion on specific technical issues important in the analyses, and responses to comments received on the earlier draft.

Petitioner also alleges that Mark II reactors (eight of which are operating) still have many possible scenarios for early containment failure according to NRC safety studies. Petitioner is most likely referring to studies conducted as part of the Containment Performance Improvement, Individual Plant Examinations, and Severe Accident Policy programs. NRC studies are ongoing and not yet complete, but the NRC has made preliminary specific assessments of Mark II containment performance.

Lastly, Petitioner alleges that "Mark II reactors on which the 1975 General Electric Reed Report was primarily focused have the aforementioned 'dozens of safety and economic problems,' and have suffered massive cost overruns during construction as a result of design problems." It is believed, based on the Staff's review of the Reed Report, that Petitioner is referring to Mark III reactors, not Mark II reactors, and it is on this premise that my discussion is based.

### III. DISCUSSION

#### A. Mark I Containment Concerns

Petitioner's alleged "facts" that she wishes placed under consideration for relief contain three items that appear to be directed at the GE Mark I containment design. These are (1) that "in 1972 a Federal Nuclear Regulatory Commission [sic] staff member recommended that General Electric-type reactors be banned in the United States," (2) that in 1986, "a top Nuclear Regulatory Commission official admitted that the containment vessels, the last barrier to radiation release, on 24 GE reactors have a *90 percent chance of failure* in a nuclear accident," and (3) that "in late 1987, a Nuclear Regulatory Commission task force confirmed the failure rate of these 24 'mark I' reactors, saying that their containments are *virtually certain to fail in an accident.*"<sup>1</sup>

Petitioner does not provide any information of which the Staff was unaware. In fact, similar, more specific and detailed concerns relative to alleged Mark I containment design deficiencies were previously addressed in Interim Director's Decision DD-87-14 concerning the Pilgrim Nuclear Power Plant on August 21, 1987.<sup>2</sup> As stated in that Decision, containment structures are an integral part of the U.S. reactor designs in that they form one part of a structured, tiered approach to public safety known as defense in depth. Concisely put, defense in depth is the process implemented by the AEC (later NRC) to ensure that multiple levels of assurance and safety exist to minimize the risk to the public of exposure to ionizing radiation resulting from equipment failures, transients, and postulated accidents.

A primary level of assurance is those activities to ensure that the plant is designed and constructed to high-quality standards. The Commission's regulations require plant design to satisfy certain standards, as specified in the General Design Criteria (GDC) in 10 C.F.R. Part 50, Appendix A. Specific information is provided in the NRC's Standard Review Plan (SRP) which details acceptable methods for complying with the requirements established in the GDC.

Early in the development of commercial nuclear power, it was recognized that these complex systems could not be expected to be immune from various failures and malfunctions, regardless of the quality of design, construction, and operation. Therefore, a further level of defense was established in that the plants were required to be designed to cope successfully with various equipment failures, transients, and postulated accidents. The scenarios for postulated accidents, to which all plants are designed to adequately respond, are known as design-basis accidents and are detailed in the NRC's Standard Review Plan,

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<sup>1</sup>Ecology Center of Southern California Petition at 1.

<sup>2</sup>Boston Edison Co. (Pilgrim Nuclear Generating Station), DD-87-14, 26 NRC 87 (1987).

which is used to evaluate the design of each nuclear power plant before the granting of a construction permit or an operating license.

Design-basis accidents were chosen to represent a wide spectrum of plant problems, some of which were expected to be experienced in the plant's lifetime (such as failure of power systems), as well as events considered to be quite infrequent (such as major ruptures of piping systems) and not expected to occur in the plant's lifetime.

The NRC Standard Review Plan also identifies acceptable plant protection standards for each postulated plant accident. The requirements and capabilities of plant safety systems necessary to prevent these design-basis accidents from leading to unacceptable radiological releases are specifically identified. The Standard Review Plan gives acceptance criteria for judging the acceptability of the analytical results in response to these hypothetical scenarios. The resulting plant design incorporates multiple and backup safety systems that will protect the reactor during a design-basis accident and a postulated single failure in each system of these various protection devices.

Notwithstanding the above, additional margins are required in the plant design to protect the public even in the event of very unlikely accidents. The reactor containment provides an additional level of safety. Design-basis accidents for containment reflect a number of arbitrary accident sequences developed from postulated events. For example, the containment structural design is based upon the effects of a concurrent earthquake and a rupture of major reactor coolant system piping. Concurrently, in order to assess the effectiveness of leaktightness, the safety systems are presumed not to be effective in cooling the reactor core, resulting in the release of fission products from the reactor core. Although the design-basis accidents discussed above are allowed to result in some failed fuel (less than 1%), they do not result in significant core damage. For the containment design, some independent failures of the protection systems are assumed to occur simultaneously with the occurrence of the accident they are intended to control. Although the purpose of other safety systems is to shut down the reactor fission process and provide emergency cooling water to the reactor core, the containment has a required function of providing an essentially leaktight barrier to "bottle up" any radioactive material released to the containment through any rupture or break in the reactor coolant system. Given the release of the radioactive material and cooling water, the containment is required to retain this material and prevent significant releases to the environment. Consequently, the assessment of containment design adequacy assumes the postulated release of fission products to the containment irrespective of the performance of the core-cooling safety systems.

Although design-basis accidents are used to determine the adequacy of plant systems' design and performance under postulated accident conditions, severe accidents are analyzed by imposing a set of additional assumptions to further

presume that these systems will not work as designed. The containment design basis reflects a combination of parameters incorporating several design-basis accidents for structural considerations coupled with an assumed release of radioactive material to containment for assessing leaktightness.

In summary, the design purpose of the reactor containment is to protect against postulated radioactive releases from hypothetical reactor accidents up to and including major ruptures of reactor coolant piping, where such events resulted in some degree of core damage. These hypothetical events postulated a release of fission products from the reactor core to the reactor coolant system and subsequently into the containment through the pipe break. This was considered one of the less likely, but possible accidents and supplied a straightforward means of providing additional margins for containment design.

The concept of severe nuclear accidents and how these accidents fit within the framework of protection from design-basis accidents must also be considered.<sup>3</sup> For the last several years, the Staff has been studying the likelihood and consequences of extremely low-probability accidents involving multiple failures that lead to core damage. This class of accidents is beyond the existing design basis and is generally known as severe accidents. This evaluation was first done comprehensively by the Reactor Safety Study (WASH-1400), which is known as a probabilistic risk assessment (PRA). The types of accidents studied in this evaluation are basically those in which backup safety systems fail, eventually resulting in damage to the nuclear fuel and considerable releases of radioactive material outside the reactor cooling system into the containment. Depending on other failures and containment behavior, significant radiological releases into the environment could conceivably occur. Implicit in these scenarios is the development of a better understanding of containment performance and its failure mechanisms.

More detailed PRA studies have been conducted since the publication of WASH-1400 to better understand the probability of these unlikely events and also to better predict the magnitude of potential radiological releases into the environment, given a containment failure and attendant consequences. Considerable work has also focused on the behavior of reactor containments following a severe accident in which molten reactor fuel could potentially melt through the reactor vessel. Results of such studies have generally confirmed the very low likelihood of such accidents and the relatively low risk to the public even if such very low-probability accidents were to occur. Although not originally designed to protect against some of the severe accidents, reactor containments provide considerable protection due to their ability to reduce radiological releases to the

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<sup>3</sup> Severe accidents are defined as those "in which substantial damage is done to the reactor core, whether or not there are serious offsite consequences." This definition is extracted from the "Policy Statement on Severe Reactor Accidents Regarding Future Designs and Existing Plants," 50 Fed. Reg. 32,138 (Aug. 8, 1985).

public from such accidents. For example, the results of research work indicate that the actual pressure-retaining capability of most containments is well above their original design pressures. Studies also indicate that the massive containment structures may provide substantial retention of radioactive material even if they were to fail following a core-melt event. As discussed below, there exists a wide range of uncertainty regarding a Mark I containment's behavior during a core-melt accident. A recent study judged the probability of some form of containment failure, assuming a core melt had occurred, to be between 10 and 90%.<sup>4</sup> However, the total core damage frequency for the BWR Mark I design (Peach Bottom) was less than the total core damage frequency of the other four reactor designs studied by generally an order of magnitude or more.

Because of the very complex processes involved in a severe reactor accident, exact predictions of accident consequences are difficult. Considerable research is under way to provide additional information in this area. Results from such studies allow NRC Staff to focus attention on areas in which improvements can be made to provide increased levels of safety from these very unlikely events. The purpose of these projects is to conduct hypothetical "what if" studies, to understand ways public risk from nuclear operations can be justifiably reduced. The results of our studies indicate that risks from these severe accidents are very low and do not warrant immediate actions.

Petitioner has expressed concerns that are based on a memorandum written on September 20, 1972, by Dr. S.H. Hanauer, a member of the staff of the Atomic Energy Commission (AEC) (the NRC succeeded the AEC in 1975). These concerns relate to the ability of the Mark I containment to respond adequately to its original design function (i.e., deal with a large loss-of-coolant accident). Dr. Hanauer's memorandum raised seven concerns, all of which centered on the viability of the pressure-suppression containment concept. They relate to steam-bypass susceptibility, valve reliability, lack of adequate testing, and volume limitations causing overcrowding.

When Dr. Hanauer's seven concerns were raised, the Staff evaluated each of them to determine whether adequate safety margins were being maintained on existing plants. Subsequently, the NRC Staff concluded that Dr. Hanauer's concerns had been properly considered and documented its findings in NUREG-0474, "A Technical Update on Pressure Suppression Type Containments in Use in U.S. Light Water Reactor Nuclear Power Plants," issued in July 1978.

Enclosure A to NUREG-0474 summarizes NRC Staff actions related to each of the seven concerns identified in Dr. Hanauer's memorandum of September 20, 1972. A copy of that enclosure is being provided to the Petitioner with this Decision. Each statement of concern was followed by a response that reflected

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<sup>4</sup>The "Reactor Risk Reference Document" — Draft (NUREG-1150), February 1987.

the NRC evaluation. In each case, the response showed that the NRC no longer considered the concern an unresolved safety issue.

It should be noted that although the concerns reflected the views of Dr. Hanauer in September 1972, the NRC response reflected the status of the issues in July 1978. Moreover, by June 1978, Dr. Hanauer had changed his opinion regarding his 1972 concerns, as reflected in a memorandum dated June 20, 1978, in which he stated: "Thus while we may yearn for the greater simplicity of 'dry' containments, the problems of both 'dry' and pressure-suppression containments are solvable, in my opinion, and the design safe, therefore licensable" (NUREG-0474).

Our review of the Petitioner's concern that is based on Dr. Hanauer's memorandum indicates that this concern has been addressed in NUREG-0474. Although various changes have occurred since then, the fundamental safety conclusions stated in NUREG-0474 are essentially unchanged. The most notable of the changes has been the NRC position related to rendering the containment inert.<sup>5</sup> Since NUREG-0474 was issued, the regulations relating to this issue (10 C.F.R. § 50.44, "Standards for Combustible Gas Control System in Light-Water-Cooled Power Reactors") have been revised to require all Mark I and II containments to be rendered inert. The response to Dr. Hanauer's concern (see Item B of Enclosure A to NUREG-0474) indicates that most Mark I containments were already rendered inert. With the issuance of the revised section 50.44, the Commission required all Mark I and II containments to be rendered inert to accommodate the degraded-core accident. A review of this and other changes made since NUREG-0474 was issued, indicates that in no case have the changes altered the fundamental Staff conclusions concerning safety contained in NUREG-0474.

Test programs were initiated by utilities owning Mark I plants as part of a program in response to NRC letters that were transmitted in February and April 1975 to all utilities owning BWR facilities with Mark I design containments. The letters requested that the owners quantify the hydrodynamic and safety-relief valve (SRV) discharge loads and assess the effect of these loads on the containment. (These loads had not been considered during the licensing of the individual plants because these loads (including pool swell) were identified in the period 1972 through 1974 as part of the review of the large-scale testing of the Mark III containment system design.)

As a result of these letters from the NRC and in recognition that the evaluation effort would be very similar for all Mark I BWR plants, the utilities formed an *ad hoc* Mark I Owners Group. The objectives of this Owners Group were to determine the magnitude and significance of these dynamic loads as quickly as

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<sup>5</sup>An inerted containment is one in which oxygen is replaced by enough nitrogen to preclude combustion.

possible and to identify actions to resolve any outstanding safety concerns. A series of generic test programs was created to accomplish these objectives.

Since NUREG-0474 was issued in July 1978, the generic test programs related to the Mark I containment design and the NRC assessment of the tests have been completed. The Staff evaluation of the generic test programs was reported in NUREG-0661, "Mark I Containment Long Term Program Safety Evaluation Report," issued in July 1980. NUREG-0661 describes and presents Staff conclusions regarding the generic techniques for the definition of suppression pool hydrodynamic loads in a Mark I system and the related structural acceptance criteria. As part of the acceptance criteria, the Staff required that a plant-specific analysis be submitted by the Licensees for all twenty-four plants having Mark I containments. These analyses have been reviewed and approved by the Staff. All modifications proposed by the Licensees to satisfy the criteria contained in NUREG-0661 have been completed.

Another of Dr. Hanauer's concerns focused on the safety disadvantages of pressure-suppression containments. This issue is related to the possibility of steam bypassing the suppression pool in BWR pressure-suppression containments, and was designated Generic Issue 61, "SRV Line Break Inside the Wet Well Airspace of Mark I and II Containments." An evaluation of this issue has been completed, and the results were presented in NUREG/CR-4594, "Estimated Safety Significance of Generic Issue 61," which was issued in June 1986. On the basis of these results, the Staff concluded that no new requirements were justified and no further study of this safety issue was warranted.

The Petitioner also raises concerns regarding the possibility that the BWR containments might fail in the event of a severe accident. The Petitioner cites various studies regarding a high probability that Mark I containment structures will not stand various severe-accident scenarios.

As discussed previously, the NRC views probabilistic risk assessment as a structured method for investigating the likelihood and consequences of reactor accidents considered to have a very low frequency of occurrence. The perceived inability of the Mark I containment to survive a severe accident has been postulated by the Petitioner as a design flaw.

The evaluation of severe-accident vulnerability involves three distinct evaluations. The first involves the probability of an accident involving core damage, the second involves the likelihood of containment failure, and the third involves an assessment of the radiological consequences and public doses resulting from the accident. All three issues must be considered in making a determination on the magnitude of severe-accident risk and the actions that should prudently be taken to reduce that risk.

The studies that have been conducted emphasize that their results inherently possess large uncertainties. The draft results of NUREG-1150 present the most recent program, whose intent is to accurately reflect the severe-accident risk at

a number of U.S. nuclear power plants and also to properly reflect the areas of uncertainty. This study included an evaluation for Peach Bottom, a plant quite similar in design to the typical Mark I reactor and containment. The study presented the estimated mean frequency of core damage as approximately 1 chance in 100,000 per year of operation. Another comprehensive risk study conducted by the NRC Staff estimated a mean core damage probability of 1 in 10,000 for the Limerick plant.

These results are consistent with NRC's belief that core-melt accidents are very unlikely. Draft NUREG-1150 also investigated the probability of early containment failure following a core melt and concluded that our ability to accurately predict the response of a Mark I containment was limited for situations in which it was subjected to the harsh temperature and pressure conditions following a core-melt accident. As stated earlier, the report indicated that containment failure probability (for these extremely unlikely events) could likely range from 10 to 90%.

These uncertainties are currently the subject of research efforts to better predict the behavior of containments during severe accidents so that a more complete risk perspective can be assembled for guiding our regulatory activities. However, it is important that these uncertainties be properly characterized. They are not identified deficiencies in the BWR Mark I containments, which have been demonstrated to satisfy their design performance requirements. Rather, these uncertainties guide our research investigations, whose goals are to provide improved understanding of very unlikely risk situations at nuclear power facilities. Results from these studies (including high containment failure probabilities) also allow us to calculate public risk estimates assuming that one element of the three in a risk assessment (containment failure) is less favorable.

Even allowing the large uncertainties that result in a high upper value for containment failure, the NUREG-1150 study estimated that the probability of a large reactor accident resulting in one or more early fatalities ranged from 1 in 1 million to 1 in 1 billion. In the event of a severe accident, both the probability of very high radiation exposures and the distances over which such exposures would occur were estimated to be reasonably small. The risk levels for each Mark I reactor would of course depend on its actual core-melt probability, containment behavior, the local demography, and could vary somewhat from the results presented in NUREG-1150. The results of this and related studies do, however, support our overall conclusion of low severe-accident risk at Mark I reactors. One contributing factor is that the massive reactor containment structure may retain considerable radioactive material following a core-melt event even if its pressure boundary fails. In this regard, containment failures include cracks or other phenomena that result in loss of pressure integrity which can result in leaks but should not be viewed solely as catastrophic failure of the containment structure. In the event radioactive material is released inside

containment, some of this material dispersed in air (e.g., radioiodine) will be deposited on surfaces inside containment. Even though NRC analysis gives no credit for this phenomenon, deposition of material within containments, even though there may be leakage, will increase the time available to implement effective protective action activities.

Although we believe that severe-accident risks are low at operating nuclear plants, to assure that our risk conclusions are applicable to all operating units, a number of programs are going forward to assess severe-accident likelihood and consequences. These programs include plant-specific studies to determine any severe-accident vulnerabilities, both from the perspective of accident frequencies and from containment performance following a core melt. Any problems will be dealt with if identified. One program is known as the Individual Plant Examination (IPE) Program and is currently under way. This program and other related programs will be conducted to provide further assessments of severe accidents on a plant-specific basis so that appropriately low risk levels can be maintained.

Evaluations of the Mark I containment with respect to severe accidents are continuing through (1) the implementation of the Commission Policy Statement on Severe Accidents, (2) the NRC Staff and industry dialogue to improve containment severe-accident performance for all BWRs, and (3) the containment performance improvement program. With respect to the latter program, the Staff identified a number of modifications that substantially enhance the Mark I plants' capability to both prevent and mitigate the consequences of severe accidents. The improvements identified include (1) improved hardened wetwell vent capability, (2) improved reactor pressure vessel depressurization system reliability, (3) an alternative water supply to the reactor vessel and drywell sprays, and (4) updated emergency procedures and training.

After considering the Staff's proposed Mark I Containment Performance Program the Commission directed the Staff to pursue Mark I enhancements on a plant-specific basis in order to account for possible unique design differences that may bear on the necessity and nature of specific safety improvements. Accordingly, the Commission concluded that the recommended safety improvements, with one exception, hardened wetwell vent capability, should be evaluated by Licensees as part of the Individual Plant Examination Program. With regard to the recommended plant improvement dealing with hardened vent capability, the Commission, in recognition of the circumstances and benefits associated with this modification, has directed a different approach. Specifically, the Commission has directed the Staff to approve installation of a hardened vent under the provisions of 10 C.F.R. § 50.59 for licensees who, on their own initiative, elect to incorporate this plant improvement. The Staff previously inspected the design of such a system that was installed by Boston Edison Company at the Pilgrim

Nuclear Power Station. The Staff found the installed system and the associated Boston Edison Company analysis acceptable.

In response to the Commission's directive, the Staff issued Generic Letter 89-16, "Installation of Hardened Wetwell Vent," on September 1, 1989, to all holders of operating licenses for nuclear power reactors with Mark I containments, requesting Licensees to submit their plans for addressing the hardened-vent issue. Licensees were encouraged to install a hardened vent under the provision of 10 C.F.R. § 50.59 or to provide installation cost estimate information in order that the Staff may perform plant-specific backfit analyses.

As indicated in the discussion above on the Mark I containment, the Petitioner has not presented sufficient evidence to indicate that Mark I reactors should not operate while risk-reduction improvements are being considered. That is, there is not sufficient evidence of either design flaws in Mark I reactors or high risk to warrant suspending the operating licenses for those reactors. Therefore, this portion of the Petitioner's request is denied.

## B. Mark II Containment Concerns

As stated above, Petitioner alleges that Mark II reactors, supposedly an improvement over the Mark I model, still have many possible scenarios for early containment failure according to NRC safety studies. Again, Petitioner does not provide any information of which the Staff was unaware. Much of what has been already stated in the discussion of the Petitioner's concerns with respect to Mark I containments as to containment design, functional purpose, and performance during severe-accident scenarios applies equally to Mark II containment types.

The NRC is currently studying Mark II containment performance. The study reviews challenges to the integrity of the BWR Mark II containment that could arise from severe accidents. The challenges are organized into two broad groups: those in which containment integrity is challenged before extensive core damage, and those in which core melt occurs first, with containment integrity not threatened until the time of reactor vessel failure or later. Also reviewed are some proposed improvements that have the potential to either prevent core damage or containment failure, or to mitigate the consequences of such failure by reducing the release of fission products, and thus the offsite consequences. For each of the proposed improvements, a preliminary qualitative analysis of the impact upon core-melt frequency and risk has been performed.

Because of the large phenomenological uncertainties and the state of flux of the ongoing research efforts, the conclusions about potential improvements are viewed as tentative. The estimated costs for selected improvements were taken from previously published information. They were not meant to be interpreted as final estimates since no cost-benefit analysis was performed.

Among the potential improvements for the first category of containment challenges are containment pressure control, such as venting from the wetwell through a hardened-vent pipe, and containment pressure control and fission product scrubbing, such as the use of containment sprays with a backup water supply.

For the secondary category of containment challenges, proposed improvements include containment pressure control, for example, a hardened vent from the wetwell; improved means to depressurize the reactor, for example, enhancements to the Automatic Depressurization System (ADS) and the safety relief valves (SRVs); containment temperature control and fission product scrubbing, for example, containment sprays with a backup water supply; enhanced operability of the suppression pool cleanup systems for removal of suppression pool water and enhanced operability of the reactor water cleanup system for decay heat removal and external cooling of the drywell head; and mitigation of the fission product release, for example, use of fire protection sprays to enhance fission product retention in the reactor building. As indicated previously in the discussion on Mark I containment performance, programs are also under way to evaluate Mark II containments for performance during severe accidents. The results of these programs will be evaluated in accordance with the Commission's regulations to determine whether any improvements should be required as a backfit.

As stated previously, Petitioner has not presented sufficient evidence to indicate that Mark II reactors should not operate while risk-reduction improvements are being considered. That is, there is not sufficient evidence of either design flaws at Mark II reactors or high risk to warrant suspending the operating licenses for those reactors. Therefore, this portion of the Petitioner's request is denied.

### C. Additional Reed Report Concerns

The Petitioner also lists two concerns related to the 1975 General Electric Company "Reed Report." These are, according to the Petition, as follows:

1. In 1975, General Electric engineers wrote an internal report highly critical of their own company's nuclear reactors. This Reed Report was kept secret by both General Electric and the Nuclear Regulatory Commission until 1987, when it was released under pressure by state and local governments in cooperation with safe energy organizations. The General Electric engineers detailed dozens of safety and economics problems with all the reactors, concluding that General Electric reactors are "not a quality product." In fact, the engineers recommend that General Electric stop selling their reactors.

2. The Mark II reactors, on which the 1975 General Electric Reed Report was primarily focused, have the aforementioned "dozens of safety and economic problems," and have suffered massive cost overruns during construction as a result of design problems.

The Reed Report was a self-critical study performed by the staff of the General Electric Company in 1975. It was intended as a product improvement study to enhance the availability and performance of GE's boiling water reactors. The report, by its nature a candid self-analysis, was intended for GE's internal use only. It had always been held by GE to be "proprietary" and thus was not subject to public disclosure.

The principal author of the report was Dr. Charles E. Reed, a Senior Vice President of GE. Contributors included technical and professional personnel from a variety of GE departments. Their efforts resulted in the Nuclear Reactor Study, referred to today as the Reed Report, and a set of ten subtask reports that provided the detailed technical information used to develop the Nuclear Reactor Study. The Reed Report addressed operating BWRs and the design of future GE products and services in the nuclear field. For reactors in operation at the time, the report discussed ways to improve a plant's availability and its electrical generating capacity factor through improvements in plant hardware and also in service, fuel, equipment, and operating procedures. For future reactors the report considered GE's then-new BWR design, the BWR-6, and discussed problems regarding final design details, licensing, and full-power operation of BWR-6 plants.

The NRC first learned of the existence of the Reed Report in a casual conversation between the NRC Chairman and one other Commissioner and GE officials at the San Francisco airport on August 21, 1975. There was further mention of the report in the Congressional Joint Committee on Atomic Energy hearings held in February and March 1976. At that time, Dr. Reed testified regarding the report.

On February 23-24, 1976, two NRC Staff members reviewed a copy of the report in GE's Washington, D.C., offices. They determined that the report (1) did not identify any new safety concerns, and (2) did not indicate that GE had failed to report any significant safety concerns to the NRC.

On March 6, 1978, in response to a request from Congressman John D. Dingell, the NRC asked GE to provide either a copy of the Reed Report or a list of the safety issues it addressed. On March 22, 1978, GE gave the NRC a list of twenty-five issues identified as having "some safety significance." On May 26, 1978, GE provided to the NRC a safety evaluation of the twenty-five issues it had identified.

On November 9, 1978, the NRC Staff gave the Commission the results of its updated review of the Reed Report and found "no substantive disagreement with the summary status provided by GE."

The NRC first received a copy of the Reed Report on January 5, 1979, under a protective agreement, when GE gave a copy to the Atomic Safety and Licensing Board in the licensing proceedings for the Black Fox nuclear plant. GE continued to categorize the report as "proprietary" and claimed that the document was exempt from mandatory public disclosure.

The NRC then received several Freedom of Information Act (FOIA) requests for the Reed Report, beginning with a request dated September 26, 1979. After reviewing arguments for and against granting an FOIA request and after consultation with the Department of Justice, the Commission voted on October 9, 1980, to release the Reed Report to the public; however, on October 17, 1980, GE sued NRC, seeking to prohibit the release. On December 21, 1984, the U.S. Court of Appeals for the Seventh Circuit ordered a remand to the Commission for its decision whether to release the Report.<sup>6</sup> Subsequently, in July 1986, the Commission voted to withhold the Reed Report from public disclosure. GE subsequently released the Reed Report in July 1987 in a two-volume document titled "12 Years Later . . . An Update Report on the Nuclear Reactor Safety Study." The updated report describes how earlier NRC reviews of 1976 and 1978 confirmed how all safety issues mentioned in the Reed Report had been disclosed to the NRC previously. It also describes how the study was performed early in the BWR-6 (Mark III containment) design cycle and how the recommendations from that report were implemented before BWR-6 Mark III plants went into operation.

Nonetheless, as public interest in the "newly discovered" Reed Report heightened, and notwithstanding their earlier reviews of the document, on June 2, 1987, NRC established a special task group to evaluate again the issues raised in the Reed Report, taking into account the increased knowledge about nuclear power based on engineering studies and operational experience in the 12 years since the Reed Report was written.

The purpose of this review was to place these issues in a 1987 perspective to ensure that the NRC Staff truly had been aware of all safety issues discussed within the report and that the issues were either resolved or programs were under way to address those issues not yet resolved.

This review produced three separate conclusions:

- (1) The Reed Report does not identify any matters that would support a need to curtail the operation of any GE boiling water reactor plants now licensed.
- (2) The Reed Report does not identify any new safety issues of which the Staff was unaware.

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<sup>6</sup>General Electric Co. v. NRC, 750 F.2d 1394 (7th Cir. 1984).

- (3) Although certain issues addressed by the Reed Report are still being studied by the NRC and industry, there is no basis for suspending plant operations while those issues are being resolved.

Since knowledge of the Reed Report became public in 1987, the Staff has addressed numerous congressional and private inquiries as to the impact of the issues raised in the report on public health and safety. As stated previously, the Reed Report did not raise any new issues of which the Staff was unaware. Further, corrective actions either had been implemented or were being implemented to resolve those issues. The Petitioner has not presented any evidence or any new issues identified by the Reed Report of which the Staff is unaware, nor has the Petitioner presented any evidence calling into question the adequacy of the corrective actions implemented since the Reed Report was issued. On this basis, therefore, the Petitioner's request is denied.

#### D. Economic Issues

Insofar as Petitioner asks for relief because of "economic problems" or "massive cost overruns during construction as a result of design problems," the NRC is without jurisdiction to grant relief. The NRC has authority to govern any activity authorized pursuant to the Atomic Energy Act of 1954, as amended, in order to protect health and to minimize danger to life or property. Because economic problems and cost overruns raise no threat to public health and safety, they do not provide the NRC with a basis on which to act. Accordingly, insofar as Petitioner bases her request on economic or cost considerations, the Petition is denied.

#### IV. CONCLUSION

The Petitioner seeks the institution of a show-cause proceeding pursuant to 10 C.F.R. § 2.202 to modify or revoke the operating license of all BWR facilities. Failing that, the Petitioner seeks, without specificity, to "fix" all BWR facilities.

The institution of proceedings pursuant to 10 C.F.R. § 2.202 is appropriate only where substantial health and safety issues have been raised. See *Consolidated Edison Co. of New York* (Indian Point, Units 1, 2, and 3), CLI-75-8, 2 NRC 173 (1975), and *Washington Public Power Supply System* (WPPSS Nuclear Project No. 2), DD-84-7, 19 NRC 899, 923 (1984). This is the standard that I have applied to the concerns raised by the Petitioner in this Decision to determine whether enforcement action is warranted.

For the reasons discussed above, I conclude that no substantial health and safety issues have been raised by the Petitioner. Accordingly, the Petitioner's request for action pursuant to 10 C.F.R. § 2.206 is denied.

As provided in 10 C.F.R. § 2.206(c), a copy of this Decision will be filed with the Secretary of the Commission for the Commission's review. The Decision will become final action of the Commission twenty-five (25) days after issuance unless the Commission on its own motion institutes review of the Decision within that time.

FOR THE NUCLEAR  
REGULATORY COMMISSION

Thomas E. Murley, Director  
Office of Nuclear Reactor  
Regulation

Dated at Rockville, Maryland,  
this 4th day of December 1989.



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**ALFRED J. MORABITO**

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**APPLIED RADIANT ENERGY CORPORATION**

REQUEST FOR ACTION; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket

No. 030-07099 (License No. 45-11496-01); DD-89-6, 30 NRC 161 (1989)

**BOSTON EDISON COMPANY**

REQUEST FOR ACTION; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket No. 50-293;

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**CAROLINA POWER & LIGHT COMPANY**

REQUEST FOR ACTION; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket Nos. 50-324,

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**CLEVELAND ELECTRIC ILLUMINATING COMPANY, et al.**

REQUEST FOR ACTION; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket No. 50-440;

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MATERIALS LICENSE AMENDMENT; MEMORANDUM AND ORDER (Requests for a Hearing);

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REQUEST FOR ACTION; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket No. 50-155;  
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**DETROIT EDISON COMPANY**

REQUEST FOR ACTION; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket No. 50-341;  
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**FLORIDA POWER & LIGHT COMPANY**

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REQUEST FOR ACTION; PARTIAL DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket  
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REQUEST FOR ACTION; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket Nos. 50-250,  
50-251; DD-89-8, 30 NRC 220 (1989)

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**GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION**

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### JOSEPH J. MACKTAL

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### KERR-MCGEE CHEMICAL CORPORATION

MATERIALS LICENSE; MEMORANDUM AND ORDER (Ruling on Motions for Summary Disposition); Docket No. 40-2061-ML (ASLBP No. 83-495-01-ML); LBP-89-35, 30 NRC 677 (1989)

### LONG ISLAND LIGHTING COMPANY

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### MAURICE P. ACOSTA, JR.

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REQUEST FOR ACTION; DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206; Docket No. 50-298; DD-89-9, 30 NRC 791 (1989)

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### OIA INVESTIGATION

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### PACIFIC GAS AND ELECTRIC COMPANY

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### PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, et al.

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