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NUCLEAR REGULATORY COMMISSION ISSUANCES

February 1988

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

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

U.S. NUCLEAR REGULATORY COMMISSION

Prepared by the
Division of Publications Services
Office of Administration and Resources Management
U.S. Nuclear Regulatory Commission
Washington, DC 20555
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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

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Thomas M. Roberts
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Kenneth C. Rogers

In the Matter of **Docket No. 50-289-CH**

GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION
(Three Mile Island Nuclear Station, Unit 1)

February 19, 1988

In response to a question certified to it by the Appeal Board, the Commission directs the Board to consider information relating to Mr. Charles Husted's job performance at General Public Utilities Nuclear (GPUN) in recent years. The Appeal Board had asked the Commission whether Mr. Husted's recent job performance could be taken into account in determining whether restrictions imposed on Mr. Husted as a condition of the restart of TMI-1 should be lifted.

MEMORANDUM AND ORDER

On December 31, 1987, the Appeal Board issued ALAB-881 (26 NRC 465) certifying a question to the Commission concerning its jurisdiction. Specifically, the Appeal Board sought guidance on the question of whether the Commission wishes to expand retroactively the subject matter of the proceeding to include the issue of Mr. Charles Husted's job performance at General Public Utilities Nuclear ("GPUN").

The Commission has decided to permit the evidence of Mr. Husted's job performance at GPUN to be considered by the Board. Specifically, the Com-

mission finds that such evidence is relevant to the question of whether the restart condition should be vacated by the Board. In determining whether the condition continues to be warranted, it is reasonable to take into account mitigating factors such as satisfactory job performance. In reaching our decision we need not determine whether the Appeal Board correctly decided that subject matter jurisdiction did not extend to consideration of Mr. Husted's job performance.

Consideration of this issue will not necessitate the taking of new evidence. Evidence of Mr. Husted's recent job performance at GPUN is already in the record and was considered by the Administrative Law Judge. Permitting consideration of this issue, therefore, will not necessitate reopening of the record.

Accordingly, the Commission directs the Appeal Board to consider the issue of Mr. Charles Husted's job performance at GPUN in rendering its decision in this matter.

It is so ORDERED.

For the Commission*

JOHN C. HOYLE
Assistant Secretary of the
Commission

Dated at Washington, D.C.,
this 19th day of February 1988.

*Commissioners Bernthal and Rogers were not present for the affirmation of this order; if they had been present they would have approved it.

Atomic Safety and Licensing Appeal Boards Issuances

ATOMIC SAFETY AND LICENSING APPEAL PANEL

Alan S. Rosenthal, Chairman
Dr. W. Reed Johnson
Thomas S. Moore
Christine N. Kohl
Howard A. Wilber

APPEAL BOARDS

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Howard A. Wilber

In the Matter of

Docket Nos. 50-443-OL-1
50-444-OL-1
(Onsite Emergency Planning and Safety Issues)

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

February 3, 1988

The Appeal Board grants two motions of an intervenor to reopen the record and to admit two additional contentions in the onsite emergency planning and safety issues phase of this operating license proceeding, and remands the contentions to the Licensing Board for appropriate consideration and disposition.

RULES OF PRACTICE: REOPENING OF RECORD

A motion to reopen a closed evidentiary record must be timely, address a significant safety or environmental issue, and demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially. 10 C.F.R. 2.734(a).

RULES OF PRACTICE: CONTENTIONS (UNTIMELY FILING)

The factors that Commission adjudicatory tribunals are to balance in determining whether to accept a late-filed contention are:

(i) Good cause, if any, for failure to file on time.

(ii) The availability of other means whereby the petitioner's interest will be protected.

(iii) The extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record.

(iv) The extent to which the petitioner's interest will be represented by existing parties.

(v) The extent to which the petitioner's participation will broaden the issues or delay the proceeding.

10 C.F.R. 2.714(a)(1). *See Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041 (1983).

RULES OF PRACTICE: CONTENTIONS (UNTIMELY FILING)

To be admissible in a licensing proceeding, a late-filed contention must, in addition to meeting other requirements, satisfy the specificity and basis requirements imposed by the Rules of Practice. *See* 10 C.F.R. 2.714(b).

EMERGENCY PLANS: LOW-POWER LICENSE (STANDARD FOR ISSUANCE)

Under the Commission's emergency planning regulations, low power operation of a nuclear power plant is precluded in the absence of an emergency response plan that includes, *inter alia*, satisfactory provisions for public notification within the plume exposure pathway Emergency Planning Zone.

APPEARANCES

Stephen A. Jonas, Boston, Massachusetts, for intervenor James M. Shannon, Attorney General of Massachusetts.

Thomas G. Dignan, Jr., George H. Lewald, Kathryn A. Selleck, Deborah S. Steenland, and **Martha Siegel,** Boston, Massachusetts, for the applicants Public Service Company of New Hampshire, *et al.*

Gregory Alan Berry for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

Before us are two motions of the Attorney General of Massachusetts to reopen the evidentiary record in the onsite emergency planning and safety issues phase of this operating license proceeding involving the Seabrook nuclear facility.[1] The first of these motions, filed last November, asserted that the City of Newburyport, Massachusetts, had "dismantled and removed" all of the emergency notification sirens, poles and related equipment located within the city that were to be employed in connection with any response to a radiological emergency at Seabrook.[2] Given this development, the Attorney General wishes to introduce a new contention, in essence challenging the applicants' compliance with the Commission's emergency planning regulations on the ground that "no means have been established to provide early notification and clear instruction" to Newburyport residents in the event of a radiological emergency.[3] The second motion, filed last month, points to still later developments that, the Attorney General maintains, support his submission of a further contention to the effect that the same is now true with respect to the residents of the remainder of the Massachusetts portion of the Seabrook plume exposure pathway emergency planning zone (EPZ).[4]

The applicants and the NRC staff assert that the motions are not meritorious. In addition, the applicants maintain that the Attorney General should be precluded from obtaining the requested relief on an application of the doctrines of estoppel and/or waiver.

For the reasons that follow, we conclude that (1) the applicants' estoppel/waiver claim is insubstantial; and (2) both motions satisfy the governing standards for reopening a closed record for the purpose of permitting the introduction of additional contentions. Accordingly, we are granting the motions and remanding the Attorney General's new contentions to the Licensing Board for appropriate consideration and disposition.

We further conclude that compliance with the emergency response planning regulations in question is a precondition to low-power operation. Therefore, no

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[1] The record in that phase closed on October 3, 1986 (Tr. 1026). On March 25, 1987, the Licensing Board issued a partial initial decision in which it resolved all then pending issues in the applicants' favor and authorized the issuance of a low-power license permitting Seabrook operation up to five percent of rated power. LBP-87-10, 25 NRC 177. The *offsite* emergency planning phase of the proceeding remains before a differently constituted Licensing Board.

[2] Contention of Attorney General James M. Shannon and Motion to Admit Late-Filed Contention and Reopen the Record (November 13, 1987) at 1. Newburyport is within the ten-mile Seabrook plume exposure pathway emergency planning zone. At that time, we had other issues before us relating to emergency notification sirens for the Seabrook facility.

[3] *Id.* at 9.

[4] *See* Contention of Attorney General James M. Shannon on Notification System for Massachusetts and Motion to Admit Late-Filed Contention and Reopen the Record (January 7, 1988) [hereinafter, "Second Motion"] at 1-2.

authorization of such operation may be forthcoming while the remand is pending — i.e., in advance of ultimate Licensing Board resolution of the early public notification matter.

1. As we noted at the outset of a recent decision in this proceeding, radiological emergency response planning must include, *inter alia*, "means 'to provide early notification and clear instruction to the populace within the [EPZ].'"[5] In the case of Seabrook, this requirement was to be met in large measure through sirens installed on poles located in the various New Hampshire and Massachusetts communities within the facility's EPZ.

During the course of the litigation below of the onsite emergency planning issues, none of the parties was given reason to believe that emergency notification sirens installed in Massachusetts communities would not remain available to fulfill their intended purpose.[6] Apparently, the first formal indication in the proceeding that at least some of those devices might become unavailable was the Attorney General's motion to reopen the record based upon Newburyport's removal of the city-owned emergency notification sirens within its borders.

In responding to that motion, the applicants maintained that the loss of the Newburyport sirens lacked safety significance. We were told, with supporting affidavits, that notification to approximately 60 percent of the area of the city would be provided by existing sirens in neighboring Massachusetts communities. Coverage for the balance of the city would be supplied by an airborne alerting system utilizing a helicopter carrying acoustical packages able to deliver both siren signals and voice messages. In addition, a route alerting system using sirens mounted on vehicles would supply the required notification should the helicopter be unavailable or grounded by weather.[7]

In a further filing authorized by us, the Attorney General challenged the capability of the proposed airborne system to meet NRC and Federal Emergency Management Agency requirements.[8] More significant, however, it now appears that the applicants no longer have at their disposal any of the fixed-position

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[5] ALAB-879, 26 NRC 410, 412 (1987) (*quoting* 10 C.F.R. 50.47(b)(5)). That decision affirmed the rejection by the Licensing Board of late-filed contentions submitted by the Attorney General and another intervenor that sought to challenge the adequacy of certain emergency notification sirens installed in two communities within the Seabrook EPZ. As explained in our November 25, 1987 order (unpublished), ALAB-879 does not control the disposition of the contentions now before us, which have a quite different foundation.

[6] This fact is of some significance. As observed in ALAB-879, 26 NRC at 412 n.4, even though the sirens are designed to provide offsite public notification of a radiological emergency, the Commission deems the arrangements for such notification to be within the ambit of onsite emergency planning. *See* Statement of Consideration accompanying 10 C.F.R. 50.47(d), 47 Fed. Reg. 30,232, 30,234 (1982). Thus, as no party disputes, the onsite emergency planning phase of the proceeding was the appropriate forum for the consideration of any issues pertaining to compliance with the relevant Commission regulation on this subject.

[7] *See* Applicants' Opposition to Motion of Attorney General for the Commonwealth of Massachusetts to Reopen the Record and Admit Late-Filed Contention (December 18, 1987) at 4-5.

[8] *See* Supplemental Memorandum of Attorney General James M. Shannon in Support of Motion to Admit Late-Filed Contention and Reopen the Record (December 31, 1987) at 2-3.

sirens that had been installed in Massachusetts to provide early notification of a Seabrook emergency.

Last April, the Board of Selectmen of the Town of West Newbury, Massachusetts, directed the removal of five utility poles in that community on which emergency notification sirens had been installed by the applicants. The basis of the Board's action was that it had proceeded without statutory authority when in 1984 it had issued a permit to erect the poles. The lead applicant, Public Service Company of New Hampshire (Public Service), thereupon brought suit in a federal court seeking, *inter alia*, both a declaratory judgment that it was entitled under state law to maintain the poles *in situ* and appropriate injunctive relief. From the denial of a preliminary injunction, Public Service appealed to the United States Court of Appeals for the First Circuit. On December 16, 1987, that court affirmed, upholding the district court's determination that Public Service had not made a sufficient showing of a likelihood that it would prevail on the merits of its suit and would suffer irreparable harm in the absence of injunctive relief *pendente lite*.[9] In this connection, the court specifically determined, *inter alia*, that Public Service had failed to establish that, in all probability, the issuance of the pole permit was within the reach of the selectmen's statutory authority.[10]

In the wake of the First Circuit's decision, the New Hampshire Yankee Division of Public Service sent essentially identical letters on December 29 to the Boards of Selectmen in Salisbury, Newbury, Amesbury, Merrimac, and West Newbury, Massachusetts. Each letter referred to the fact that Public Service "currently owns and maintains a public alert notification system" in that town. The letter then went on to state that, "[a]s a result of recent court actions [regarding] pole removal, [Public Service] is taking steps to provide alternative methods of notification to Massachusetts residents living within 10 miles of Seabrook Station." Accordingly, in the case of each municipality, Public Service proposed to give the sirens and poles to the town for use in connection with emergencies not related to Seabrook. In the circumstances, the letter continued, "[w]e will not be including the Massachusetts siren system in any documentation to the Nuclear Regulatory Commission or the Federal Emergency Management Agency involving the licensing of Seabrook Station."[11]

The First Circuit's action and Public Service's response to it form the basis of the Attorney General's second reopening motion. The Attorney General also alludes in that motion to the fact that the special use permit issued to Public Service by the Commonwealth of Massachusetts for the installation of a public

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[9] *Public Service Co. of New Hampshire v. Town of West Newbury*, No. 87-1395 (1st Cir. Dec. 16, 1987).
[10] *Id.*, slip op. at 7-11.
[11] Second Motion, Exhibit 4.

notification siren on the Salisbury Beach State Reservation has expired, with the consequence that that siren has been removed.[12]

2. Undergirding the applicants' estoppel/waiver theory is the premise that the Commonwealth of Massachusetts, its agencies and its political subdivisions, aided by the Attorney General, "have systematically set out to destroy the in-place fully adequate early notification system."[13] Moving ahead from this premise, the applicants ask us to decide whether, "when a party to an NRC proceeding purposefully disables a nuclear power plant system, . . . that party [should] then be afforded further discretionary hearing rights (to which it has no absolute entitlement) because its own acts against the facility have created a regulatory deficiency."[14] To point us in the direction of a negative answer to this question, the applicants offer this bit of rhetoric: "What the Commonwealth, its agencies, and political subdivisions have done to Seabrook is indistinguishable from the action of a private individual who somehow gains access to a nuclear power plant and deliberately renders a safety system inoperative."[15] And, as if that were not enough, the applicants add the claim that the Commonwealth had "disable[d]" the early notification system "in violation of its own State laws" (specifically, the Massachusetts Civil Defense Act).[16]

We can readily appreciate the frustration of the applicants engendered by the recent turn of events respecting their early notification system. But that frustration cannot serve to justify entirely unfounded charges that, among other things, would cast a sovereign state and its agencies and political subdivisions in a role equivalent to that played by one who enters a nuclear plant illicitly and then engages in a most serious form of federal criminal misconduct. That the applicants' charges are utterly without warrant is manifest.

In leveling those charges, the applicants simply ignore the fact that the West Newbury siren poles were ordered removed on a determination that the issuance of the permit for their installation was *ultra vires* — i.e., beyond the statutory authority of the Board of Selectmen of that municipality. And, as we have seen, the Court of Appeals for the First Circuit explicitly decided that the attack of Public Service (the lead applicant) upon that determination fell wide of the mark. Inasmuch as the judicial result was promptly followed by their abandonment of all fixed-position sirens in Massachusetts, one may reasonably infer that

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[12] *See id.*, Exhibits 2 and 3.

[13] Applicants' Answer to "Contention of Attorney General James M. Shannon on Notification System for Massachusetts and Motion to Admit Late-Filed Contention and Reopen the Record" (January 25, 1988) [hereinafter, "Applicants' January 25 Answer"] at 4.

[14] *Id.* at 5-6.

[15] *Id.* at 6.

[16] *Ibid.* According to the applicants, that Act "places an affirmative duty upon The Commonwealth to engage in productive emergency planning for Seabrook."

the applicants themselves recognized that the same legal conclusion would be required with regard to the sirens installed on poles in the other communities.

The short of the matter thus is that the loss of the sirens (or, as applicants would have it, the destruction of their "fully adequate early notification system") did not stem from some unlawful or untoward act on the part of the Commonwealth or its agencies or political subdivisions. Rather, it came about as a result of belated obedience to the law of that jurisdiction.[17] That being so, it is of no moment here whether, and if so to what extent, the Commonwealth or its agents may have been involved in any decision by a municipality to require the removal of siren poles within its borders. Be that as it may, the factual ingredients of an estoppel claim are patently absent.[18]

3. We now turn to the merits of the Attorney General's motions. The standard for reopening a closed evidentiary record is set forth with particularity in the Commission's Rules of Practice. A motion seeking that relief must be timely, address a significant safety or environmental issue, and "demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially."[19]

So too, the Rules of Practice prescribe the factors that Commission adjudicatory tribunals are to balance in determining whether to accept a late-filed contention. They are:

(i) Good cause, if any, for failure to file on time.

(ii) The availability of other means whereby the petitioner's interest will be protected.

(iii) The extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record.

(iv) The extent to which the petitioner's interest will be represented by existing parties.

(v) The extent to which the petitioner's participation will broaden the issues or delay the proceeding.[20]

a. We entertain not the slightest doubt that both motions satisfy the reopening criteria. To begin with, each is clearly timely. The motion based upon the fate of the Newburyport sirens was filed with the Licensing Board on September

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[17] Although there is no need to pursue the question, it seems likely that, under Massachusetts law (and as a general matter), the recipient of a permit issued by a governmental body assumes the risk of *ultra vires* action that, unfortunately for the applicants, materialized here.

[18] Accordingly, we need not and do not explore whether, and if so in what circumstances, the doctrines of estoppel and waiver may be applied against a state and its officers. Nor is it necessary to inquire into whether those doctrines can appropriately be applied to bar a state from raising issues concerned with the health and safety of its citizens.

[19] 10 C.F.R. 2.734(a).

[20] 10 C.F.R. 2.714(a)(1). Although the section is cast in terms of untimely petitions for leave to intervene and/or requests for a hearing, it is settled that the specified factors are also to be applied to contentions in the posture of those now before us. *See Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041 (1983).

21, 1987, a few days *before* (according to the appended affidavit of the mayor of the city) the last of those sirens was to be removed.[21] Within little more than two weeks of the Board's October 26 denial of it for want of jurisdiction, the motion was renewed before us. And the second motion was filed 22 days after the First Circuit ruled in the West Newbury matter and less than ten days following Public Service's dispatch of its letters announcing an intention to abandon any reliance upon fixed-position sirens in Massachusetts. Especially given the intervening holidays, this represented sufficient sensitivity to the requirement that the motion be timely filed.

Extended discussion should not be necessary with regard to the obvious safety significance that attends upon compliance with the Commission's regulation designed to provide the members of the public located inside the EPZ with "early notification and clear instructions" in the event of a radiological emergency.[22] And, assuredly, the Attorney General has met his burden of demonstrating that a materially different result would have been likely had the evidence undergirding the reopening motions been considered initially. As will be seen later and as the staff itself recognizes,[23] suitable measures for early public notification are not merely an essential ingredient of emergency planning but, as well, an absolute precondition to the authorization of low-power operation. Consequently, had the Licensing Board been informed that the sirens relied upon by the applicants to provide early notification in Massachusetts were no longer available to fulfill that function, the March 25, 1987 partial initial decision[24] would not — indeed could not — have authorized such operation.[25]

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[21] Although the decision to remove the sirens may have been made at an earlier time, we see no reason why the Attorney General had to act in advance of actual removal. Indeed, until effect was given to the decision, any reopening motion might well have been subject to dismissal as premature.

[22] The staff's insistence that the Attorney General's motions do not present a significant safety issue is based upon its belief that there is no possibility that the "absence of a public notification system [will place] the affected population at risk in the event of an accidental radioactive release at the Seabrook Station." NRC Staff Response to Contention of Attorney General James M. Shannon on Notification System for Massachusetts and Motion to Admit Late-Filed Contention and Reopen the Record (January 28, 1988) at 7. In asserted support of this belief, the staff attached to its response the affidavit of Frank J. Congel, the Director of the NRC's Division of Radiation Protection and Emergency Preparedness. Mr. Congel assures us that Seabrook will not be allowed to operate at any level of rated power unless the staff is persuaded that the applicants are in compliance with all Commission regulations, including the early notification provisions of 10 C.F.R. 50.47(b)(5).

We find the Congel affidavit quite beside the point. It does not establish anything more than that the staff is confident that, in the discharge of its regulatory responsibilities, it both can and will make certain that an adequate early notification system is in place before low-power operation is commenced. Even if justified (and the Attorney General may have another view on that score), that confidence has no bearing upon whether the loss of the fixed-position sirens gives rise to a significant safety issue. Indeed, if the staff's thesis were carried to its logical end, one would have to conclude that even the development of serious cracks in the reactor containment would not pose a significant safety issue because, obviously, the staff would not allow the facility to operate unless and until it was satisfied that the cracking problem had been resolved.

[23] *See infra* pp. 53-54 and *supra* note 22.

[24] *See supra* note 1.

[25] To be sure, the Licensing Board could not have taken into account the loss of the fixed-position sirens in Massachusetts unless it had before it a contention that made an issue of the resultant lack of compliance with Commission regulations. It may justifiably be assumed, however, that such a contention would have been promptly

(Continued)

b. A balancing of the five factors that control the disposition at the threshold of late-filed (but otherwise admissible) contentions also strongly favors the grant of the relief sought by the Attorney General's motions. For even the most cursory analysis discloses that at least four of those factors assist the Attorney General's cause.

Starting with the first factor, the contentions obviously could not have been filed at a time when the applicants still retained the use of fixed-position sirens throughout the Massachusetts portion of the EPZ. It is equally plain that the Attorney General neither has other means at his disposal to protect his interest in assuring compliance with the Commission's regulations concerned with public notification (the second factor) nor can count on that interest being represented by other parties to the proceeding (the fourth factor). Given his retention of the services of an acknowledged acoustics expert, there appears to be no reason to question that the Attorney General would assist materially in the development of a sound record respecting the adequacy of any substitute public notification arrangements that the applicants might propose (the third factor). That leaves just the fifth factor. To be sure, the new contentions will introduce additional issues and may possibly delay the completion of the proceeding. But that consideration cannot serve to outweigh the other four factors and, thus, to deny the Attorney General an opportunity to litigate the effect of the recent events upon the sufficiency of crucial elements of the applicants' emergency plans.[26]

c. Finally, the applicants maintain that, if not prepared to adopt their estoppel argument, we should withhold action on the Attorney General's motions to await (1) the submission (expected later this month) of the applicants' alternative plans for providing notification to Massachusetts residents in the event of an emergency at Seabrook; and (2) the filing of any intervenor contentions addressed to those plans.[27] We reject the suggestion as serving no useful purpose.

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forthcoming had the loss of the sirens occurred while the record was still open. Apart from the fact that the Attorney General moved with considerable dispatch once the sirens became unavailable, the record discloses that, at an early stage of the proceeding, several of the intervenors manifested an interest in the aspects of emergency planning related to public notification. *See, e.g.*, LBP-82-76, 16 NRC 1029, 1045-46, 1074-75, 1088, 1091 (1982); LBP-82-106, 16 NRC 1649, 1662 (1982). (That interest could not, of course, have generated a viable contention so long as the sirens remained in place and capable of providing the requisite notification and instruction.)

[26] The extent of any real delay in the overall licensing proceeding is even debatable. The Licensing Board assigned to the offsite emergency planning phase of the proceeding (*see supra* note 1) has yet to close the record on the issues concerning the plans for the New Hampshire portion of the EPZ. Moreover, the hearing on the offsite emergency plans for the Massachusetts portion is unlikely to commence for at least several additional months. Thus, it is far from clear that delay in the ultimate disposition of the operating license application will occur. As previously noted, and as discussed at greater length below, the admission of the contentions will, however, have an impact upon the ability of the applicants to obtain a low-power operating license for Seabrook at this juncture.

[27] *See* Applicants' January 25 Answer at 11-12. In a January 20 motion for an extension of the time within which to file that answer, the applicants had indicated that they anticipated the completion of the substitute plans by February 22.

For its part, in its response to the Attorney General's first reopening motion, the staff had similarly called upon us to defer action to await the submission of alternative plans for notifying Newburyport residents of a Seabrook emergency (that motion, to repeat, dealt solely with the removal of the Newburyport sirens). *See* NRC

(Continued)

The loss of the fixed-position sirens in every Massachusetts community within the EPZ has given rise of itself to a significant safety issue with regard to whether, at the time of the commencement of facility operation, there will be arrangements in place adequate to ensure that Massachusetts residents will obtain the requisite early notification of a Seabrook emergency. Even if the record is not reopened now to reflect that loss, such a step will have to be taken to allow the receipt of the applicants' substitute public notification plans for Massachusetts.[28]

Once that has been accomplished, the issue of compliance with the governing Commission regulation may or may not disappear as a matter for litigation. If no intervenor interposes an acceptable challenge to the substitute plans, the issue will, of course, drop out of the proceeding.[29] Otherwise, it will continue in existence pending a determination whether those plans satisfy the Commission's public notification requirements.

In short, there is no sensible reason not to reopen the record *now* on the strength of the developments that undergird the Attorney General's contentions and to return the public notification matter to the Licensing Board for further proceedings. And the appropriate course of future events is equally clear. Upon the receipt for inclusion in the record of the applicants' public notification alternative to the now-removed sirens, the Licensing Board must provide the Attorney General (and the other parties) with a reasonable period in which to submit additional contentions challenging the adequacy of proposed substitute arrangements.[30] For the reasons already assigned with respect to the contentions set forth in the Attorney General's motions at hand, if filed within the Licensing

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Staff Response to Contention of Attorney General James M. Shannon and Motion to Admit Late-Filed Contention and Reopen the Record (January 14, 1988) at 7-8. Noting that we had tentatively disapproved the proposal in our unpublished January 20 order denying the applicants' motion of that date for an extension of time, the staff does not reassert it in the response to the second reopening motion.

[28] The Rules of Practice require that, "[i]n any proceeding involving an application," the staff introduce into evidence "any safety evaluation prepared by the staff." 10 C.F.R. 2.743(g). We may assume that, in compliance with that directive, the staff placed in the record Supplement No. 4 to its Safety Evaluation Report for the Seabrook facility (NUREG-0896, May 1986). At page 13-11 of that Report, the staff addresses "the means to provide early notification and clear instruction to the populace within the plume exposure Emergency Planning Zone (EPZ)." The reader is informed that:

> A total of 133 new electronic sirens will be installed in the plume exposure EPZ to perform the initial alerting function. These will be complemented by seven mechanical sirens recently installed in the City of Newburyport, Massachusetts.

This representation indisputably no longer holds true. It would seem equally beyond cavil that the Attorney General is entitled to have the record corrected to reflect the current reality: i.e., that fixed-position sirens are no longer in the picture in Massachusetts and, accordingly, the applicants have found it necessary to devise other means for satisfying the early notification provisions of 10 C.F.R. 50.47(b)(5).

[29] In that circumstance, the staff would still have to pass judgment on the adequacy of the plans. As seen, *supra* note 22, it is fully prepared to discharge that responsibility.

[30] It may be that, if dissatisfied with those arrangements, the Attorney General need only amend the contentions we admit today so as to claim (with an accompanying statement of basis) that "inadequate" (rather than "no") means have been established to provide the requisite "early notification and clear instruction" to Massachusetts residents within the EPZ. We need not decide that matter here but, rather, leave it for Licensing Board consideration if necessary.

Board-prescribed period any such additional contentions most likely will survive a balancing of all five lateness factors. Thus, so long as they also satisfy the specificity and basis requirements imposed by the Rules of Practice,[31] there is a high probability that the Board will be obliged to admit them for litigation.

4. What remains for determination is whether the reopening of the record and the admission to the proceeding of the Attorney General's contentions stand in the way of an authorization of low-power Seabrook operation.[32] In some circumstances, resolution of that question might have necessitated an assessment of the likelihood that an emergency arising during such operation would call for protective measures in the Massachusetts portion of the EPZ. As it happens, however, the Commission has relieved us of any need to embark upon that inquiry.

We have previously observed that the Statement of Consideration that accompanied the 1982 adoption of certain amendments to the Commission's emergency planning regulations placed the previously decreed public notification requirement within the ambit of onsite emergency planning.[33] In this regard, one of the issues raised in the comments submitted in response to the notice of proposed rulemaking was stated in these terms:

> Issue 6: The public knowledge that no offsite protection exists could cause chaos in the event of an incident during fuel loading or low power testing.

In relevant part, the Commission's response was that:

> *Prior to issuing an operating license authorizing low-power testing and fuel loading*, the NRC will review the following offsite elements of the applicant's emergency plan:
>
> * * *
>
> (b) Section 50.47(b)(5). Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and followup messages to response organizations and the public has been established; *and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.*[34]

In a word, then, the Commission explicitly assured the public that no low-power operation would take place in the absence of a review of certain offsite

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[31] *See* 10 C.F.R. 2.714(b).

[32] Although low-power operation was authorized in the Licensing Board's March 25, 1987 partial initial decision (*see supra* note 1), for a variety of reasons that need not be chronicled here no license for such operation has as yet issued.

[33] *See supra* note 6.

[34] 47 Fed. Reg. at 30,234 (emphasis supplied). Although Seabrook possesses a fuel loading license, it was issued long before the applicants lost the availability of the fixed-position sirens in Massachusetts.

elements of emergency planning, including the public notification element.[35] And the Commission made equally plain that there would continue to be a full opportunity for public participation in that review. Another of the issues addressed in the Statement of Consideration was:

> Issue 5: Unlike some of the more technical issues, emergency planning is a subject upon which the average citizen is knowledgeable and can make a valuable contribution to the licensing proceedings. This is an important opportunity for public participation. Eliminating this consideration from licensing decisions in effect removes this vital experimental evidence from public scrutiny.

To which the Commission responded:

> The proposed rule does not eliminate any important substantive aspect of emergency planning from the operating license hearings. *Whether an applicant satisfies the requirements of 50.47(a) and 50.47(b) is still an issue that may be raised and litigated in those hearings.* In cases where such issues are raised, applicants' and State and local jurisdictions' emergency plans should be available for examination in the hearing process prior to the issuance of an operating license.[36]

We are duty-bound, of course, to accord total respect to such unambiguous declarations on the part of the Commission with regard to the meaning and effect of its regulations. The short of the matter thus is that our own views on whether low-power operation might occasion a need to trigger offsite public notification mechanisms are of no present moment. The Commission has spoken directly on the subject. As a consequence of its mandate, Seabrook low-power operation is precluded unless and until the applicants have submitted substitute public notification plans for the Massachusetts communities within the EPZ that meet with staff approval and, if challenged in an appropriate and timely manner by a party to the proceeding, those plans are then found by the Licensing Board, as well, to satisfy the governing Commission regulation.[37]

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[35] As is apparent from Mr. Congel's affidavit (*supra* note 22), the staff is prepared to give effect to that assurance in this instance.

[36] 47 Fed. Reg. at 30,233 (emphasis supplied). In this connection, the applicants' reliance upon *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1104-05 (1983), is misplaced. That decision does not affect at all the entitlement of an intervenor to challenge either the adequacy or the non-availability of plans for an early notification system. As we were careful to note, the Licensing Board had found that the plans in that regard were "sufficiently detailed and concrete" to provide "reasonable assurances that they can and will be implemented in the event of an emergency." This being so, we concluded that the installation and testing of the siren system could "properly be overseen by the Staff," adding that there was "no reason on this record to assume that the system will not function as proposed." No such assumption can be made here, especially where there is no system at all.

[37] *See* 10 C.F.R. 50.57(c), which provides that, in acting upon an applicant's motion for low-power operation, the Licensing Board is to consider whether any of the admitted contentions "are relevant to the activity to be authorized." *See also* 10 C.F.R. 50.47(d), to the effect that a precondition to a license authorizing low-power operation is a finding "that the state of onsite emergency preparedness provides reasonable assurance that adequate

(Continued)

The Attorney General's November 13, 1987 and January 7, 1988 motions to reopen the record and to admit additional contentions are *granted* and the cause is *remanded* to the Licensing Board for further proceedings consistent with this opinion. The authorization of low-power operation contained in the Licensing Board's March 25, 1987 partial initial decision, LBP-87-10, 25 NRC 177, 216, is not to become effective pending the outcome of the remand.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

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protective measures can and will be taken in the event of a radiological emergency." Once again, offsite public notification measures are deemed to come within the scope of onsite emergency preparedness.

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)

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

February 4, 1988

The Appeal Board denies the motion of the Attorney General of Massachusetts for directed certification of a Licensing Board ruling denying admission of certain testimony proffered by that intervenor. The motion for interlocutory review was filed seven weeks after the trial board's ruling and was rejected for not being filed promptly.

RULES OF PRACTICE: DIRECTED CERTIFICATION

Like a referral by a licensing board pursuant to 10 C.F.R. § 2.730(f), a motion requesting the invocation of an appeal board's discretionary directed certification authority must also be filed promptly after the interlocutory ruling at issue is handed down.

APPEARANCES

John Traficonte, Boston, Massachusetts, for intervenor James M. Shannon, Attorney General of Massachusetts.

Thomas G. Dignan, Jr., George H. Lewald, Kathryn A. Selleck, and **Deborah S. Steenland,** Boston, Massachusetts, for the applicants Public Service Company of New Hampshire, *et al.*

Sherwin E. Turk for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

Since early last October, the Licensing Board has been conducting evidentiary hearings on the emergency response plans developed for the New Hampshire portion of the plume exposure pathway emergency planning zone for the Seabrook nuclear facility. In the course of those hearings, the Board issued oral rulings on November 16 and 18, declining (in response to the applicants' motion) to admit into evidence certain prepared testimony proffered by the intervenor Attorney General of Massachusetts.[1] In addition, on November 18, the Board denied the Attorney General's motion to refer the rulings to us under 10 C.F.R. 2.730(f).[2]

Seven weeks later, on January 7, 1988, the Attorney General filed a motion with us seeking interlocutory review of the rulings by way of directed certification.[3] The applicants and the NRC staff oppose the requested relief on a variety of grounds. We deny the motion on a single ground: it manifestly comes too late.[4]

As we had recent occasion to observe:

> Although the Rules of Practice do not specify any time limit for motions requesting the exercise of our discretionary authority under 10 C.F.R. § 2.718(i) to direct certification of an interlocutory ruling, we have indicated that parties should act with dispatch in seeking such relief. That suggestion is in accord with the analogous referral provision of 10 C.F.R. § 2.730(f) specifying that referrals of interlocutory rulings by the licensing boards

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[1] *See* Tr. 5594-616; 5959-61.

[2] *See* Tr. 6004-07.

[3] *See* 10 C.F.R. 2.718(i); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-271, 1 NRC 478, 482-83 (1975).

[4] Given this determination, we neither need nor do intimate any view respecting either (1) whether the standards for directed certification have been satisfied (*see Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-405, 5 NRC 1190, 1192 (1977)); or (2) whether the challenged Licensing Board rulings are correct on the merits.

> must be made "promptly." Even though the Commission's regulations generally prohibit interlocutory appeals, each exception to that proscription, such as that for referrals, requires that the interlocutory appeals be taken expeditiously in order to prevent undue delay and to avoid diverting attention from the progress of the licensing hearing. Thus, like a referral, a petition requesting the invocation of our discretionary directed certification authority must also be filed promptly after the interlocutory ruling at issue is handed down. To hold otherwise would sanction the possibility of needless delay in licensing proceedings in contravention of the Commission's policy "that the process move[] along at an expeditious pace, consistent with the demands of fairness." It also would create the unnecessary incongruity in the Rules of Practice of requiring licensing boards to act immediately in requesting our review of interlocutory rulings while not imposing a similar requirement on the parties themselves.[5]

The Attorney General's filing does not explain why directed certification was not sought much more expeditiously. Nor is a possible justification for the seven-week delay readily apparent. The Attorney General has committed sufficient resources to this proceeding to have allowed a considerably earlier endeavor to obtain our intercession.[6] Moreover, in mid-November, all of the participants had substantial cause to believe that the hearings might well be concluded before the end of January.[7] In the circumstances, whatever else might be said of the motion, it scarcely could be regarded as "prompt."

Motion for directed certification *denied*.[8]
It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

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[5] *Texas Utilities Electric Co.* (Comanche Peak Steam Electric Station, Units 1 and 2), ALAB-870, 26 NRC 71, 76 (1987) (footnotes omitted). The cited Commission policy is found in the *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 453 (1981).

[6] In actuality, the directed certification motion would have required relatively little additional expenditure of resources. For, in large measure, the arguments presented in the motion were also contained in the Attorney General's filing below in opposition to the applicants' motion to exclude the prepared testimony in question. *Compare* Attorney General James M. Shannon's Motion for Directed Certification of the November 16 and 18, 1987 Atomic Safety and Licensing Board Rulings Concerning the Admissibility of Certain Evidence (January 7, 1988) with Attorney General James M. Shannon's Response to the Applicants' Objection in the Nature of a Motion *In Limine* to the Admission into Evidence of the Testimony of Sholly, Beyea, Thompson and Leaning (October 15, 1987).

[7] It is our understanding that the need for five additional evidentiary sessions to be held later in the year did not surface until sometime in January.

[8] Should he be dissatisfied with the result reached by the Licensing Board in its initial decision, the Attorney General will be free to appeal the decision under 10 C.F.R. 2.762 and to renew on that appeal his challenge to the evidentiary rulings in question.

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. 40-2061-SC**

KERR-McGEE CHEMICAL CORPORATION
(Kress Creek Decontamination) **February 10, 1988**

Concluding that there was no legal basis for the show cause order that initiated this proceeding, the Appeal Board affirms the Licensing Board's dismissal of that order.

ATOMIC ENERGY ACT: COMMISSION AUTHORITY (SPECIAL NUCLEAR, SOURCE AND BYPRODUCT MATERIALS)

Under section 161b of the Atomic Energy Act of 1954 (AEA), as amended, 42 U.S.C. § 2201(b), the Commission is authorized to "establish by rule, regulation, or order, such standards and instructions to govern the possession and use of special nuclear material, source material, and byproduct material as the Commission may deem necessary or desirable to promote the common defense and security or to protect health or to minimize danger to life or property."

UMTRCA: APPLICATION

The Uranium Mill Tailings Radiation Control Act of 1978, Pub. L. No. 95-604, 92 Stat. 3021 (UMTRCA or "Tailings Act") (codified in scattered sections

of 42 U.S.C.), and certain Environmental Protection Agency (EPA) standards promulgated thereunder and codified at 40 C.F.R. Part 192, cannot be applied retroactively to require cleanup of contamination that occurred before 1978.

ENFORCEMENT ACTION: LEGAL BASIS

If the application and enforcement of a law or regulation is legally prohibited in a certain situation, it cannot be applied or enforced against a party anyway as a matter of discretion — absent, of course, the consent of the party that would be subject to such order.

UMTRCA: APPLICATION

There is nothing to indicate that the Commission is authorized or intends to enforce or apply EPA's Part 192 standards pursuant to any statute other than the Tailings Act.

ATOMIC ENERGY ACT: RADIATION PROTECTION STANDARDS

The regulations traditionally applied by the NRC under section 161b of the AEA are the agency's 10 C.F.R. Part 20 Standards for Protection Against Radiation.

UMTRCA: COMMISSION AUTHORITY (MILL TAILINGS)

Insofar as the regulation of tailings is concerned, the NRC's authority under the AEA and Part 20 has always been regarded as limited. UMTRCA was enacted to fill this regulatory gap. *See Petition of Sunflower Coalition*, CLI-82-34, 16 NRC 1502, 1504 (1982); *id.*, CLI-81-13, 13 NRC 847, 850-51 (1981); H.R. Rep. No. 1480, 95th Cong., 2d Sess., pt. 1, at 11-13, *reprinted in* 1978 U.S. Code Cong. & Admin. News 7433, 7433-35.

EVIDENCE: SPONSORSHIP BY EXPERT

Technical documents offered into evidence require sponsorship by knowledgeable expert witnesses who can be examined on the factual assertions and technical opinions expressed in such documents. *See Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-669, 15 NRC 453, 477 (1982).

RULES OF PRACTICE: OFFICIAL NOTICE

Under the Commission's Rules of Practice, a licensing board "may take official notice of any fact of which a court of the United States may take judicial notice or of any technical or scientific fact within the knowledge of the Commission as an expert body." The rule also contemplates that each officially noticed fact will be identified in the record with sufficient particularity. 10 C.F.R. § 2.743(i)(1).

RULES OF PRACTICE: OFFICIAL NOTICE

The entirety of a voluminous technical document prepared by another agency does not fall within the scope of the Commission's official notice rule.

RULES OF PRACTICE: OFFICIAL NOTICE

Official notice of a document is especially inappropriate where there is an ongoing dispute between the parties over what the document says.

RULES OF PRACTICE: OFFICIAL NOTICE

Reliance on official notice assumes the ready availability of the noticed material to all participants in the adjudicatory process — including those who conduct appellate review.

RULES OF PRACTICE: APPELLATE REVIEW (SUPPORTING RECORD)

If any party expects an Appeal Board to review material that assertedly supports its arguments on appeal but is not physically in the record or readily available from familiar sources (e.g., the *Federal Register*, NRC-generated documents, law reviews), that party is obliged to provide the Board with copies of it. *Cf. Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-804, 21 NRC 587, 592 n.6 (1985) (adjudicatory boards should not have to complete a party's research for it). *See also id.*, ALAB-845, 24 NRC 220, 249 n.30 (1986), and *id.*, ALAB-836, 23 NRC 479, 485-86 n.3 (1986) (appellate review hampered by party's failure to include important document in record and board's failure to take care in preservation of record).

RULES OF PRACTICE: OFFICIAL NOTICE

When a party relies on officially noticed material, it should so indicate. *See* 10 C.F.R. § 2.762(d) (appellate briefs must indicate precise portions of the record relied upon); *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 702 n.27 (1985), *aff'd in part and review otherwise declined.* CLI-86-5, 23 NRC 125 (1986) (parties' briefs must contain explicit references to all relevant parts of the record).

RULES OF PRACTICE: AMICUS CURIAE (BRIEFS)

The customary content of an amicus curiae brief is legal argument, not new evidence.

RULES OF PRACTICE: REOPENING OF RECORD

Any party to an NRC adjudication that seeks to add new evidence to a closed record must satisfy the Commission's criteria for reopening, including the submission of the new evidence in affidavit form. *See* 10 C.F.R. § 2.734(a), (b).

ADJUDICATORY PROCEEDINGS: SCOPE

The scope of an adjudicatory proceeding is limited to matters embraced in the notice of hearing. *General Public Utilities Nuclear Corp.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-881, 26 NRC 465, 476 (1987); *Portland General Electric Co.* (Trojan Nuclear Plant), ALAB-534, 9 NRC 287, 289 n.6 (1979).

APPEARANCES

Stephen H. Lewis for the Nuclear Regulatory Commission staff.

Peter J. Nickles, Richard A. Meserve, and **David P. King,** Washington, D.C., for licensee Kerr-McGee Chemical Corporation.

DECISION

The NRC staff appeals the Licensing Board's decision in this show cause proceeding involving radioactive contamination near licensee Kerr-McGee Chemical Corporation's Rare Earths Facility in West Chicago, Illinois. In its decision, the Licensing Board rejected the staff's view that the Environmental Protection Agency's (EPA) so-called "radioactivity-in-soil" standards (which the NRC is authorized to enforce) should apply here.[1] The Board determined instead that certain NRC regulations govern the matter at hand. It concluded, however, that, based on the record here, the radiological dose limitations in those NRC standards have not been exceeded. The Board accordingly dismissed the show cause order, which would have required licensee to plan and implement a cleanup of the contaminated area. *See* LBP-86-18, 23 NRC 799 (1986). Licensee opposes the staff's appeal from the Board's initial decision. For the reasons explained below, we affirm the Board's dismissal of the show cause order.

I.

As noted in the 1984 show cause order that initiated this proceeding, Kerr-McGee holds an NRC license to possess thorium at its Rare Earths Facility in West Chicago.[2] The order charged that, over the years, wastes from the plant had been indirectly discharged into nearby Kress Creek.[3] Beginning in 1977, several surveys detected radioactive contamination — namely, thorium and daughter products of thorium decay — in Kress Creek and the West Branch of the DuPage River, into which the Creek flows (hereinafter collectively referred to as "the Creek" or "Kress Creek"). After setting forth the quantitative results of the most comprehensive of those radiological surveys, the order stated that the contamination levels found along the Creek exceed EPA standards codified in 40 C.F.R. Part 192 and established pursuant to the Uranium Mill Tailings Radiation Control Act of 1978, Pub. L. No. 95-604, 92 Stat. 3021 (UMTRCA or "Tailings Act") (codified in scattered sections of 42 U.S.C.). The order also stated that EPA considers these standards applicable for cleanup of offsite

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[1] During the hearing, these standards, found in 40 C.F.R. Part 192, were referred to as the "radium-in-soil" standards. The staff now advises us that "radioactivity-in-soil" is the more appropriate phraseology. NRC Staff Brief (August 11, 1986) at 2 n.2.

[2] This facility, which began operating in 1932 and was acquired by Kerr-McGee in 1967, produced thorium nitrate for use in incandescent light mantles. It also produced "rare earths" for a variety of industrial uses and thorium under government contract. These operations produced waste materials containing thorium and thorium daughter products. Operations under the license ceased in 1973, and a proceeding to decommission the facility is pending before a licensing board. *See* LBP-86-18, 23 NRC at 814-15.

[3] Kress Creek is not within the boundaries of the West Chicago Rare Earths Facility. Horn, et al., fol. Tr. 349, at 6.

vicinity properties (such as Kress Creek), and that the NRC is authorized to enforce these standards under section 275d of the Atomic Energy Act of 1954 (AEA), as amended, 42 U.S.C. § 2022(d). Citing various sections of the AEA and the NRC's regulations in 10 C.F.R. Parts 2 and 40,[4] the order then directed Kerr-McGee to show cause why it should not be required to prepare and execute a plan for the cleanup of the radiological contamination in Kress Creek. 49 Fed. Reg. 9288-89 (1984).

Kerr-McGee invoked its right to a hearing on the charges in the order. From the outset, there was confusion about what statutes and regulatory standards should be applied, whether the NRC had jurisdiction, and who had what evidentiary burdens. The Licensing Board issued a series of orders in an effort to clarify the positions of the parties on such matters. *See, e.g.*, Memorandum and Order of December 28, 1984 (unpublished); Second Prehearing Conference Memorandum and Order of February 7, 1985 (unpublished), *reconsideration denied*, Memorandum and Order of March 22, 1985 (unpublished). As will be seen, of pertinence to the staff's appeal is its concession, early on, that the Tailings Act and EPA's regulations thereunder cannot be retroactively applied and thus are not legally binding in this proceeding. The staff therefore redefined the legal theory of its case in terms of the Atomic Energy Act. Specifically, the staff argued that section 161b of the AEA, 42 U.S.C. § 2201(b), provides the necessary statutory authority for the show cause order,[5] and that the EPA radioactivity-in-soil standards may be used as guidance in the Commission's enforcement of its responsibilities under the Atomic Energy Act. *See* Memorandum and Order of February 7, 1985, at 5, 6-7, 8; Memorandum and Order of March 22, 1985, at 3, 4-5; LBP-86-18, 23 NRC at 804; Tr. 70-71, 95. The staff presented its case accordingly, relying solely on the Atomic Energy Act and the EPA Tailings Act standards.[6]

The Licensing Board reached four principal conclusions in its consideration of the case. First, it determined that the NRC has jurisdiction under the AEA, independent of the Tailings Act, to require licensee to clean up the contamination in the Creek, if such remedial plan is found to be necessary for the protection of the public health and safety. The Board essentially found such jurisdiction in

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[4] Kerr-McGee's license to possess thorium is held pursuant to the regulations in 10 C.F.R. Part 40. 10 C.F.R. Part 2 contains the Commission's Rules of Practice.

[5] Under section 161b, the Commission is authorized to

> establish by rule, regulation, or order, such standards and instructions to govern the possession and use of special nuclear material, source material, and byproduct material as the Commission may deem necessary or desirable to promote the common defense and security or to protect health or to minimize danger to life or property[.]

[6] Initially, there were two other parties to the proceeding. One, an owner of property along the Creek, later withdrew. The other — the Illinois Department of Nuclear Safety — chose not to participate further in the proceeding after two of its six issues were dismissed as a sanction for its failure to comply with discovery orders. LBP-86-18, 23 NRC at 802-03.

section 161b of the AEA (*see supra* note 5) and in the Commission's Standards for Protection Against Radiation, 10 C.F.R. Part 20. Citing 10 C.F.R. § 20.2, the Board pointed out that the latter standards are expressly applicable to 10 C.F.R. Part 40 licensees like Kerr-McGee. LBP-86-18, 23 NRC at 805-06, 823.

Second, the Board decided that EPA's Tailings Act standards do not provide appropriate guidance for the protection of the public health and safety from the contamination in Kress Creek. To support its position that EPA intended these standards to be applied to the cleanup of offsite vicinity properties like the Creek, the staff relied heavily on EPA's Final Environmental Impact Statement (FEIS) for 40 C.F.R. Part 192. After reviewing the staff's testimony and the referenced portions of the FEIS, however, the Board concluded that the primary focus of EPA's radioactivity-in-soil standards was radon emanating from tailings piles[7] and the need to limit the corresponding inhalation exposure of people in houses to radon-222 and its daughters. By contrast, the situation at Kress Creek does not involve a tailings pile, and the principal risk pathway is direct gamma-ray exposure, rather than inhalation.[8] Thus, the Board concluded that the EPA Part 192 standards could not properly serve as guidance for the cleanup of Kress Creek. LBP-86-18, 23 NRC at 806-10, 817, 818, 821-22, 823.

Third, while acknowledging that the staff chose not to advocate the application of the NRC's Part 20 radiation protection standards to the situation at hand, and that it would therefore be precluded from ordering any remedial action based thereon, the Licensing Board nonetheless concluded that those standards not only are applicable, but also are more appropriate here than the EPA radioactivity-in-soil standards. The Board cited 10 C.F.R. § 20.105(a), in which the Commission establishes a 0.5 rem per year limit on all exposures to an individual in an unrestricted area (except from natural background radiation and medical uses). The Board also noted that a proposed amendment to Part 20 (section 20.303(a), as proposed at 51 Fed. Reg. 1092, 1133 (1936)) would establish a "reference level" of 0.1 rem per year. That is, if a licensee can show that *its* activities will result in a dose to any individual no greater than 0.1 rem per year, it will be deemed to be in compliance with the overall 0.5 rem limitation in section 20.105(a). The Board then decided that the 0.1 rem proposed reference level could serve as appropriate guidance for the Kress Creek situation. LBP-86-18, 23 NRC at 809-11, 823.

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[7] Section 101(8) of UMTRCA defines "tailings" as "the remaining portion of a metal-bearing ore after some or all of such metal, such as uranium, has been extracted." Pub. L. No. 95-604, 92 Stat. 3023 (codified at 42 U.S.C. § 7911(8)).

[8] The Board also noted that the inhalation exposure risk at the Creek is from daughters of radium-228 (the thorium series), whereas the EPA standards are concerned with the inhalation of radon-222, a radium-226 daughter (the uranium series). Given equal concentrations in the soil of radium-228 and radium-226, the overall inhalation risk from the former to residents in a house built on that soil is about 90-fold smaller than the latter, due to differences in their half-lives and decay schemes. LBP-86-18, 23 NRC at 808-09, 821.

Fourth and finally, after applying the 0.1 rem limitation to the contamination at Kress Creek and using an occupancy rate[9] more conservative than Kerr-McGee used in its analysis, the Board concluded that the record does not demonstrate that this limit is exceeded. *Id.* at 812-13, 821-23. The Board noted, however, the existence in residential areas of a few "hot spots" of "relatively high gamma [radiation] exposure rates" (i.e., apparently greater than 50 microrem per hour). *Id.* at 813, 820-21. *See also* Letter from Richard A. Meserve to John H Frye, III, et al. (May 6, 1986) (enclosing maps discussed in testimony of Auxier, et al., fol. Tr. 591, Appendix B). Under 10 C.F.R. § 20.1(c), it pointed out, licensees are obliged to "make every reasonable effort to maintain radiation exposures . . . as low as is reasonably achievable." (This is known as the ALARA standard.) The Board suggested that this standard applies here as well and opined that the hot spots "might be cleaned up with a minimum of expense and disruption." LBP-86-18, 23 NRC at 813. But because the staff chose not to pursue this avenue, the Board declined to speculate further on whether remediable action would in fact be warranted under Part 20. *Ibid.* Accordingly, the Board dismissed the staff's 1984 show cause order. *Id.* at 823.

In its appeal from the Licensing Board's decision, the NRC staff raises two issues. First, it argues that the Board abused its discretion in concluding that the EPA radioactivity-in-soil standards are not appropriate for application to the situation presented by the contamination in Kress Creek. The staff quarrels with the Board's discussion of EPA's FEIS for the Part 192 standards. It claims that this FEIS considered direct gamma radiation exposure, as well as radon-222 inhalation, and that it reflects EPA's concern with not just tailings piles, but also with offsite thorium contamination. The staff further asserts that EPA believes its radioactivity-in-soil standard is preferable to an exposure standard (like that in the NRC's Part 20 regulations) because it can be more uniformly applied and does not require occupancy estimates.

The staff's second issue on appeal concerns the Licensing Board's discussion of the Commission's Part 20 standards. The staff's argument is hard to follow, but seems to boil down to the following two points. First, the Licensing Board erred in relying on a regulation that is still only in proposed form — i.e., proposed section 20.303(a), which embodies the 0.1 rem per year reference level. Second, other proposed amendments to Part 20 imply that remedial action pursuant to an ALARA standard would be necessary, in any event, if that reference level were exceeded; the EPA radioactivity-in-soil criteria apparently embody an ALARA standard and thus should be applied here.

Kerr-McGee disputes each of the staff's criticisms of the Board's decision. With respect to the staff's complaint that the Board abused its discretion in not

[9] The time period that people might reasonably be expected to be in a particular locale.

applying EPA's standards, Kerr-McGee asserts that those arguments conflict with the staff's own testimony and proposed findings of fact. Licensee also contends that the staff has distorted the Board's analysis of EPA's FEIS and intent underlying the radioactivity-in-soil standards. In defense of the result reached below, Kerr-McGee argues further that, apart from the fact that the EPA standards cannot be legally applied retroactively, they also cannot, by their terms, compel cleanup of thorium contamination on offsite property like the Creek. And even if they did apply, Kerr-McGee maintains that the environmental harm and costs associated with cleanup would outweigh the assertedly insignificant risk from the contamination, so as to preclude ordering cleanup. As for the staff's criticism of the Board's Part 20 discussion, licensee first notes that that portion of the decision is dictum. Kerr-McGee also argues that, because the staff steadfastly relied solely on the EPA standards throughout this proceeding, it has waived its right to press any arguments on appeal concerning Part 20. Licensee further contends that the staff's apparent preference for application of an ALARA standard would actually offer a lower, and thus less conservative, level of health protection.

II.

A. The NRC staff's first and principal argument — that the Licensing Board abused its discretion in declining to find the EPA radioactivity-in-soil standards provide appropriate guidance for the cleanup of the contamination at Kress Creek — is readily disposed of. In fact, the Licensing Board had no discretion to abuse.

The staff acknowledged early in this proceeding that the 1978 Tailings Act and the EPA Part 192 regulations promulgated thereunder cannot be applied retroactively to require cleanup of any contamination deposited into the Creek before 1978. Moreover, there is no dispute that the contamination here at issue occurred before 1978.[10] Thus, the staff conceded that the Tailings Act and the related EPA standards are not enforceable in this proceeding. Tr. 70-71, 95. *See* Kerr-McGee Chemical Corporation's Memorandum and Response to the [Licensing] Board's Questions (January 17, 1985) at 9-10; Memorandum and Order of March 22, 1985, at 3, 4; NRC Staff Brief, *supra* note 1, at 5-6.[11] Consequently, the staff urged the Licensing Board to use the EPA standards, in

[10] The show cause order itself notes that operations at the facility ceased in 1973 and that the contamination was detected no later than 1977. 49 Fed. Reg. 9288. *See also* Tr. 95; Memorandum and Order of February 7, 1985, at 6; Horn, et al., fol. Tr. 349, at 14-18.

[11] The parties have not briefed before us this issue of whether UMTRCA and EPA's Part 192 standards are retroactively enforceable here. The staff's concession, however, obviates such discussion and analysis at this stage.

its discretion, as a "guidepost" for the enforcement of the NRC's responsibilities under section 161b of the Atomic Energy Act. Tr. 70-71. This, however, is but an improper attempt to do indirectly that which is barred directly. And, as should be obvious, if the application and enforcement of a law or regulation is legally prohibited in a certain situation, it cannot be applied or enforced against a party anyway as a matter of discretion — absent, of course, the consent of the party that would be subject to such order.[12]

Further, there is nothing to indicate that the Commission is authorized or intends to enforce or apply EPA's Part 192 standards pursuant to any statute other than the Tailings Act.[13] Section 161b of the Atomic Energy Act, as the Licensing Board held, may well supply the necessary statutory jurisdictional toehold for an order requiring a licensee to take action to remedy a situation like the Kress Creek contamination. That does not mean, however, that, absent express Commission direction, the EPA Part 192 standards can be imported to provide the substantive basis for such a remedial order, either as a matter of law or in the guise of discretion. In other words, these standards, explicitly promulgated pursuant to different statutory authority and otherwise legally barred from application here, cannot be "legitimized" by the staff's mere invocation of section 161b of the AEA. On the other hand, the regulations traditionally applied by the NRC under section 161b are the agency's Part 20 radiation protection standards.[14] But the staff expressly eschewed litigating this case under Part 20: the show cause order makes no mention of any Part 20 standard and, despite the Licensing Board's suggestion, the staff declined to pursue this course at the hearing. LBP-86-18, 23 NRC at 810.

In sum, EPA's radioactivity-in-soil standards may not be applied in this proceeding, even as a matter of discretion. The only colorable legal basis for

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[12] This contrasts with the situation where a statute imposes certain responsibilities on *an agency* (e.g., the National Environmental Policy Act's (NEPA) requirement that agencies prepare a detailed environmental impact statement (EIS) for major federal actions significantly affecting the environment), and the agency has some discretion to expand the scope of its *own* responsibilities (e.g., by discussing matters in an EIS for which NEPA requires no consideration).

[13] For example, the show cause order cites section 275d of the Atomic Energy Act, 42 U.S.C. § 2022(d), as providing authority for the NRC's implementation and enforcement of the EPA standards. 49 Fed. Reg. 9288. Section 275d, however, was added to the AEA by section 206(a) of UMTRCA, Pub. L. No. 95-604, 92 Stat. 3039-41.

[14] Insofar as the regulation of tailings is concerned, however, the NRC's authority under the AEA and Part 20 has always been regarded as limited. UMTRCA was enacted to fill this regulatory gap. *See Petition of Sunflower Coalition*, CLI-82-34, 16 NRC 1502, 1504 (1982); *id.*, CLI-81-13, 13 NRC 847, 850-51 (1981); H.R. Rep. No. 1480, 95th Cong., 2d Sess., pt. 1, at 11-13, *reprinted in* 1978 U.S. Code Cong. & Admin. News 7433, 7433-35.

In particular, section 201 of UMTRCA added tailings to the list of materials within the scope of the Atomic Energy Act. "[T]he tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content" are now known as "section 11e(2) byproduct material" under the AEA. Pub. L. No. 95-604, § 201, 92 Stat. 3033 (codified at 42 U.S.C. § 2014(e)(2)). In ALAB-867, 25 NRC 900, 906-09 (1987), we determined, on the basis of the record developed below and contrary to the staff's position before us, that the contamination in Kress Creek is section 11e(2) byproduct material.

the show cause order here at issue can be found in 10 C.F.R. Part 20, but the staff, as the proponent of that order, refused to prosecute its case on that theory. Hence, the show cause order must be dismissed.

Even if the EPA standards could be permissively applied to Kress Creek, the formal record of this adjudicatory proceeding is so deficient that it provides us no warrant for directing the Licensing Board to do so. The primary basis of the staff's argument on appeal is the fault it finds in that Board's discussion of the FEIS for EPA's Part 192 regulations, on which document the staff relied heavily. The staff complains that the Board did not accord proper weight to certain parts of the FEIS and misunderstood others. Based on our reading of the Board's decision, the appellate briefs of both the staff and Kerr-McGee, and Respondent's (Kerr-McGee's) Exhibit No. 6 (a three-page excerpt from the FEIS, marked for identification but apparently not admitted into evidence), it *appears* that the Board fairly represented and construed the portions of the FEIS on which the parties relied. We cannot *verify* this, however, because the EPA FEIS is not, in fact, included in the record.

Despite the staff's substantial reliance on the EPA FEIS in the presentation of its case, the staff saw no "need to make it a part of the record" and therefore did not offer it into evidence. Tr. 427.[15] After ascertaining that all the parties and Licensing Board members had copies of the FEIS and eliciting no objection, the Board took official notice of the document. *Ibid.* Unfortunately, there are fundamental problems with the manner in which this "evidence" was treated.

Under the Commission's Rules of Practice, a licensing board "may take official notice of any fact of which a court of the United States may take judicial notice or of any technical or scientific fact within the knowledge of the Commission as an expert body." The rule also contemplates that each officially noticed fact will be identified in the record with sufficient particularity. 10 C.F.R. § 2.743(i)(1). The entirety of a voluminous technical document prepared by another agency, like the EPA FEIS, thus does not fall within the scope of the Commission's official notice rule. Further, official notice is especially inappropriate where, as here, there is an ongoing dispute between the parties over what the document says.

But more important from a practical standpoint, reliance on official notice assumes the ready availability of the noticed material to all participants in the adjudicatory process — including those who conduct appellate review. Inasmuch as the FEIS is not physically included in the record of this proceeding and the staff failed to provide us with even one copy of it, we do not have this

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[15] Had the staff tendered the FEIS, it would have had to produce as well an EPA expert responsible for the preparation of the document, who could be examined on the factual assertions and technical opinions expressed in the FEIS. *See Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-669, 15 NRC 453, 477 (1982). The staff, in fact, produced no EPA witnesses at the hearing. *See also infra* pp. 70, 72, & note 21.

document.[16] If the staff, or any other party, expects us to review material that assertedly supports its arguments on appeal but is not physically in the record or readily available from familiar sources (e.g., the *Federal Register*, NRC-generated documents, law reviews), that party is obliged to provide us with copies of it. *Cf. Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-804, 21 NRC 587, 592 n.6 (1985) (adjudicatory boards should not have to complete a party's research for it). *See also id.*, ALAB-845, 24 NRC 220, 249 n.30 (1986), and *id.*, ALAB-836, 23 NRC 479, 485-86 n.3 (1986) (appellate review hampered by party's failure to include important document in record and board's failure to take care in preservation of record).[17] Because we obviously cannot review material neither provided to us nor properly included in the record, the staff must now bear the burden of its own shortcomings in this regard.

The staff's problems with the record are not limited to the omission of the FEIS. Accompanying its brief on appeal was the staff's Motion to Accept EPA Letter (August 11, 1986), tendering an August 8, 1986, letter from an EPA official to the Director of the NRC's Office of Nuclear Material Safety and Safeguards (the office that issued the show cause order in this proceeding). The staff believes that the letter would aid our understanding of the EPA radioactivity-in-soil standards, and asks that we accept it "in the nature of a brief amicus curiae." NRC Staff Motion at 1. It also claims that acceptance of it would not prejudice other parties. *Ibid.* Kerr-McGee opposes the motion, calling it "a patent attempt to supplement a gaping hole in the record." Kerr-McGee's Memorandum in Opposition (August 19, 1986) at 2.

Our determination that the EPA standards may not legally be applied here renders the staff motion irrelevant; accordingly, we deny it. But assuming that the contents of the EPA letter were germane to the outcome, we agree with Kerr-McGee's assessment of the staff's motion. As noted earlier (*supra* note 15), the staff presented no EPA witness to testify in support of the staff's interpretation of EPA's Part 192 standards and corresponding FEIS. The staff now belatedly and improperly tries to cure this infirmity in its case by "smuggl[ing] the letter into the record in the guise of an amicus brief." Kerr-McGee's Memorandum at 4.

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[16] *See* Letter from NRC staff counsel Lillian M. Cuoco to John H Frye, III, et al. (February 5, 1985), transmitting the FEIS to the Licensing Board but not to anyone else on the service list, including us and the Commission's Secretary, the official custodian of the record under 10 C.F.R. §§ 2.701, 2.702 ("cc w/out enclosures: Service List"). The Licensing Board no longer has its copy, and the Commission's Secretary has only the three pages of the FEIS that were marked for identification as Respondent's Exhibit No. 6 at the hearing.

[17] It should also go without saying that, when a party relies on officially noticed material, it should so indicate. *See* 10 C.F.R. § 2.762(d) (appellate briefs must indicate precise portions of the record relied upon); *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 702 n.27 (1985), *aff'd in part and review otherwise declined*, CLI-86-5, 23 NRC 125 (1986) (parties' briefs must contain explicit references to all relevant parts of the record). Not only does the staff's brief fail to advise us that the Licensing Board took official notice of the EPA FEIS (a fact omitted from Kerr-McGee's brief and the initial decision as well), it includes numerous references to "the FEIS" without even fully identifying it. *See, e.g.*, NRC Staff Brief at 7-9.

The staff's suggestion that we treat its filing as an amicus curiae brief is nothing short of an embarrassment. For one thing, we have never heard of an amicus brief being submitted by anyone other than the amicus itself (in this case, EPA). More significant, the EPA letter is not legal argument (the customary content of an amicus brief), but rather new evidence of EPA's intent concerning the scope of its radioactivity-in-soil standards. *See, e.g.*, NRC Staff Motion, EPA Letter at 3. As the staff knows, or should know, any party to an NRC adjudication that seeks to add new evidence to a closed record must satisfy the Commission's criteria for reopening, including the submission of the new evidence in affidavit form. *See* 10 C.F.R. § 2.734(a), (b).[18] The staff's motion and attached letter do not even pay lip service to these well established requirements.

B. The staff's arguments in connection with the Licensing Board's discussion of the NRC's Part 20 standards also fail. To begin with, as the Board itself recognized, it had no authority to require any remedial action under Part 20 because the staff had not advocated such at any time during the course of the proceeding. LBP-86-18, 23 NRC at 810.[19] Thus, as Kerr-McGee correctly points out, that part of the initial decision is dictum. Nonetheless, the Board discussion represents a commendable effort on its part to satisfy itself that the contamination in Kress Creek does not present a serious threat to the public health and safety.[20] In this circumstance, we fail to understand how the staff is aggrieved by an opinion that attempted to achieve the ultimate, ostensible goal of the staff order that initiated this proceeding in the first place — protection of the public from the potentially adverse effects of the contamination in the Creek.

Perhaps the answer lies in the staff's implicit assumption that the NRC's Part 20 standards and EPA's radioactivity-in-soil standards are mutually exclusive or present an "either/or" choice. But we are aware of no basis for such an assumption. That is, even if we were to agree with the staff that the Board improperly applied Part 20 in this proceeding, that would not automatically mean that the staff's view concerning the EPA standards would prevail. Indeed, it is possible — but we need not decide — that neither standard applies.

In any event, the staff's arguments — to the extent we understand them — are somewhat disingenuous. The staff criticizes the Licensing Board for looking to a proposed regulation for guidance (proposed 10 C.F.R. § 20.303(a)), when the

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[18] The first of these criteria is a showing that the motion is timely — i.e., that there is good cause why the new evidence was not submitted earlier, during the hearing. 10 C.F.R. § 2.734(a)(1). *See infra* note 21.

[19] The order authorizing the Licensing Board to conduct this proceeding identified the issues as those set forth in the staff's show cause order. *See* Commission Order of June 28, 1984 (unpublished). *See also General Public Utilities Nuclear Corp.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-881, 26 NRC 465, 476 (1987), and *Portland General Electric Co.* (Trojan Nuclear Plant), ALAB-534, 9 NRC 287, 289 n.6 (1979) (scope of proceeding limited to matters embraced in notice of hearing).

[20] Because the Board's Part 20 discussion is dictum, our comments of course should not be taken as implying our affirmance of the Board's findings and conclusions in this regard.

staff's entire case was premised on the equally nonbinding EPA radioactivity-in-soil standards. Further, on appeal the staff itself relies on *other proposed* amendments to Part 20 in a final (unsuccessful) attempt to convince us that the EPA standards should apply here. *See* NRC Staff Brief at 14.

C. Lastly, we are compelled to note our view that the public interest has not been well served in this proceeding. At least seven years elapsed between the discovery of the contamination in Kress Creek and the issuance of the 1984 show cause order. Contrary to the *1980* advice of its counsel, the NRC staff predicated the show cause order on a law that could not be enforced in the circumstances of this case — a fact the staff subsequently conceded at the second prehearing conference some five years later. *See* Respondent's Exhibit No. 15, Memorandum from Howard K. Shapar to William J. Dircks (March 31, 1980) at 4-6; *supra* p. 67. *See also* Respondent's Exhibit No. 16, Memorandum from Leo B. Higginbotham to Guy H. Cunningham (September 15, 1980). Despite opportunities afforded by the Licensing Board to pursue the matter on more legally viable ground under 10 C.F.R. Part 20, the staff chose not to assert this even as an alternative theory. Although it relied almost exclusively on EPA standards and documents, the staff presented no EPA witnesses during the several days of hearing and failed to exercise adequate care in the development of the formal record. *See supra* pp. 69-71.[21] The proceeding has also had a tortuous history on appeal due to confusion surrounding the characterization of the contaminant material in Kress Creek, and the related issue of whether an agreement with the State of Illinois transferred jurisdiction over this proceeding, as asserted by the staff. *See* ALAB-867, *supra* note 14, 25 NRC 900. But worst of all, hot spots of contamination apparently remain, with no immediate prospect of cleanup. *See supra* p. 66. Thus, on the one hand, licensee Kerr-McGee has been subjected to years of regulatory uncertainty and pointless litigation that consumed substantial public and private resources alike, while, on the other hand, the contamination problem that led to this proceeding still goes unremedied.[22]

The Licensing Board's dismissal in LBP-86-18, 23 NRC 799, of the show cause order that initiated this proceeding is *affirmed*.

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[21] An internal NRC document admitted into evidence in this proceeding reflects the NRC staff's curious "reluctance to rely upon EPA as witnesses," and its even more surprising view that the very EPA standards upon which it relies are "unduly stringent for the thorium chain." Respondent's Exhibit No. 11, Memorandum from Guy H. Cunningham, III, to John G. Davis (August 22, 1985), Enclosure at 1.

[22] The participation of the State of Illinois in this proceeding was similarly ineffective. *See supra* note 6.

The NRC Staff Motion to Accept EPA Letter is *denied*.
It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Howard A. Wilber

In the Matter of

Docket Nos. 50-443-OL-1
50-444-OL-1
(Onsite Emergency Planning and Safety Issues)

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

February 22, 1988

The Appeal Board denies as untimely an intervenor's motion to reopen the record and admit a new contention in the onsite emergency planning and safety phase of this operating license proceeding.

RULES OF PRACTICE: REOPENING OF RECORD

A motion to reopen a record in an operating license proceeding must meet three established criteria. The motion must either be timely or raise an exceptionally grave issue that should be considered even though untimely presented; it must address a significant safety or environmental issue; and it must demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially. 10 C.F.R. 2.734(a)(1).

RULES OF PRACTICE: REOPENING OF RECORD

The burden is on the party seeking the reopening of an evidentiary record to demonstrate in its moving papers that the criteria for granting such relief are met. *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), CLI-86-7, 23 NRC 233 (1986).

RULES OF PRACTICE: SHOW CAUSE PROCEEDING

10 C.F.R. 2.206 authorizes the filing of a petition with the Director of NRC's Office of Nuclear Reactor Regulation seeking the institution of a show cause proceeding for the modification, suspension, or revocation of a license or such other action as may be proper. Such petitions may be filed at any time and are the appropriate means for bringing to the Commission's attention a party's safety concerns that, for one reason or another, cannot be raised in a licensing proceeding.

APPEARANCES

Dean R. Tousley, Washington, D.C., for the intervenor New England Coalition on Nuclear Pollution.

Thomas G. Dignan, Jr., Kathryn A. Selleck, and **Deborah S. Steenland,** Boston, Massachusetts, for the applicants Public Service Company of New Hampshire, *et al.*

Gregory Alan Berry and **Edwin J. Reis** for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

On February 2, 1988, intervenor New England Coalition on Nuclear Pollution (Coalition) filed a motion to reopen the record in the onsite emergency planning and safety issues phase of this operating license proceeding involving the Seabrook nuclear facility. The motion further seeks the admission of a new contention challenging the environmental qualification of the RG59 coaxial

cable that was supplied by the vendor International Telephone and Telegraph Corporation (ITT) for use in the radiation monitoring system.[1]

We agree with the applicants and the NRC staff that the Coalition has not met the first of the three established criteria for the reopening of a record to consider additional evidence. More specifically, the Commission's Rules of Practice require the Coalition to demonstrate, *inter alia*, that its motion either is timely or raises an "exceptionally grave" issue that should be considered even though untimely presented.[2] It is manifest that the motion is not only extremely tardy but also falls far short of providing the necessary showing on the safety significance of the issue the Coalition seeks now to inject into the proceeding.

1.a. At a hearing before the Licensing Board and under the aegis of its Contention I.B.2, the Coalition litigated the environmental qualification of a different type of coaxial cable furnished by ITT. That cable, identified as RG58, is used for data transmission in the facility's computer systems. No tests were performed on it to determine whether it was environmentally qualified. Rather, according to information contained in the applicants' equipment qualification file (EQF) pertaining to certain ITT cables (which was placed into evidence by the Coalition on September 30, 1986),[3] the affirmative conclusion on that question was reached solely on the basis of tests performed on the RG59 cable.

The Coalition did not dispute that the RG59 test results established the environmental qualification of that cable. It did, however, maintain that those results could not properly be employed to qualify the untested RG58 cable as well. The Licensing Board rejected that argument in its March 25, 1987 partial initial decision authorizing the issuance of a low-power license for the Seabrook facility.[4] On an appeal from that decision, the Coalition renewed its claim.

In ALAB-875, issued on October 1, we considered the matter.[5] Early in the discussion, we stressed that the Coalition did "not dispute that the . . . RG59 coaxial cable [was] properly demonstrated to be environmentally qualified" but was complaining merely that such a demonstration was lacking with regard to the RG58 cable.[6] We then went on to find a lack of any apparent basis for the Licensing Board's conclusion that the environmental qualification of the RG58 cable was "adequately documented" in the applicants' EQF file (i.e., that the

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[1] By virtue of General Design Criterion 4 in Appendix A to 10 C.F.R. Part 50, components such as the RG59 cable must be capable of continuing to perform their intended function for such period as might be necessary after, e.g., a loss-of-coolant accident — that is, they must be "environmentally qualified."

[2] *See* 10 C.F.R. 2.734(a)(1).

[3] *See* Tr. 472-73. This EQF, identified as Electrical Equipment Qualification File No. 113-19-01, was introduced into evidence as the Coalition's Exhibit 4. One of the purposes of EQFs is to record the manner in which particular equipment is determined to be environmentally qualified.

[4] LBP-87-10, 25 NRC 177, 210-11.

[5] 26 NRC 251, 270-71.

[6] *Id.* at 270.

RG59 cable test results could serve as the foundation for such qualification).[7] As a consequence, we remanded the issue to the Licensing Board with instructions either to point to such a foundation in the existing record or to reopen the record for further exploration of the RG58 cable issue.[8]

In an October 16, 1987 memorandum (unpublished), the Licensing Board set forth what it deemed to be the requisite record support for the challenged finding that the RG58 cable was environmentally qualified. On our invitation, the Coalition (as well as the applicants and the NRC staff) submitted written comments on the substance of the memorandum. In the course of its comments, the Coalition attempted to raise the question whether the tests applied to the RG59 cable were sufficient even to qualify *that* cable.[9] We rejected the attempt. Although deciding in ALAB-882 that the issue of the environmental qualification of the RG58 cable had to be remanded once again to the Licensing Board, we had this to say with regard to the newly surfaced RG59 question: "That question was not presented on the Coalition's appeal from the partial initial decision and we therefore do not consider it."[10]

b. The short of the matter, therefore, is that for the entire period that its Contention I.B.2 was in litigation below, as well as during the course of the briefing and argument of its appeal from the Licensing Board's action on that contention, the Coalition accepted (implicitly if not explicitly) the environmental qualification of the RG59 cable. It was not until last November — in a document that was supposed to be confined to the RG58 cable question that had been presented below and renewed on appeal — that the Coalition endeavored to shift directions on the acceptability of the RG59 cable. And another three months elapsed before the Coalition undertook to give effect to that shift through the vehicle of the motion to reopen the record that is now at hand.

At least some of the delay in presenting the issue might have been excusable had there been some recent development that brought into question for the first time the environmental qualification of the RG59 cable. But, as the Coalition recognizes, no such justification is available to it. To the contrary, as will be seen shortly, the Coalition's proposition that the RG59 cable is not environmentally qualified rests entirely on disclosures in the applicants' EQF — which the Coalition itself introduced into evidence well over a year ago. Confronting this fact, the Coalition tells us that it did not become aware of the portion of the EQF assertedly establishing the inadequacy of the RG59 cable "until

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[7] *Id.* at 271.

[8] *Ibid.*

[9] *See* New England Coalition on Nuclear Pollution's Supplemental Memorandum Regarding Environmental Qualification of RG58 Coaxial Cable (November 4, 1987) at 6.

[10] 27 NRC 1, 5 n.14 (1988).

recently, when we were immersed in the issue of RG58 qualification."[11] Leaving aside whether the Coalition had an obligation to familiarize itself with the content of the EQF before putting it into evidence as a Coalition exhibit, it appears that that intervenor became "immersed" in the RG58 cable issue no later than the time of the briefing of its appeal from the partial initial decision, last spring. Consequently, we remain unpersuaded that there is a satisfactory explanation for the lateness of the hour.

2. As the Commission stressed in its *Perry* decision two years ago, the burden is on the party seeking the reopening of an evidentiary record to demonstrate in its moving papers that the criteria for granting such relief have been met.[12] In that case, the reopening motion was timely and the question was whether it raised a significant safety issue.[13] Here, to repeat, because the motion is untimely, the Coalition's burden is considerably greater: it must establish that the issue it would now add to the proceeding is not merely "significant" but "exceptionally grave."

But the fact is that the Coalition's motion does not establish the existence of *any* safety issue insofar as the RG59 cable is concerned. All that we are told in either the motion itself or the supporting affidavit is that (1) the applicants' EQF indicates that the insulation resistance requirement for RG59 cable is 10,000 megohms per 1000 feet; and (2) "[t]he insulation resistance measurements of samples of RG59 cable during environmental qualification testing fell as low as 300 megohms 1.7 hours into the steam/chemical spray, high humidity exposure tests, and remained below the required level for up to 14.5 days."[14] While that may be so, these questions remain: does the differential have any safety significance and, if so, precisely what is it? On that score, the motion and supporting affidavit are singularly unilluminating. More particularly, we are not favored with the foundation for the Coalition's apparent assumptions that (1) the 10,000 megohm value was intended to reflect an acceptance criterion for performance of the RG59 cable under accident conditions; and (2) that cable will accordingly be unable to perform its intended function in an accident environment. Yet the validity of neither of those assumptions is so obvious as to be susceptible of official notice. To the contrary, both have been challenged in affidavits supplied in connection with the opposition of the applicants and the staff to the reopening motion. The applicants' affiant avers that the 10,000 megohm value was nothing more than a procurement specification having no

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[11] NECNP Motion to Reopen Record and Admit New Contention (February 2, 1988) [hereinafter "Coalition Motion"] at 3.

[12] *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), CLI-86-7, 23 NRC 233 (1986).

[13] *See infra* p. 79. 10 C.F.R. 2.734(a)(1) requires that, even if timely filed, a reopening motion address a significant safety or environmental issue and demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially.

[14] Coalition Motion at 4. *See also id.*, Affidavit of Robert D. Pollard at 1-2.

relationship to the performance of the cable under accident conditions.[15] He goes on to assert that the RG59 cable test results reported in the EQF and relied upon by the Coalition demonstrate that that cable will withstand an accident environment.[16] For their part, the staff's affiants reach essentially the same conclusion.[17]

In these circumstances, the teachings of the Commission in *Perry* are not simply apposite but controlling. The motion to reopen in that case rested upon a recent earthquake in the vicinity of the Perry plant that assertedly exceeded certain facility seismic design parameters. Although not challenging the characterization of the earthquake, the applicants and the staff maintained that the event lacked safety significance. Upon considering the papers before us, we decided that, before passing upon the reopening motion, a brief hearing should be conducted for the purpose of exploring further the various claims on the issue of safety significance. The Commission decided otherwise. Based upon the determination that the movant had not shown affirmatively in its motion papers that the earthquake had safety significance because it exceeded the facility's seismic design, the Commission vacated our order calling for the exploratory hearing and denied the motion to reopen. A different ultimate result could scarcely be reached here given the fact that, despite being obligated to establish affirmatively the existence of an "exceptionally grave" safety issue, the Coalition's motion papers failed to demonstrate the presence of an issue of any safety significance.

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[15] *See* Applicants' Opposition to Motion of NECNP to Reopen the Record and Admit Late-Filed Contention (February 12, 1988), Affidavit of Richard Bergeron at 2-3.

[16] *Id.* at 3-4.

[17] *See* NRC Staff's Response to NECNP Motion to Reopen Record and Admit New Contention (February 17, 1988), Joint Affidavit of Amritpal S. Gill and Harold Walker at 6-11. The affidavit also indicates that the 10,000 megohm value is not rooted in any regulatory requirement. *Id.* at 10-11.

It is noteworthy that the Coalition was on prior notice that at least the applicants would challenge any endeavor to use the 10,000 megohm insulation resistance value as an acceptance criterion for accident conditions. *See* ALAB-882, 27 NRC at 4 n.12. In that circumstance, it is especially surprising that the Coalition made no attempt in its motion and supporting affidavit to flesh out its contrary view that that value must be taken as bearing upon the ability of RG59 cable to perform its intended function in an accident environment.

The Coalition's motion to reopen the record on the environmental qualification of the RG59 cable is *denied*.[18]

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

[18] Although we have concluded that the Coalition has failed to demonstrate the safety significance of its concerns about the RG59 cable, our denial of its motion to reopen the adjudicatory proceeding is without prejudice to the filing of a petition with the Director of the NRC's Office of Nuclear Reactor Regulation pursuant to 10 C.F.R. 2.206. That section authorizes the filing of a petition seeking the institution of a show cause proceeding for the modification, suspension, or revocation of a license or "such other action as may be proper." Section 2.206 petitions may be filed at any time and are the appropriate means for bringing to the Commission's attention a party's safety concerns that, for one reason or another, cannot be raised in a licensing proceeding.

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 No. 50-289-CH**

GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION
(Three Mile Island Nuclear Station, Unit No. 1)

February 23, 1988

After certifying a question to the Commission in ALAB-881, 26 NRC 465 (1987), the Appeal Board, as presaged in that earlier memorandum, reverses the Administrative Law Judge's order in ALJ-87-3, 25 NRC 345 (1987), that continued in effect a license condition precluding a specified utility employee from having supervisory responsibilities for the training of nonlicensed personnel.

APPEARANCES

Michael W. Maupin, Richmond, Virginia, for Charles Husted.

Deborah B. Bauser, Washington, D.C., for intervenor General Public Utilities Nuclear.

Louise Bradford, Harrisburg, Pennsylvania, for intervenor Three Mile Island Alert.

Janice E. Moore for the Nuclear Regulatory Commission staff.

DECISION

In ALAB-881, 26 NRC 465 (1987), we were faced with the appeal of Charles Husted from an Administrative Law Judge's ruling that left intact a license condition originally imposed on General Public Utilities Nuclear (GPUN) that barred the utility from employing Mr. Husted as supervisor of non-licensed operator training.[1] The appeal was supported by GPUN and the NRC staff and it was opposed by intervenor, Three Mile Island Alert. The history of the proceeding, the trial judge's findings, and our discussion of the issues are detailed in ALAB-881 and need not be repeated here. Suffice it to note that we there determined that certain record evidence concerning Mr. Husted's job performance at GPUN was pivotal to the outcome of the appeal. We further found, however, that a jurisdictional deficiency in the proceeding precluded us from considering that evidence. In short, we concluded that without the evidence in question we must affirm the trial judge's decision but, if we could consider the evidence of Mr. Husted's job performance, we would reverse. In these circumstances, we certified to the Commission the question whether it wished to expand retroactively the subject matter of the proceeding to encompass the issue of Mr. Husted's job performance.

In a February 19, 1988 memorandum and order, the Commission responded to our certified question by directing us to consider the subject evidence.[2] Accordingly, as presaged in ALAB-881, we now *reverse* the Administrative Law Judge's order in ALJ-87-3 to the effect that the "condition regarding Charles Husted imposed in ALAB-772, 19 NRC at 1224, requiring that he have no supervisory responsibilities insofar as the training of nonlicensed personnel is concerned, shall not be vacated."[3] Further, we *vacate* the trial judge's conclusion that "[t]here is no basis to come to a different finding in regard to Mr. Husted serving in those licensed capacities in which the Licensee and the Commonwealth of Pennsylvania stipulated that he should not serve."[4]

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[1] *See* ALJ-87-3, 25 NRC 345 (1987).
[2] CLI-88-1, 27 NRC 41.
[3] 25 NRC at 385.
[4] *Id.*

As the Commission indicated in the hearing notice, the agency is powerless to undo the stipulation between GPUN and the Commonwealth of Pennsylvania. Thus, Mr. Husted must seek relief directly from those parties if he wishes reinstatement to the positions of licensed operator, instructor of licensed operators or training instructor. *See* 50 Fed. Reg. 37,099 (1985).

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

John H Frye, III, Chairman
Dr. Oscar H. Paris
Frederick J. Shon

In the Matter of

Docket No 50-322-OL-5
(ASLBP No. 86-534-01-OL)
(EP Exercise)

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

February 1, 1988

Licensing Board concludes that fundamental flaws were demonstrated in the offsite emergency plan for the Shoreham Nuclear Power Station by the February 13, 1986 Exercise of that plan. Communications flaws were demonstrated within the Emergency Operations Center in the handling of information on traffic impediments; among field workers in that the plan does not permit such lateral communications (the Chairman dissented from this conclusion); at the Emergency News Center in the inability to provide timely information on protective action recommendations and traffic impediments; and in the EBS messages in that they contained some conflicting and confusing information. A flaw was demonstrated in that large numbers of Traffic Control Posts were not timely staffed until well after traffic congestion would have occurred. Training Program flaws were demonstrated in communications, functions of Traffic Guides and Bus Drivers, and prompt response of field personnel.

EMERGENCY PLANS: DEFINITION OF FUNDAMENTAL FLAW

A fundamental flaw is a pervasive problem in an emergency plan or its implementation which, if uncorrected, would substantially affect the health and safety of the public. It describes a condition in which there is a lack of reasonable assurance that the public can be protected in an emergency. The condition described by a fundamental flaw is substantially the same as that described by the Federal Emergency Management Agency's definition of a deficiency in an emergency plan.

EMERGENCY PLANS: BACKUP ROUTE ALERTING

Appendix 3, ¶ B, of NUREG-0654 does not require that backup route alerting be completed within 45 minutes.

APPEARANCES

Donald P. Irwin, Kathy E.B. McCleskey, Lee B. Zeugin, and **Jessine A. Monaghan,** Hunton & Williams, Richmond, Virginia, for the Long Island Lighting Company.

Martin Bradley Ashare, Hauppauge, New York; **Herbert H. Brown, Lawrence Coe Lanpher, Karla J. Letsche, Michael S. Miller, P. Matthew Sutko, Susan M. Casey,** and **Geoffrey R. Kors,** Kirkpatrick & Lockhart, Washington, D.C., for Suffolk County, New York.

Fabian G. Palomino and **Richard J. Zahnleuter,** Albany, New York, for Mario M. Cuomo, Governor of the State of New York.

Stephen B. Latham, Twomey, Latham, and Shea, Riverhead, New York, for the Town of Southampton.

George E. Johnson, Oreste R. Pirfo, and **Charles A. Barth,** Bethesda, Maryland, for the Nuclear Regulatory Commission Staff.

William R. Cumming, Washington, D.C., for the Federal Emergency Management Agency.

Atomic Safety and Licensing Boards Issuances

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INITIAL DECISION
(Emergency Plan Exercise)

I. INTRODUCTION

A. Procedural History

This Decision addresses the question whether the February 13, 1986 Exercise of the offsite emergency plan for the Shoreham Nuclear Power Station revealed any fundamental flaws in that Plan. Earlier, we issued a Partial Initial Decision, LBP-87-32, 26 NRC 479 (1987), in which we concluded that the February 13 Exercise did not comply with the requirements of 10 C.F.R. Part 50, Appendix E, ¶ IV.F.1.[1] The history of this proceeding is recited in that decision and need not be repeated here.

In this Decision, we determine the extent to which the Exercise demonstrated fundamental flaws. As a preliminary matter, we decide the question of the standard to be employed in making this determination. We also address Intervenors'

[1] This Decision decided Contentions EX-15 and EX-16. Because Intervenors took the position that a decision was not necessary, it also addressed but did not decide Contention EX-21.

legal arguments concerning whether the results of the Exercise may be used to support licensing of the plant for commercial operations.

The parties to this proceeding are the Applicant, Long Island Lighting Company (LILCO); the Intervenors, Suffolk County, New York State, and the Town of Southampton (the last did not participate in the hearing); and the NRC Staff. We noted in LBP-87-32 that this proceeding marks the first time that a power reactor operating license applicant has, because of state and local opposition, taken on the responsibility for offsite emergency planning. LILCO has established a separate organization to carry out these functions which is known as the Local Emergency Response Organization (LERO). LERO is staffed by LILCO employees and contractors.

In this Initial Decision, we conclude that this record[2] reveals certain fundamental flaws which, while they remain uncorrected, bar the issuance of a full-power, full-term operating license for the Shoreham Nuclear Power Station. Although we found flaws related to the prompt dispatch of Traffic Guides and training, the great bulk of these flaws relate to communications. Breakdowns in communications occurred within LERO as well as between LERO/LILCO on the one hand and the public and media on the other. Errors occurred not only with respect to procedures, but also with respect to the substance of the information transmitted. Confusing and conflicting information was furnished to the public, and erroneous information to the media. It is clear that much needs to be accomplished if these problems are to be overcome.

All of the proposed findings of fact and conclusions of law submitted by the parties have been considered in formulating this Decision. Those not incorporated directly or inferentially in this Decision are rejected as unsupported in fact or law or as unnecessary to the rendering of this Decision.

While FEMA did not render an overall finding regarding the February 13, 1986 Exercise, we must nevertheless accord presumptive validity to FEMA's factual findings contained in its Post-Exercise Assessment and testimony. This presumption is rebuttable and disappears in the face of a challenge. *See* 10 C.F.R. § 50.47(a)(2); *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-698, 16 NRC 1290, 1298 (1982), *aff'g* LBP-81-59, 14 NRC 1211, 1460-66 (1981); *Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant), LBP-86-11, 23 NRC 294, 365 (1986). In this connection, we wish to comment on the testimony presented by the FEMA witnesses, Thomas E. Baldwin, Joseph H. Keller, and Roger Kowieski. We found these witnesses to be highly competent in the field of emergency preparedness. They

[2] This record was established in hearings that began on March 10, 1987, and continued over the course of 4 months, until June 18, 1987, when the record was closed. Thirty-four witnesses testified. The transcript numbered 8694 pages and prefiled written testimony added 3218 pages. One hundred and forty-nine exhibits were offered. The text of the contentions, a list of witnesses, and a list of the exhibits offered is contained in the Appendix to LILCO's proposed findings.

had extensive knowledge of the plan and the exercise results, and their testimony was forthright and impartial. We found their testimony to be most valuable in the preparation of this Decision.

B. Intervenors' Legal Argument Based on the Absence of a FEMA Finding

In Contention EX-19, Intervenors make two arguments: first, that under NRC's regulations, it is necessary for NRC to base its finding as to reasonable assurance on FEMA's finding, so that the absence of a FEMA finding precludes an NRC finding; and second, that had it not been for FEMA's advance determination that it could not issue a finding in light of the absence of state and local government participation in the Exercise, it would have issued a negative finding. Intervenors' Proposed Findings at 18-29.

In its September 11, 1987 brief on this contention, Staff urges that Intervenors' first argument coincides with the Board's view of the issue raised as expressed in the October 3, 1986 Prehearing Conference Order. Staff goes on to argue that Intervenors' position should be rejected. We agree with Staff that Contention EX-19 was admitted to consider whether FEMA's inability to make a favorable finding would preclude a finding by NRC. Because we have found fundamental flaws in the Plan which preclude a positive reasonable assurance finding so long as they exist, Intervenors' first argument is moot insofar as this Initial Decision is concerned. Consequently we do not decide it. We note that Intervenors' second argument is essentially correct. FEMA's witnesses testified that were a finding to be made, it would be negative. Tr. 8645-46, 8650-52. However, our finding that fundamental flaws exist also moots that argument.

C. Definition of "Fundamental Flaw"

In CLI-86-11, 23 NRC 577 (1986), the Commission directed that this phase of the Shoreham litigation be confined to contentions that satisfy the requirements of 10 C.F.R. § 2.714 and which, if substantiated, would demonstrate a fundamental flaw in LILCO's emergency plan. The Commission based its direction on the proposition that:

> [u]nder [its] regulations and practice, Staff review of exercise results is consistent with the predictive nature of emergency planning, and is restricted to determining if the exercise

revealed any deficiencies which preclude a finding of reasonable assurance that protective measures can and will be taken, i.e., fundamental flaws in the plan.

Id. at 581.[3]

Intervenors urge that we follow this definition of fundamental flaw, noting that it is close to that which they urged at the close of the hearing.[4] Intervenors' Proposed Findings at 7-8. Moreover, as Intervenors point out, the Commission's definition closely parallels FEMA's definition of deficiencies: "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 . . . ."

LILCO takes the position that:

> A fundamental flaw is a pervasive, systemic, conceptual flaw in a plan that, because it substantially affects public health and safety, would prevent issuance of a license if left untended. A fundamental flaw is not readily correctable by equipment or training or simple, straightforward plan changes, but requires more basic changes to a plan because it is a fundamental defect in the way an emergency plan is conceived.

LILCO's Proposed Findings at 8.

LILCO urges that we apply a three-part test in determining whether a fundamental flaw has been established:

> First, . . . the alleged flaw must be "fundamental." The heart of an emergency plan is the protection of the public health and safety. Therefore, the threshold test is this: If the exercise had been a real emergency, would the alleged "flaw" have substantially affected the health and safety of the public?
>
> Second, the problem must be systemic or pervasive, rather than merely one or more isolated and essentially independent problems. Intervenors must have shown that an essential component of the Plan is flawed conceptually; "minor or *ad hoc* problems occurring on the exercise day" are not fundamental flaws in an emergency plan. *Carolina Power and Light Co.* (Shearon Harris Nuclear Power Plant), LBP-85-49, 22 NRC 899 (1985); LBP-86-11, 23 NRC 294 (1986). Problems "which only reflect the actual state of emergency preparedness on a particular day in question" are not fundamental flaws. *Union of Concerned Scientists v. NRC*, 735 F.2d 1437 (D.C. Cir. 1984), *cert. denied*, 469 U.S. 1132 (1985).

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[3] Prior to this Commission decision, a Licensing Board had applied the fundamental flaw standard to the admission of contentions. *Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant), LBP-85-49, 22 NRC 899, 908-13 (1985); *aff'd*, ALAB-843, 24 NRC 200, 215 n.71 (1986).

[4] The intervenors defined this term as

> "exercise results, events . . . and/or omissions which singularly or with other results, events or omissions, preclude a finding of reasonable assurance that adequate protective measures can and will be taken on the basis of the LERO Plan. Thus, they reflect problems in the Plan and/or its implementation that would preclude a reasonable assurance finding."

Tr. 8919-20.

> Third, the alleged problem must not be readily correctable by means of additional training, the purchase of new equipment, or some other reliable and verifiable method. Rather it is a problem that is susceptible of correction only through substantial, potentially far-reaching revision of the written emergency plan. Even so, there is no obvious reason why a fundamental flaw should be thought of as being irremediable; as with any other shortcoming, whether it has been corrected turns on the facts of the remedial action taken.

Id. at 8-9.

In the last element of its test, LILCO appears to make a distinction between ordinary fundamental flaws and bad fundamental flaws. This distinction is based on LILCO's perception that a FEMA deficiency describes "a present condition that is 'not adequate' to provide reasonable assurance, but that does not necessarily require a far-reaching change to a plan to remedy," while a fundamental flaw precludes a finding of reasonable assurance and thus requires basic plan changes. *Id.* at 10.

While there is indeed a difference between the NRC definition of a fundamental flaw and the FEMA definition of a deficiency, we believe that LILCO misperceives that difference. The former definition speaks of a condition that "precludes" a finding of reasonable assurance, while the latter speaks of a condition that "would cause" a finding that there is not reasonable assurance. Thus, while the NRC definition contemplates a situation in which a finding cannot be made, the FEMA definition contemplates a situation that requires a negative finding. Consequently, it appears that the situation described by a FEMA deficiency is more serious than that described by an NRC fundamental flaw. We see no basis for LILCO's position.

Be that as it may, we can find no basis on which to draw any meaningful distinction between a fundamental flaw and a deficiency. Both definitions describe conditions in which there is a lack of reasonable assurance that the public can be protected. That is a situation that the Commission is chartered to prevent. A hearing that is designed to discover any such conditions is fully consistent with the predictive nature of emergency planning. It is of no consequence whether the condition is correctable only through substantial and far-reaching changes to the plan. These considerations only affect the amount of effort required to eliminate the condition.

We agree with the first element of LILCO's test. Indeed, it does little more than restate the definition of a fundamental flaw found in CLI-86-11, *supra*. We also agree with the second element to the extent that it stands for the proposition that the failure demonstrated by the exercise must be pervasive as opposed to a minor or *ad hoc* problem. In this connection, we find Staff's discussion at pages 5 to 7 of its proposed findings instructive. There, Staff points out that the demonstration in an exercise of a pervasive failure to carry out a portion of the emergency plan might preclude a finding of reasonable assurance, whereas an isolated failure would not. This view appears to coincide with FEMA's

definition of a deficiency in that the latter speaks of "demonstrated and observed inadequacies" that would cause a negative finding. Thus, while it might be argued that an isolated failure of communications in an exercise demonstrates a failure to comply with the planning standard set out in 10 C.F.R. § 50.47(b)(6), it would not give rise to the finding of a fundamental flaw. But where, as we have found here, that failure is not isolated but pervades LERO's performance in the Exercise, a fundamental flaw is demonstrated.[5]

II. THE CONTENTIONS

A. Public Notification

Contention EX-34 alleges that the Exercise revealed a fundamental flaw in the LILCO Plan in that LERO was incapable of providing prompt notification to the public in the event of siren failure, as required by 10 C.F.R. § 50.47(b)(5), 10 C.F.R. Part 50, Appendix E, ¶ IV.D, and NUREG-0654, ¶ II.E and Appendix 3 thereto. Intervenors maintain that these provisions require that a backup system be in place which is capable of notifying the residents of a failed siren area within 45 minutes.

Under the LILCO Plan, Route Alert Drivers are relied upon to notify the hearing impaired and to provide backup to the LILCO siren system. OPIP 3.3.4; LILCO EX-34 Testimony, ff. Tr. 1327, at 6; Tr. 1361-62 (Daverio). Upon learning of any siren malfunction from among any one or more of LILCO's eighty-nine fixed sirens, these Route Alert Drivers are dispatched to drive through the areas surrounding the failed sirens broadcasting a message to the public through loudspeakers. *See* Plan at 3.3-4; OPIP 3.3.4; Suffolk EX-34 Testimony, ff. Tr. 1495, at 5.

During the Exercise, FEMA observed LERO's response to message indicating a failed siren in each of the three Staging Areas. The results were as follows:[6]

Staging Area	Time (Minutes)
Port Jefferson	90[6]
Patchogue	70
Riverhead	78

[5] In their definition of fundamental flaw put forward at the close of the hearing, Intervenors took the position that a single failure might amount to a fundamental flaw. *See* note 4, *supra*. That may be so. However, the single failures presented in this record clearly do not rise to that level. Consequently, we need not address that position.

[6] Approximately one-half of the assigned area was covered in this period.

FEMA concluded that these times were excessive and assigned an ARFI.[7] FEMA Exh. 5 at 141-42.

LILCO moved to strike Suffolk's testimony on this contention on the ground that the testimony was barred by *res judicata*.[8] LILCO based its position on the proposition that the question whether backup notification was required to be completed in 45 minutes had been decided in this proceeding in LBP-85-12, the Partial Initial Decision on Emergency Planning (PID). Specifically, LILCO relied on language in the PID, 21 NRC at 758-59, that looked with favor on the conclusion reached in *Kansas Gas & Electric Co.* (Wolf Creek Generating Station, Unit 1), LBP-84-26, 20 NRC 53, 67 (1984), that there was no requirement for backup notification procedures. The PID concluded that if there was no requirement, then there could be no time limit. We denied LILCO's motion because the contention that had been decided in the PID asserted that backup notification must be accomplished in 15 minutes. The holding of the PID was that NUREG-0654 contained no such requirement. The statement relied on by LILCO is *dicta*. *See* Tr. 1002, 478-500.

Now we must decide whether Intervenors are correct that there is a requirement that backup notification take place within 45 minutes. Intervenors take the position that LILCO was required to demonstrate that its route-alerting personnel had the capability of providing notification, within 45 minutes after the simulated failure of LILCO's siren system, to any segments of the EPZ population that would not have been initially notified of an emergency at Shoreham. *See* NUREG-0654, ¶ II.E and Appendix 3 thereto. They state that the language of NUREG-0654 is clear and unambiguous: it requires that, within 45 minutes of initial siren notification, any segments of the EPZ population who may not have received notification must be alerted to the emergency. *See* NUREG-0654, Appendix 3, ¶ B.2.c; *see also* Tr. 1505 (Michel).

The provision of NUREG-0654 in question states:

> B. *Criteria for Acceptance*
>
> 1. Within the plume exposure EPZ, the system shall provide an alerting signal and notification by commercial broadcast (*e.g.*, EBS) plus special systems such as NOAA radio. A system which expects the recipient to turn on a radio receiver without being alerted by an acoustic alerting signal or some other manner is not acceptable.

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[7] This is an Area Recommended for Improvement, which FEMA defines as a problem area which does not affect the public health and safety. Although correction of an ARFI is not required, it would enhance an organization's level of emergency preparedness. FEMA Exh. 1 at 8.

[8] LILCO's Motion to Strike Direct Testimony . . . on Behalf of Suffolk County Regarding Contention EX-34, March 5, 1987.

2. The minimum acceptable design objectives for coverage by the system are:

   a) Capability for providing both an alert signal and an informational or instructional message to the population on an area wide basis throughout the 10 mile EPZ, within 15 minutes.

   b) The initial notification system will assure direct coverage of essentially 100% of the population within 5 miles of the site.

   c) Special arrangements will be made to assure 100% coverage within 45 minutes of the population who may not have received the initial notification within the entire plume exposure EPZ.

   . . . The lack of a specific design objective for a specified percent of the population between 5 and 10 miles which must receive the prompt signal within 15 minutes is to allow flexibility in system design. Designers should do scoping studies at different percent coverages to allow determination of whether an effective increase in capability per unit of cost can be achieved while still meeting the objective of item 2.a. above.

Intervenors maintain that, up until the time of the Shoreham Exercise, it had been FEMA Region II's position that, based upon the above language, backup route alerting was required to be performed within 45 minutes. Tr. 8005-06, 8713 (Kowieski). Because none of the Route Alert Drivers observed by FEMA completed his route-alerting task within the 45-minute period, FEMA found that Objective Field 5 was only partially met, and initially identified the performance observed as an ARCA.[9] *See* FEMA Exh. 1 at 57, 64, and 74; Tr. 8000 (Baldwin). *See also* Suffolk EX-34 Testimony, ff. Tr. 1495, at 7.

Intervenors maintain that, subsequent to the Exercise, FEMA Region II was instructed by FEMA's Washington Headquarters that the failure of LILCO's Route Alert Drivers to complete their assigned routes within 45 minutes could not be identified as an ARCA; rather, only an ARFI was permitted. *See* Suffolk Exh. 104; FEMA Exh. 5 at 142-43; Suffolk EX-34 Testimony, ff. Tr. 1495, at 7; LILCO EX-34 Testimony, ff. Tr. 1327, at 8-9. Intervenors believe that this "instruction" was made specifically with respect to FEMA's evaluation of the Shoreham Exercise and despite the fact that in other exercises in New York State, backup route alerting in excess of 45 minutes had been identified as a serious problem. They cite Suffolk Exh. 105 at 5; Suffolk Exh. 65 at 62-63, 67 (backup route alerting for Indian Point should be completed within 45 minutes of initial siren notification). They also cite Tr. 1520-21 (Roberts); Tr. 8010 (Kowieski); Tr. 8013, 8604-05 (Keller); Suffolk EX-34 Testimony, ff. Tr. 1495, at 7-8. They maintain that, but for the "instruction" from Headquarters, Region II would

[9] FEMA assigns ARCAs, or Areas Requiring Corrective Action, to "demonstrated and observed inadequacies of performance," which, although they require correction, do not, by themselves, adversely impact public health and safety. FEMA Exh. 1 at 8.

not have taken a contrary position in the final Post-Exercise Assessment, citing Tr. 8019 (Kowieski).

Staff takes the position that:

> No preclusion of a reasonable assurance finding could be based on the amount of time taken during an exercise to complete backup route alerting. *See* FEMA Exh. 1 at 8; FEMA Exh. 5 at 142-43; Tr. 8004-05 (Baldwin, Kowieski). Such backup alerting, while required to be in place, is essentially discretionary as to the time in which it need be completed. *See id.* A fundamental flaw in the plan, therefore, cannot be based on excessive route alert driver time.

Staff Proposed Findings at 87.

LILCO argues that licensing boards have consistently held that NRC regulations and guidelines do not require any backup notification system. It relies on the PID, 21 NRC at 759 ("If no such [backup] procedures are needed, *a fortiori*, no standard time limit need be met."), and *Wolf Creek*, *supra*. It urges that, because NRC regulations and NUREG guidelines do not require any backup to the prompt notification system,[10] the 15-minute and 45-minute time limits for public notification, set out in 10 C.F.R. § 50.47, 10 C.F.R. Part 50, Appendix E, and NUREG-0654/FEMA REP-1, do not apply to the discretionary backup route alerting provided under the LILCO Plan. It cites: LILCO EX-34 Testimony, ff. Tr. 1327, at 4-6; Tr. 8004-05, 8008 (Kowieski); Tr. 8004 (Baldwin). It urges that the FEMA "instruction" to Region II, and the subsequent guidance embodied in FEMA Guidance Memorandum AN-1 (GM AN-1), are fully consistent with this position.

We do not agree with Intervenors that NUREG-0654 requires that backup alerting be accomplished within 45 minutes. Rather, we believe a more reasonable interpretation to be that initial notification of residents in certain hard-to-reach areas of the EPZ which are more than 5 miles from the plant must be accomplished within 45 minutes. This is the position adopted in GM AN-1. Requiring the same speed for backup route alerting would not make regulatory sense. Under the interpretation urged by Intervenors, a licensee would be required to provide a discretionary backup notification system that essentially meets the criteria of the mandatory primary system that has failed. Tr. 1413-14 (Daverio).

GM AN-1 "elaborate[s] upon the accepted FEMA interpretation and application of alert and notification system design objectives" in NUREG-0654 and discusses backup route alerting. FEMA Exh. 4, Attach. I-1, I-5. It is consistent with this interpretation. It states that there is "no hard and fast time requirement for completing the backup route alerting process." *Id.* at I-5.

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[10] In this respect, LILCO position is contrary to that of Staff. The latter states that NRC requires that provision for backup alerting be made. Because the LILCO Plan provides for backup alerting, we need not decide whether a requirement exists.

We find that there is no requirement that backup route alerting be completed within 45 minutes; consequently we decide Contention EX-34 in LILCO's favor.

B. Evacuation of the EPZ

1. Removal of Roadway Impediments

Contention EX-41 alleges that the Exercise revealed a fundamental flaw in the LILCO Plan in that LERO failed to demonstrate an ability to remove impediments, in the form of traffic accidents, from roadways until long after evacuation had begun. It alleges, further, that the Exercise demonstrated that the LERO players were incapable of responding to and removing such impediments. The contention also alleges that the addition of a traffic engineer in the EOC will not eliminate the problems revealed by the Exercise. Finally, Suffolk contends that FEMA introduced an insufficient number of accidents into the February 13 Exercise.

In order to understand these allegations, it is necessary to have an appreciation of the scheme of operations laid out in the Plan. Under the Plan, the Evacuation Coordinator, who reports to the Manager of Local Response, directs actions in the areas of traffic control, transportation, and evacuation from the EOC in Brentwood. The Evacuation Coordinator is responsible for seeing that sufficient resources exist to carry out this responsibility. OPIP 2.1.1, 3.6.3.

The Traffic Control Coordinator, also located at the EOC, reports to the Evacuation Coordinator. The Traffic Control Coordinator's responsibilities include establishing and maintaining Traffic Control Posts, coordinating the road logistics aspects of a public evacuation, overseeing evacuation routes, and overseeing traffic flow considerations. Specifically, the Traffic Control Coordinator must ensure that sufficient manpower and material exist to perform these functions rapidly. In order to implement these activities, the Traffic Control Coordinator supervises and directs the Traffic Control Point Coordinator, the Road Logistics Coordinator, and the Evacuation Route Coordinator. The Traffic Control Coordinator is required to make status reports to the Evacuation Coordinator. *See* LILCO Plan at 2.1-4; OPIP 2.1.1, 3.6.3.

The Traffic Control Point Coordinator is stationed at the EOC and is responsible for coordinating the field activities of Traffic Guides, whose function is to facilitate the flow of evacuating traffic through intersections. He is also responsible for distributing directions to, and receiving information from, the Traffic Guides. This includes receipt of information about road blockages and unexpected traffic flow. The Traffic Control Point Coordinator is to make status reports regarding these data to the Traffic Control Coordinator. *See* OPIP 2.1.1, 3.6.3, Attach. 1 (at 2 of 2).

The LILCO Plan relies on so-called "Road Crews" to remove accidents and stalled vehicles from evacuation routes, furnish fuel to vehicles that have run out, and, in one instance, to convert a section of roadway to one-way flow.[11] The Road Logistics Coordinator is responsible for coordinating the field activities of Road Crews by receiving information from and issuing directions to Road Crews. The Road Logistics Coordinator determines which Road Crew posts to activate based upon which EPZ zones have been ordered to evacuate, and determines the Road Crews to be deployed. The Road Logistics Coordinator reports to the Traffic Control Coordinator and is required to keep the latter apprised of conditions through status reports. *See* OPIP 2.1.1, 3.6.3.

The Evacuation Route Coordinator also reports to the Traffic Control Coordinator. The Evacuation Route Coordinator, also stationed at the EOC, is responsible for coordinating the field activities of the Evacuation Route Spotters. The latter travel the evacuation routes, make periodic reports of their condition, and make immediate reports of any problems. The Evacuation Route Coordinator is required to relay information on evacuation traffic flow problems to the Road Logistics Coordinator and the Traffic Control Point Coordinator, as well as keep the Traffic Control Coordinator apprised of such problems through status reports. In turn, the Traffic Control Coordinator is to report such problems to the Evacuation Coordinator. The Evacuation Route Coordinator is also responsible for keeping the Transportation Support Coordinator, who is responsible for bus operations, advised of problems. *See* FEMA Exh. 1 at 36; OPIP 2.1.1, 3.6.3, Attach. 3, § 3.

1.a. Road Crew Performance

Subcontention EX-41A correctly alleges that during the Exercise, and according to the LILCO Plan, Road Crews were not notified of the emergency or required to report until after the Site Area Emergency had been declared. *See* OPIP 3.3.2, 3.3.3, 3.6.3. It alleges that although the Site Area Emergency was declared at 8:19, most Road Crews did not arrive at the staging areas until after 10:00 a.m., and goes on to allege specific numbers of Road Crew members responding at specific times. It alleges that, when the evacuation was ordered, only about 65% of LERO's Road Crews had been mobilized, in spite of the fact that the Exercise had been preannounced. Finally, Subcontention EX-41A alleges that pursuant to LILCO's Plan, Road Crews were not dispatched from the Staging Area until after the evacuation had been ordered and dispatch was not completed at Riverhead until about 11:00, was not completed at Port Jefferson

[11] Although it was not raised directly by the contention, Intervenors' testimony touched on the last function, converting a roadway to one-way flow. This testimony is covered in connection with Contention EX-40E, which deals with the traffic control activities of Traffic Guides.

until about 12:40, and was not completed at Patchogue until about 11:28. Thus, LERO personnel essential to the implementation of the evacuation according to the LILCO Plan were not fully mobilized until after the evacuation was under way.

The LILCO Plan provides for the dispatch of a maximum of twelve Road Crews assigned to remove roadway obstructions, to be stationed at different locations throughout the EPZ. During the February 13 Exercise all twelve Road Crews were dispatched. Revision 6 of the Plan (in effect on February 13, 1986) provided that the Traffic Control Coordinator was initially to instruct the Road Logistics Coordinator to implement Road Crew operation. After an order to evacuate, the Road Logistics Coordinator was to determine, in light of the evacuation recommendation, which Road Crew posts should be staffed and then notify the Lead Traffic Guides in the three staging areas of the staffing decision. The Lead Traffic Guides then were to brief and dispatch the appropriate Road Crews. Upon arriving at their vehicles, Road Crews were required to check in on their radios with the Evacuation Support Communicator at the EOC and then to maintain periodic contact with the Communicator following their arrival at their posts. LILCO Testimony of Messrs. Lieberman, Weismantle, and Wilm on Contention EX-41 (LILCO EX-41 Testimony), ff. Tr. 272, at 5-6; *see* OPIP 3.6.3.

Pursuant to the Plan, LERO Road Crew members were notified of the Site Area Emergency at the plant shortly after it was declared at approximately 8:19. More than 40 minutes later, at 9:00, only one Road Crew member had reported to the Riverhead Staging Area and none had reported to Port Jefferson or Patchogue. Under the LILCO Plan, Riverhead is supposed to have ten Road Crew members, and Port Jefferson and Patchogue are supposed to have fourteen each. Direct Testimony of Assistant Chief Inspector Richard C. Roberts, Inspector Richard Dormer, Inspector Philip McGuire, and Deputy Inspector Edwin J. Michel on Behalf of Suffolk County Regarding Contention EX-41 — Mobilization and Dispatch of Road Crews and Removal of Impediments from the Roadways During the February 13, 1986 Shoreham Exercise (Suffolk EX-41 Testimony), ff. Tr. 1134, at 19. By 9:40, an hour and 20 minutes after notification to report, only five had reported to Riverhead, none had reported to Port Jefferson, and only four had reported to Patchogue. Thus, when a General Emergency was declared at 9:39, less than 25% of the Road Crew personnel needed to implement LILCO's Plan had been mobilized. *Id.* at 20; LILCO EX-41 Testimony at 22. By 10:20, approximately 2 hours after a Site Area Emergency was declared, there were thirteen Road Crew members at Riverhead, nine at Port Jefferson, and thirteen at Patchogue.[12] *Id.* Suffolk's witnesses believe that

[12] There is no explanation in the record as to why there were thirteen Road Crew members at the Riverhead Staging Area at 10:20 when Riverhead is supposed to have only ten Road Crew members.

in a real emergency, mobilization times would be even longer, because LERO personnel knew in advance that the Exercise would be carried out on February 13 and therefore should have been prepared in advance to report for emergency duty the day of the Exercise. Suffolk EX-41 Testimony at 21.

LILCO's witnesses argue that it is necessary for only some Road Crews, not all Road Crews, to be dispatched shortly after the order to evacuate because they predict that there will be only four minor accidents during the evacuation. LILCO EX-41 Testimony at 23. LILCO's witnesses Weismantle and Lieberman, however, acknowledged that there was a possibility that early in the evacuation, before the buildup of heavy and slow traffic, severe accidents might occur because evacuating vehicles could travel at high speeds. Tr. 982. At 10:24, when the order to evacuate was given, there were nine two-man Road Crews ready to be dispatched into the EPZ. Four Road Crews left the staging area for field locations at 11:00; four more left at 11:28; and two more left at 11:58. LILCO EX-41 Testimony at 23. During the time from 10:24 until the Road Crews were finally dispatched, presumably they were obtaining equipment and being briefed. After arriving at the staging area, Road Crew personnel had to obtain emergency kits, obtain and put on dosimetry equipment, complete the Emergency Worker Dose Form, attend a briefing given by the Lead Traffic Guide, receive instructions from the Lead Traffic Guide regarding deployment locations, be assigned LILCO vehicles as those vehicles arrived, be instructed as to field procedures by the Lead Traffic Guide, and when instructed by the Lead Traffic Guide, depart for designated field locations. Road Crew personnel assigned to specialized functions, such as dispensing fuel or one-way traffic responsibilities, had other preparation responsibilities as well. Suffolk EX-41 Testimony at 22.

Suffolk's witnesses testified that unless LERO's Road Crews are in place at the outset of the evacuation, roadway impediments that occur at the outset would likely result in significant delays or even complete blockage of evacuation traffic. They believe that once an impediment is in place for any period of time, evacuees would take "self-help" measures in an endeavor to get around the impediment, such as driving on the road shoulder or using other traffic lanes. Consequently it would be difficult and perhaps even impossible for Road Crews to get to the scene. Moreover, if Road Crews succeeded in reaching the scene of an impediment that has been in place for some time, traffic patterns around the impediment would already have been set by the actions of evacuees before the Road Crews arrived; the heavy traffic could make the maneuvering required to remove the impediment impossible. *Id.* at 27-28.

FEMA stated in its direct testimony that no problems were identified by FEMA regarding the ability of LERO to mobilize staff and dispatch Road Crews from the staging areas. FEMA Exh. 5 at 16. The NRC Staff, in its proposed findings, likewise stated that it found no basis upon which to agree with the

Intervenors' allegation that the mobilization of Road Crews was untimely, thus demonstrating a fundamental flaw in the LILCO Plan. Staff Proposed Finding 158 at 57. Staff agrees with LILCO that not every Road Crew is needed at the moment an evacuation order is issued. Staff Proposed Finding 157. Since some were promptly dispatched, Staff believes that these crews could handle the expected frequency of early accidents with the later-ready crews responding to those occurring later in time. *Id.*

Dispatch of the Road Crews to their field locations did not begin until 36 minutes after the evacuation order was issued. We believe that this initial dispatch should have been accomplished more quickly, particularly in light of the testimony that, in the early stages of an evacuation, any accidents that occurred might be severe. Tr. 982. However, we do not find that it was so untimely as to demonstrate a fundamental flaw. Moreover, we agree with LILCO and Staff that the four crews dispatched initially could handle any early accidents and other problems, leaving the following crews free to respond to subsequent problems. Consequently, we find for LILCO on Contention EX-41A.

1.b. Response to Roadway Impediments

Subcontention EX-41B focuses principally on the response at the Emergency Operations Center (EOC) to two roadway impediments injected into the Exercise by means of so-called "free-play" messages.[13] The first of these informed the players at the EOC of an evacuation route blocked by an accident involving a gravel truck, and the second informed them of a second evacuation route blocked by an accident involving a fuel truck. The contention alleges that, although FEMA's free-play messages were given to the Evacuation Route Coordinator at about 10:40 for the gravel truck impediment and at about 11:00 for the fuel truck impediment, the LERO Evacuation Coordinator was not informed of either impediment until told by a FEMA Controller at about 12:13. As late as 12:40 the Transportation Support Coordinator had not been informed that the gravel truck was potentially blocking a bus evacuation route, and as of 13:48 the Road Logistics Coordinator had not been informed that there might be a need for equipment at the fuel truck site.

In addition, Contention EX-41B alleges that the Evacuation Route Coordinator failed to provide the Evacuation Support Communicator for Route Spotter/Road Crews with all essential information about the impediments, including the fact that the gravel truck impediment involved three cars as well as the truck, that the fuel truck accident presented a fire hazard because the truck was leaking fuel, and that the overturned fuel truck was blocking both shoulders of

[13] "Free-play" messages are messages that inject problems into the Exercise that are not known in advance by the Exercise players. Thus they provide realism to the Exercise. Tr. 8197-98, 8489 (Kowieski).

the road. The contention alleges that as a result of the foregoing delays and oversights, the Road Crew dispatched to the fuel truck did not arrive at the scene until approximately 14:10, over 3 hours after FEMA informed LERO of the impediment, and only one tow truck was dispatched to move the four vehicles involved in the gravel truck impediment. We deal with these two problems individually.

GRAVEL TRUCK IMPEDIMENT

The chronology of events associated with the gravel truck impediment is as follows:

10:40 hours — The following written free-play message was handed by FEMA to the Evacuation Route Coordinator:

> A loaded gravel truck with a broken driveshaft, which is upright, but turned sideways in the road is blocking the north and south-bound lanes and both shoulders of Yaphank-Middle Island Road, approximately fifty (50) yards north of the caution light at the "Y" intersection of Yaphank-Middle Island Road (in the vicinity of TCP #124). This is a multiple vehicle accident also involving three passenger cars that are blocking both the north and southbound shoulders of the road. There are no injuries to any individuals.
>
> The LERO responder to the site of this impediment should locate the FEMA evaluator who will be wearing a red armband.

10:45 hours — The Evacuation Route Coordinator sent the following written message to the EOC Communicator:

> Have Route Spotter 1004 verify a gravel truck is blocking the north and south bound lanes of Yaphank-Middle Island Road, approximately 50 yards north of the caution at the "Y" intersection of Yaphank-Middle Island Road, Main Street and Mill Road.

10:56 hours — EOC Communicator reported that Route Spotter had not found FEMA evaluator at gravel truck site.

11:04 hours — FEMA Controller at EOC gave EOC Communicator a note describing precise location of FEMA evaluator.

11:40 hours	Route Spotter #1004 met FEMA evaluator at gravel truck site.
11:50 hours	Route Spotter reported to EOC that gravel truck was east of the "Y" intersection.
12:00 hours	Road Crew departs to respond to gravel truck impediment.
12:13 hours	Evacuation Coordinator informed of impediments by FEMA Controller.
12:20 hours	Traffic Control Point Coordinator, after consulting with Evacuation Coordinator, advised Patchogue Staging Area to reroute traffic around gravel truck impediment.
12:40 hours	Road Crew reported they were unable to find FEMA evaluator and were returning to field location.
12:45 hours	After being dispatched again, Road Crew found FEMA evaluator on Main Street.
13:30 hours	Road Crew reported that gravel truck had been cleared from roadway and traffic flow past site had resumed.
13:45 hours	EBS message advising public about gravel truck impediment was approved by Director of Local Response.

(Citations to the record for the foregoing times and events are given in the text below.)

The free-play message about the gravel truck impediment was introduced at the LERO EOC by the FEMA Exercise Controller, who gave it to the LERO Evacuation Route Coordinator. Suffolk EX-41 Testimony at 33; FEMA Exh. 1 at 30. According to LILCO's Plan, the Evacuation Route Coordinator should have immediately transmitted the message to the Road Logistics Coordinator and the Traffic Control Point Coordinator as well as to his supervisor, the Traffic Control Coordinator. *See* OPIP 2.1.1. He failed to do so, however, choosing instead to try to verify the reported impediments before informing his LERO associates. LILCO EX-41 Testimony at 19-20; Suffolk EX-41 Testimony at 34; Tr. 966-67. Nor was the Evacuation Coordinator informed about the impediments as required by the LILCO Plan, until advised by a FEMA Controller after about 12:13. FEMA Exh. 1 at 36; *see* OPIP 3.6.3. The late notification of the Evacuation Coordinator resulted in delays in LERO's response to the impediments. FEMA Exh. 1 at 36. Moreover, Contention EX-41B is correct in asserting that the Transportation Support Coordinator had not, as of 12:40, been informed that an evacuation bus route was blocked by the gravel truck impediment. *Id.*

The LERO message form sent by the Evacuation Route Coordinator to the Evacuation Support Communicator for Route Spotters/Road Crews at 10:45, reporting the gravel truck impediment, failed to include the information that the gravel truck impediment included three cars as well as the truck. Nor did the message include the instruction that the LERO responder should locate the FEMA evaluator at the impediment site. Suffolk EX-41 Testimony at 37-38. The message merely stated as follows:

> Have Route Spotter 1004 verify a gravel truck is blocking the north and south bound lanes of Yaphank-Middle Island Road, approximately 50 yards north of the caution [light] at the "Y" intersection of Yaphank-Middle Island Road, Main Street and Mill Road.

LILCO EX-41 Testimony at 8. Subsequently the EOC Communicator reported back that the Route Spotter had found no one at the gravel truck location and therefore had returned to his route at 10:56. Because of this report that the Route Spotter failed to find the FEMA evaluator at the gravel truck site, the FEMA Controller in the EOC gave the EOC Communicator a note at 11:04 indicating that the FEMA evaluator was located 50 yards east of Yaphank-Middle Island Road at Everett Drive and Main Street. *Id.* at 9. Route Spotter #1004 was again dispatched to meet the FEMA evaluator, which he succeeded in doing about 11:40. FEMA Exh. 1 at 36.

A Road Crew was dispatched and departed from its field post at 12:00 to respond to the gravel truck impediment. LILCO EX-41 Testimony at 9. The Road Crew was not informed that the impediment was a multiple-vehicle accident, however, and only one tow truck was dispatched. FEMA concluded that this equipment would have been inadequate for removal of the loaded gravel truck plus three automobiles; in addition, no scraper truck was dispatched to remove spilled gravel, nor was a determination made as to whether any gravel had been spilled. FEMA Exh. 1 at 37, 65. Suffolk's witnesses agree with FEMA that the equipment dispatched to clear the gravel truck impediment was inadequate to tow anything larger than passenger vehicles and small commercial vehicles. Suffolk EX-41 Testimony at 38.

After the FEMA Controller brought the gravel truck impediment to his attention at 12:13, the Evacuation Coordinator consulted with several of his subordinates and was told by them that the accident was reported to be east of the "Y" intersection. He concluded that it would not affect evacuation flow because it was on a route that carried little or no evacuation traffic. When he advised the FEMA Controllers of this decision they informed him that the impediment was north of the intersection. The Evacuation Coordinator then consulted with the Traffic Control Point Coordinator, who dispatched a message at 12:20 to the Patchogue Staging Area advising that southbound traffic on Middle Island Road must be rerouted westbound on Bartlett Road. LILCO EX-41 Testimony

at 10. Thus LERO did not act to route traffic around the gravel truck impediment until well over an hour after the free-play message was injected by FEMA, and then only after prompting by FEMA. FEMA Exh. 1 at 65.

FUEL TRUCK IMPEDIMENT

The chronology of events associated with the fuel truck impediment is as follows:

11:04 hours — The following free-play message was handed by FEMA to LERO's Evacuation Route Coordinator:

> On Route 25A, approximately 75 yards east of the intersection with Miller Place-Yaphank Road, (in the vicinity of traffic control post #41), a fuel tank-truck has jackknifed and turned over on its side blocking both eastbound and westbound traffic lanes, as well as both shoulders of the road. In the course of the accident, the fuel tank was ruptured and leaking fuel. There is a possibility that the fuel could ignite causing a fire. There is no fire at present and there are no injuries to any individuals.
>
> The LERO responder to the site of this impediment should locate the FEMA Evaluator who will be wearing a colored arm band.

11:06 hours — Evacuation Route Coordinator gave the following message to the the EOC Communicator:

> Have Route Spotter #1005 proceed to 25A, 75 yards east of the intersection with Miller Place-Yaphank Road. Fuel truck turned over on side, blocking both east and west bound lanes.

11:15 hours — Unable to contact Route Spotter #1005 by radio, Evacuation Route Coordinator asked Port Jefferson whether Route Spotter #1005 had been dispatched to his route and was advised that he had not been dispatched.

11:30 hours — FEMA Evaluator arrived at site of fuel truck accident.

11:40 hours — Transportation Support Coordinator in EOC informed Port Jefferson Bus Dispatcher about the fuel truck impediment.

11:49 hours — Port Jefferson Staging Area advised EOC Communicator that all Route Spotters had been dispatched.

12:02 hours	Route Spotter #1005 instructed by EOC Communicator to proceed to scene of fuel truck impediment.
12:05 hours	Port Jefferson Bus Dispatcher informed Transportation Support Coordinator that a visual check of fuel truck site indicated no problem.
12:13 hours	Evacuation Coordinator was informed of the fuel truck impediment by FEMA Controller.
12:23 hours	Route Spotter #1005, who had met with the FEMA evaluator, was released by the evaluator.
12:32 hours	Attempts to get Miller Place Fire Department to respond to fuel truck accident were initiated.
12:37 hours	Port Jefferson Lead Traffic Guide instructed to dispatch dosimetry equipment to support Miller Place Fire Department.
12:47 hours	Traffic Control Point Coordinator, having conferred with the Evacuation Coordinator, directed Lead Traffic Guide at Port Jefferson to begin rerouting traffic around the fuel truck impediment.
12:50 hours	Route Alert Driver with dosimetry dispatched.
12:57 hours	Traffic Control Point Coordinator was informed that traffic was being rerouted.
13:10 hours	Traffic Guide at TCP #40, where traffic was being rerouted, advised Lead Traffic Guide at Port Jefferson that another Traffic Guide and additional traffic cones were needed.
13:32 hours	Additional guide and equipment dispatched from Port Jefferson Staging Area.
13:48 hours	Road Logistics Coordinator advised of need to send equipment to site of fuel truck accident.
13:50 hours	Road Crew dispatched to scene of fuel truck accident.
14:00 hours	Traffic Control Coordinator instructed Logistics Support Coordinator to contact owner of fuel truck.
14:00 hours	FEMA Evaluator left site of fuel truck accident to proceed to other assignments.
14:10 hours	Road Crew arrived at site of fuel truck accident.

14:15 hours Logistics Support Coordinator reported that fuel truck owner had arranged to offload wrecked tanker.

14:45 hours Evacuation Support Communicator informed Road Logistics Coordinator that fuel truck accident had been cleared and road was open.

(Citations to the record for the foregoing time and events are given in the text below.)

As was the case with the gravel truck impediment, after the Evacuation Route Coordinator was handed the free-play message about the fuel truck impediment, he attempted to have the impediment verified before ordering a response to it. Thus at 11:06 he instructed the EOC Communicator to:

> Have Route Spotter #1005 proceed to 25A, 75 yards east of the intersection with Miller Place-Yaphank Road. Fuel truck turned over on side, blocking both east and west bound lanes.

This message, like the one concerning the gravel truck, did not include pertinent information. It failed to mention the facts that fuel was leaking from the overturned truck, that there was the possibility of fire, and that the truck was blocking both shoulders of the road. Also, it failed to include the instruction for the LERO responder to locate the FEMA evaluator. FEMA Exh. 1 at 30; LILCO EX-41 Testimony at 19-20.

The EOC Communicator was unsuccessful in his attempts to contact Route Spotter #1005 by radio. Therefore at 11:15 he inquired of the Port Jefferson Staging Area whether Route Spotter #1005 had been dispatched to his route. Port Jefferson responded that he had not been dispatched. LILCO EX-41 Testimony at 14.

At 11:40 the Transportation Support Coordinator in the EOC informed the Port Jefferson Bus Dispatcher about the reported fuel truck impediment. Subsequently, at 12:05 the Port Jefferson Bus Dispatcher informed the Transportation Support Coordinator that a visual check of the fuel truck problem on Route 25A had indicated no problem to traffic control or evacuation completion.[14] LILCO EX-41 Testimony at 14. At 11:49 the Port Jefferson Staging Area advised the EOC Communicator that all Route Spotters had been dispatched, and at 12:02 Route Spotter #1005 was instructed by the EOC Communicator to proceed to the scene of the fuel truck impediment. The Route Spotter found and met with the FEMA evaluator, who released him at 12:23. *Id.* at 15.

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[14] FEMA criticized this 12:05 message from the Bus Dispatcher because it "was partially illegible and was not written on a standard LERO message form." FEMA Exh. 1 at 30.

The Evacuation Coordinator, who learned about the fuel truck accident when finally told about both road impediments by a FEMA Controller at 12:13, did not begin discussing the fuel truck impediment with his associates until after the rerouting scheme for the gravel truck had been determined and actions had been taken to implement that decision. Eventually, at 12:47, the Traffic Control Point Coordinator directed the Lead Traffic Guide at Port Jefferson to have the Traffic Guide at TCP #40 stop all west-bound traffic on Route 25A and reroute it around the fuel truck accident via North Country Road and Echo Avenue. At 12:57 the Traffic Control Point Coordinator was informed that traffic was being rerouted. *Id.* At 13:10, however, the Traffic Guide at TCP #40 radioed the Lead Traffic Guide at Port Jefferson and advised that an additional Traffic Guide and six additional traffic cones were needed to effectuate the rerouting. The additional guide and the necessary equipment were dispatched from Port Jefferson at 13:32. *Id.* at 16.

At about 12:32, attempts were initiated to get the Miller Place Fire Department to respond to the fuel truck accident; at 12:37 the Port Jefferson Lead Traffic Guide was instructed to dispatch dosimetry equipment to assist the fire department; and at 12:50 a Route Alert Driver with this equipment departed. *Id.*, Attach. C.9, C.10. The Road Logistics Coordinator was advised of a need to send equipment to the site of the fuel truck accident at about 13:50, when a Road Crew was finally dispatched to the fuel truck accident. It arrived at the scene at approximately 14:10. By this time, the FEMA evaluator, who had been waiting at the site since 11:30, had left (at 14:00) when it became necessary for him to proceed to other assignments. FEMA Exh. 1 at 36-37, 58.

At 14:00 the Traffic Control Coordinator instructed the Logistics Support Coordinator to contact Hess Oil Company to advise them that one of their trucks had overturned and was leaking, and to request that they send another truck to the scene for offloading. At 14:15 the Logistics Support Coordinator reported that Hess had arranged with a local contractor to transfer the load, and at 14:45 the Evacuation Support Communicator informed the Road Logistics Coordinator that a Road Crew had reported that the fuel spill had been cleared, that the truck was off the roadway, and that the road was clear. LILCO EX-41 Testimony at 18.

DISCUSSION

There is little if any dispute regarding the facts recited above. The parties differ markedly on the interpretation to be placed on them. LILCO witnesses argued that LERO largely demonstrated its ability to respond to roadway impediments. LILCO EX-41 Testimony at 19. They pointed out that during the Exercise (1) the Evacuation Route Coordinator immediately attempted to verify both accidents; (2) following verification of the gravel truck impediment,

a tow truck was promptly dispatched; (3) after verification of the fuel truck impediment, steps were taken to eliminate the fire hazard and to offload the vehicle; (4) once the Evacuation Coordinator became involved, decisions were promptly made on rerouting schemes; (5) rerouting schemes were rapidly and effectively implemented in the field and then removed once the impediments were cleared; (6) an EBS message on the impediments was prepared and broadcast (simulated); and (7) the Transportation Support Group recognized the potential impact of the impediments on bus operations and promptly informed the appropriate field personnel of the possible problems. *Id.*

LILCO witnesses acknowledged the existence of delays in LERO's response and attributed them to two causes: first, the Evacuation Route Coordinator's failure to perform as effectively as he should have and second, the manner in which FEMA introduced the impediment messages into the Exercise. *Id.* at 19-22. The witnesses admitted that the Evacuation Route Coordinator's failure to inform his co-workers and superiors in the EOC of the roadway impediments delayed LERO's response. *Id.* at 20; Tr. 966-67 (Wilm). They testified that his omission of information in transmitting the original free-play messages to field personnel resulted in delays and confusion because field personnel were unaware of the need to meet with the FEMA evaluators. LILCO EX-41 Testimony at 20. This led to incorrect reports either that no impediment existed or that the impediment had been cleared. *Id.*

In presenting their case, Intervenors claimed that LILCO's response to the two impediments was wholly inadequate. According to the Suffolk County's testimony, for example, LILCO: took too long to respond to the impediments; failed to demonstrate that it could effectively communicate crucial information about the impediments within the LERO organization; failed to allocate sufficient manpower and equipment or material to deal with the impediments; and failed to reroute traffic properly around the impediments. *See* Suffolk EX-41 Testimony at 33-37, 43-48. In the County's view, these problems, as revealed during the Exercise, demonstrated that LILCO's organizational structure, Plan design, and response personnel are unable to protect the public health and safety.

FEMA assigned a Deficiency, an ARCA, and an ARFI on account of LILCO's performance. In its proposed findings, Staff concluded that LILCO's performance demonstrated a fundamental flaw in implementation of the Plan.

Although the various elements of LERO's response called into question by this contention are closely related, for purposes of discussion we have divided them into three parts: Communications, Actions to Clear the Impediments, and Traffic Rerouting.

COMMUNICATIONS

FEMA concluded that the lack of timeliness in LERO's response to the two evacuation impediments was the result of a failure in lateral and downward communication in the EOC. Tr. 8259. As a result of this and other communication problems at the EOC, FEMA identified a Deficiency in its Post-Exercise Assessment, FEMA Exh. 1:

> DEFICIENCY
>
> *Description:* Delays in responding to the two (2) evacuation impediment free-play messages inserted at the LERO EOC were caused by the failure to inform the Evacuation Coordinator in a timely manner. In addition there was a lack of internal communication in response to these impediment problems. Pertinent information was not included on the 1045 and 1106 LERO Message Forms from the Evacuation Route Coordinator to the Evacuation Support Communicator for Route Spotters/Road Crews regarding the simulated impediment involving the gravel truck and fuel truck problems. As a result of this lack of information, the impediment problems were not analyzed in a timely fashion and incomplete equipment was dispatched to handle the gravel truck impediment in the field. NUREG-0654, II, J.10.k.
>
> *Recommendation:* Internal communications procedures should be reviewed and revised as necessary to ensure that information on impediments is promptly passed both up the chain of command to the Evacuation Coordinator and downward and laterally to all lead coordinators under the Evacuation Coordinator and their staffs. Additional training is needed to ensure that the procedures, whether new or current, are properly implemented. All coordinators at the EOC, and those who initiate messages, must be trained to include all pertinent information on the LERO message forms and to analyze the equipment requirements to clear impediments.

FEMA Exh. 1 at 39.

In addition, FEMA identified one ARCA that resulted from LERO's responses to the impediments. We view the ARCA as also raising communications problems. It states:

> AREA REQUIRING CORRECTIVE ACTION
>
> *Description:* There was a delay of about forty-five (45) minutes between the LERO EOCs [sic] first attempt to have Route Spotter #1005 verify the fuel truck impediment and the dispatch of that spotter from the Port Jefferson Staging Area. This delayed timely verification of the impediment. NUREG-0654, II, E.2.
>
> *Recommendation:* Personnel need to be trained in the development of alternative approaches when delays are reasonably anticipated in the field verification of impediments to evacuation. Development of alternatives should include consultation between, at a minimum, the Evacuation Coordinator and the Evacuation Route Coordinator.

Id. at 41. Finally, FEMA also identified one ARFI that similarly raises communications issues. It states:

AREA RECOMMENDED FOR IMPROVEMENT

Description: The 1205 message concerning the "visual check" of the fuel truck impediment from the Bus Dispatcher at the Patchogue Staging Area to the Transportation Support Coordinator was partially illegible and was not written on a standard LERO message form.

Recommendation: LERO should consider whether operations could be improved by additional training stressing the mandatory use of standard message forms and the importance of legibility.

Id. at 42.

The NRC Staff, in its proposed findings, agreed with FEMA that LERO's responses to the fuel truck impediment, and to a lesser extent the gravel truck impediment, were generally ineffective and failed to demonstrate that LERO could deal with impediments to evacuation on roadways. It also agreed with FEMA that the deficiencies in regard to the removal of impediments were the result of a failure of communication and training. Staff's view is that these problems do not show the Plan to be flawed, but rather they demonstrate that if LERO members do not follow required procedures and promptly and accurately communicate evacuation problems, as called for by the Plan, the Plan will not work. Staff Proposed Finding 229 at 83. Nevertheless, Staff concluded that "the Exercise revealed . . . deficiencies which preclude a finding of reasonable assurance that protective measures can and will be taken, *i.e.*, fundamental flaws in the Plan" in regard to the removal of roadway impediments. *See* CLI-86-11, 23 NRC at 581. Before a finding of reasonable assurance is made that the Plan "can and will be implemented" a FEMA remedial drill or exercise is necessary, after further training, to demonstrate that the LERO personnel have the skill and ability to implement the Plan. Staff Proposed Finding 231 at 83-84.

In their proposed findings, Intervenors have raised, in somewhat more detail, the same communications problems identified by FEMA.[15] *See* Intervenors' Proposed Findings at 183-90, 198-205.

LILCO recognized that there were problems revealed in LERO's communications. Its position is perhaps best summed up by the following findings that it asks us to make:

> 237. Clearly, the Evacuation Route Coordinator's failure to communicate immediately information about the two impediments to his co-workers and his superiors in the EOC represented poor judgment and significantly delayed LERO's response to the two impediments. To a lesser degree, his failure to communicate all information to field workers also delayed the response, particularly to the extent field workers were confused about the need to find a FEMA evaluator.

[15] Additionally, they have raised the matter of the timeliness of the simulated EBS messages concerning these impediments. *See* Intervenors' Proposed Findings 262, *et seq.*, at 187, *et seq.* We deal with this subject in connection with Contentions EX-38 and EX-39, *infra*.

238. In addition, we agree with LILCO that the manner in which FEMA input the free play messages, and the way they graded them in the field, affected LERO's response. LILCO correctly notes that had accidents of the severity hypothesized actually occurred, reports of their existence would have flowed to the EOC from numerous sources and would have highlighted the need for immediate action. FEMA should reevaluate its procedures for injecting impediment messages into exercises to try to make the process more realistic.

LILCO's Proposed Findings at 88.

LILCO attacks the Staff's position on the basis that the examples relied on by the Staff to reach its conclusion do not, on the grounds of timeliness, support that conclusion. LILCO supports its attack with the following, all of which relates to the fuel truck impediment:

> First, the delay in the dispatch of a Route Spotter to verify the accident would not in fact have delayed verification if the accident had been real, or if FEMA had employed some means to identify the accident in the field, because then LERO workers would have observed the accident (or its simulation) and reported it;
>
> Second, after being informed of the two impediments, the Evacuation Coordinator acted promptly to reroute traffic and summon the fire department;
>
> Third, the Traffic Guides were prompt in assessing the need for additional equipment and assistance in rerouting traffic, and the Staging Area was prompt in its response to that need; and
>
> Fourth, the timing of LERO's actions in sending a Road Crew and in contacting the owner of the truck to have it offloaded may not be criticized because no message was inserted by FEMA to indicate when the fire hazard was brought under control so as to permit these activities. *See* LILCO's Reply Findings at 29.

Finally, LILCO asserts that the Staff never explains how these allegedly untimely actions would adversely affect the public health and safety. LILCO notes that Staff has accepted the position that, in a real emergency, the existence of the impediments would come to light much earlier. Consequently, LILCO believes that Staff must also accept LILCO's position that, in that situation, prompt action would be taken as it was in the Exercise once the Evacuation Coordinator was informed of the impediments. *Id.* at 30.

Intervenors' proposed findings, LILCO asserts, are defective in that they do not fairly present what in fact occurred at the Exercise and consequently create the impression that many more problems were uncovered than was the case.

We can in large part accept LILCO's arguments as factually accurate. We recognize that artifacts of the Exercise influenced the timeliness of LERO's response to these impediments and that to a certain extent, the lack of a timely response is attributable to FEMA's handling of the Exercise scenario. Nonetheless we cannot accept LILCO's conclusion.

Accepting LILCO's arguments summarized above, the fact remains that LERO's communications were inadequate in the following respects:

First, the Evacuation Route Coordinator did not inform his superior or his co-workers of the two traffic impediments on receipt of the free-play messages. While we recognize that the Plan gives the Coordinator the discretion to verify the impediments if he believes that necessary, as he did during the Exercise, nonetheless we can see no justification for his withholding of information pending verification. Where, as here, the messages postulate the complete blockage of evacuation routes by major accidents involving heavy trucks, one of which posed a risk of fire, the Coordinator should at a minimum have informed his superior and his co-workers of the information contained in the messages and the action he was taking.

Second, the information contained in the messages that the Coordinator had transmitted to the Route Spotters was incomplete in that it did not give details concerning the two accidents. While LILCO may well be correct that this information was readily obtainable by the Route Spotters on observation of the accidents, nonetheless its inclusion would have served as a prompt to ensure that the information contained in the free-play messages was verified and, more importantly, relayed to those who would need it in mounting a response. It is a fact that LERO responded to the gravel truck accident with inadequate equipment. While, in a real situation, the Route Spotter might well have observed and relayed information that would have prompted a response with adequate equipment, inclusion of the details contained in the free-play messages would have ensured that critical information was noted and passed on.

Third, the inquiry directed to the Staging Area as to whether Route Spotter #1005 had been dispatched should have included the information contained in the fuel truck free-play message and a request that that Spotter be dispatched quickly to the scene of the accident. This would have prevented a delay in verification.

These inadequacies demonstrate a fundamental flaw. Further, the fundamental flaw involved is, Staff notwithstanding, a flaw in the Plan itself, revealed in the implementation but not simply engendered by it. We note that communications problems persisted in subsequent drills. Suffolk County introduced evidence to the effect that in a June 1986 training drill, which was evaluated by a LILCO contractor, Impell Corp., the two impediments used were identical to those used in the Exercise. Suffolk EX-41 Testimony at 65. Impell criticized LERO's response to the impediments as follows:

> The Transportation Support Coordinator should have done a better job of keeping control and managing his group during the road impediment scenarios. No one individual was assigned

> to be in charge of handling these impediments. Because practically all groups in the EOC need to be made aware of such a problem it is important that one individual be responsible for coordinating this effort.
>
> The RHC [Radiation Health Coordinator] was not made aware of the impediment to evacuation until 2:15 PM; 1 hour and 30 minutes after the event had occurred.
>
> The EBS message telling of the road impediment was issued at 1:29 PM, almost 45 minutes after the event had occurred. In addition this important piece of information was included with the entire EBS message and might have been missed by the general public. A special EBS message should have been issued.
>
> The message for the second road impediment was called into the EOC and was properly logged on the message form, however when the information was related to the field, the wrong road was mentioned; Route 25-A vs Route 25. The word came back from the Controller, simulating a route spotter, that there was no impediment at the location indicated. As that time it was assumed that the impediment was either a false alarm or had been cleared, and no follow up action was taken. It was not until the Controller in the EOC prompted the players three times to review the original message that any action was taken.

Id. at 65-66.

Suffolk's witnesses point out that during the June drill LERO personnel confused Route 25 and Route 25A, which led to an incorrect response and delays in responding to simulated roadway impediments; this situation was similar to the confusion over the location of the gravel truck and the resultant delays that occurred during the February drill. *Id.* at 67-68. Suffolk's witnesses attribute the communication problems in the EOC to LERO's "cumbersome, complex, and vertical decisionmaking and communication hierarchy. . . ." *Id.* at 67.

Indeed, FEMA found that, in order to correct a discovered Deficiency:

> Internal communications procedures should be reviewed and revised as necessary to ensure that information on impediments is promptly passed both up the chain of command to the Evacuation Coordinator and downward and laterally to all lead coordinators under the Evacuation Coordinator and their staffs.

FEMA Exh. 1 at 120.

We are fully aware that the OL-3 Board gave its blessing to the communications scheme incorporated in the LILCO Plan. But that blessing was scarcely an enthusiastic one, recognizing as it did the difficulty the scheme would encounter if faced with impromptu problems. The OL-3 Board said:

> We found in our resolution of Contention 65 that traffic guides are only required to facilitate traffic flow at their assigned intersections and to guide traffic in preferred directions. . . . They have no specific assignment to alleviate traffic jams or to engage in *ad hoc* problem solving. . . . LILCO's planning shows a realistic grasp of the fact since its communications system is not intended to aid in a routine problem-solving function. . . . We conclude, however, that a timely evacuation of the EPZ could be accomplished even if there were no communication whatever among traffic guides. That being the case, we find

> that LILCO's administrative communications system is a useful provision for emergency response, even though there can be little doubt that the broadly versatile system the police advocate is in the final analysis a superior one.

21 NRC 644, 736-37.

Thus that Board gave the Plan its qualified approval, an approval based on inherent assumptions that traffic guides need only carry out preplanned actions, that "problem-solving" would not be required, and that *ad hoc* responses were not called for. Clearly, the Exercise, with its accompanying free-play messages, indicated that a response to an emergency-within-an-emergency was in fact a natural requirement for an adequate plan. In short, the OL-3 Board's approval was based on an assumption that the Exercise proved untenable. And, as that Board clearly implied, if one accepts the "free-play" conditions of the exercise (and in deference to FEMA's standard practice we do) the communication system in LILCO's plan is fundamentally flawed in that it inherently hampers response to unexpected events.

We agree with FEMA that the communications system should be reviewed and revised, and that additional lateral lines of communication should be considered, and we recommend that the extent to which lateral communication may be incorporated should be examined in the light of a need to respond to unexpected and untoward occurrences during a radiological emergency.

ACTIONS TO CLEAR THE IMPEDIMENTS

FEMA assigned an ARCA to the Patchogue Staging Area with respect to its response to the gravel truck impediment. FEMA did not observe the response to the fuel truck impediment. FEMA Exh. 5 at 75. The ARCA states:

> *Description:* Appropriate personnel and equipment were not dispatched to clear the multiple vehicle accident simulated as an impediment to evacuation. . . .
>
> *Recommendation:* The appropriate personnel at the Patchogue Staging Area should be trained to request more information from the LERO EOC when impediments to evacuation are indicated.

FEMA Exh. 1 at 67.

Staff did not specifically address this point.

Intervenors essentially agree with FEMA that LERO did not dispatch adequate equipment to the gravel truck accident (*see* ¶ 19 at 15, *supra*), and that some attention should have been paid by LERO to the possibility that gravel had been spilled on the roadway (Intervenors' Proposed Finding 275 at 193). Suffolk's witnesses testified that the Road Crew's response to the fuel truck accident was inadequate because only one 10,000-pound tow truck was dispatched to

the scene. This vehicle would have been too small to remove an overturned tanker truck from the roadway. Suffolk EX-41 Testimony at 48. LILCO believes that the equipment dispatched to the gravel truck was adequate in that it could have opened one lane to traffic and called for assistance, and that the spilled gravel was an afterthought in that the free-play message did not mention that possibility. LILCO EX-41 Testimony at 26-27; Tr. 1019-20 (Wilm). LILCO notes that the Road Crew dispatched to the fuel truck was to stand by to render assistance if necessary, not to remove the truck from the roadway. Tr. 1024-25 (Wilm).

Given its mission, we agree with LILCO that the equipment sent to the fuel truck impediment was adequate. The equipment sent to the gravel truck was not adequate to completely clear the roadway. While that Road Crew could call for assistance as LILCO points out, it would have been better to have sent the proper equipment initially. We do not regard this failure, by itself, as a fundamental flaw. Moreover, we find that it resulted from inadequate communications discussed above.

Intervenors also assert that the responses to the two impediments were untimely. *See* Intervenors' Proposed Findings 270-273, 297-300, at 191-92, 207-09. LILCO disagrees with this assessment. *See* LILCO's Reply Findings, Vol. II, at 58-59, 64-66. We do not believe that LERO may properly be charged with a delayed response to the gravel truck impediment beyond that occasioned by its lapses in communications. The chronology reveals that, once the accident was verified, LERO's response was timely. The delays in responding to the fuel truck impediment are less easily explained. LILCO believes that they were necessary in view of the nature of the accident, and, in any event, were not of any consequence to the public health and safety in light of the rerouting of traffic. Assuming Intervenors are correct that LERO should have acted more promptly to complete the removal of this impediment, we do not find that this failure rises to the level of a fundamental flaw.

TRAFFIC REROUTING

FEMA reached no conclusion with regard to the efficacy of LERO's traffic rerouting around the two impediments. Staff, in its Proposed Finding 230 at 83, found both LERO's rerouting schemes and those alternative schemes put forward by Intervenors to be reasonable and workable.

Intervenors spent a great amount of time exploring this topic at the hearing. Suffolk's witnesses testified that LERO's rerouting around the gravel truck impediment was improper first, because better schemes were available, and second, because the delay in implementing rerouting would likely have made rerouting ineffective because of the traffic congestion that would already have occurred at the impediment site. Suffolk EX-41 Testimony at 50-51. They

described, with the aid of aerial photographs and a map, a simple one-block detour around the impediment via Waters Street and Everett Road, which would have returned the traffic to Main Street and the route it was traveling; this would have enabled the evacuating vehicles to reach the Long Island Expressway or the Sunrise Highway to exit the EPZ. *Id.* at 52-53.

LILCO's witness, Mr. Lieberman, a traffic engineer, testified that, while Suffolk's scheme was "viable," LERO's rerouting scheme was preferable because the Suffolk scheme would reroute traffic within sight of the accident, whereas the LERO scheme would divert traffic before the accident came into view. He stated that rubber-necking can reduce traffic flow rate by as much as one-half, saying, further, "Every policeman I've talked with is aware of the hazards associated with the rubber-necking phenomenon." Tr. 1089-91. Suffolk's witnesses, Inspector Dormer and Deputy Inspector Michel of the Suffolk County Police Department, testified that traffic would be moving so slowly as it approached the impediment and as it turned left to enter the detour route, that rubber-neckers would have ample time to satisfy their curiosity, and rubber-necking would not significantly affect the flow rate of traffic. Tr. 1210-13. Witness Lieberman also stated that the simpler detour would have required more manpower than was there at the time the impediment took place. Tr. 1111. He acknowledged, however, that the simpler detour could have been implemented with two Traffic Guides. Tr. 1112. Traffic Control Post (TCP) #124, situated at the intersection of Main Street and Yaphank-Middle Island Road, is required to be staffed by two Traffic Guides. Suffolk EX-41 Testimony at 31 n.15. Thus, had it been staffed in a timely manner two Traffic Guides would have been available within sight of the accident when it occurred. During the Exercise, however, TCP #124 was not staffed until 11:30, 50 minutes after LERO learned of the gravel truck impediment. Suffolk EX-40 Testimony, ff. Tr. 2180, at 26.

In addition, the rerouting scheme around the fuel truck impediment via North Country Road and Echo Road was not the most effective alternative, according to Suffolk's witnesses, because these roads serve an extremely congested area of the EPZ; consequently no more traffic than is absolutely necessary should be put onto North Country Road west of its intersection with Route 25A. A better rerouting scheme, according to Suffolk's witnesses, would have been to detour traffic on Route 25A south on Radio Avenue to Whiskey Road, then west on Whiskey Road to Canal Road, and Canal Road back to Route 25A. Suffolk EX-41 Testimony at 56-58. LILCO's Mr. Lieberman also regards this scheme as "viable," but preferred LERO's scheme because it was shorter, involved fewer turns and a higher class of roadway, was more generally familiar, and would have returned traffic to its original route. Tr. 2274-86, 2317 (Lieberman). Moreover, Mr. Lieberman testified that rerouting schemes are generally not unique, that highway networks generally offer multiple possibilities for diverting traffic. Tr. 2273-74 (Lieberman).

We agree with Mr. Lieberman that rerouting schemes are generally not unique, and that both LERO's and Suffolk's solutions are workable. It is interesting that in the case of the gravel truck, Suffolk's scheme seemed to be the better of the two, while in the case of the fuel truck, LERO's seemed superior. No fundamental flaw was demonstrated in this regard.

TRAFFIC ENGINEER

Subcontention EX-41E alleges that LILCO's proposal to add a Traffic Engineer to the LERO personnel at the EOC will not eliminate the problems in the Plan that were demonstrated by the exercise. The Traffic Engineer is supposed to assist in evaluating road impediments and developing alternative routing. The Subcontention alleges that such assistance would have no impact on the basic problems with the Plan and the incapacities of LERO personnel described in Contention EX-41.

LILCO's witness Lieberman, who testified that he had served as the LERO Traffic Engineer in drills following the exercise, stated that he believed the addition of a traffic engineer to the EOC staff has improved the LILCO Plan by bringing new insights into the decisionmaking process. Because of the Traffic Engineer's understanding of traffic flows and potential sources of congestion during an evacuation and his familiarity with computer projections of traffic flow, witness Lieberman believes that the Traffic Engineer should help LERO respond more quickly and with more confidence to any roadway impediment or other traffic problems. LILCO EX-41 Testimony at 29-30.

Suffolk's witnesses, on the other hand, testified that the only way to identify, respond to, and solve traffic problems is to have trained and experienced field personnel who are able and authorized to quickly evaluate a traffic problem, consult with other field personnel to determine other problems and ramifications to be considered, and then reach and quickly implement a decision. Under LILCO's Plan, field personnel for the most part do not confer with each other. Traffic Guides, for example, cannot inform each other of problems that require joint response. LILCO's Plan calls for most decisions to be made at the EOC by coordinating personnel who are neither trained nor adequately informed in subjects necessary to respond to traffic problems. Suffolk EX-41 Testimony at 77-78. LILCO's witness Weismantle testified that the reason LILCO wanted rerouting decisions to be made at the EOC was to ensure that the decisions are coordinated and made by people who have the overall information about traffic posts and evacuation patterns, rather than being made by people in the field. Tr. 1102.

The NRC Staff, in its proposed findings, indicated that it did not consider the addition of a Traffic Engineer to the EOC to be relevant to the problems that arose during the Exercise. While it believes that the Traffic Engineer should be

able to assist in evaluating road impediments and developing alternate routing schemes, these areas were not the principal source of problems on the day of the Exercise; rather, needed and useful information was not flowing to the persons who required it, with the result being an inadequate field response. Staff Proposed Finding 232 at 84.

During a drill held on October 1, 1986, the Traffic Engineer was present in the EOC. In its evaluation of LERO's performance, the Impell Corp. report on the drill made the following statement about the EOC performance:

> [o]ne of the major areas of concern during this drill continues to be the communications between the EOC and the Staging Areas. Long delays in getting information to the Staging Areas were experienced throughout the drills. Much more emphasis needs to be placed on communications both in accuracy and timeliness. . . . It appears that the common denominator in communication delays is the EOC and emphasis must be placed in training that facility.

Id. at 78. Clearly the problem that was demonstrated to be a fundamental flaw in the LILCO Plan by the February 13, 1986 drill continued to plague LERO's performance as late as the October 1, 1986 drill. With regard to the performance of the Traffic Engineer during the post-Exercise drills, Impell said the following in its report on the June 1986 training drill:

> The position of the Traffic Engineer was utilized for the first time. Their exact responsibilities was [sic] not very clear in their own minds. They became too involved in traffic engineering details, *i.e.*, extent of the crown on the road and its effect on traffic flow, rather than quickly advising the Evacuation group of alternative evacuation routes and their effect on evacuation time estimates.

Id. at 79-80. The Impell report on a drill held on September 17, 1986, during which a Traffic Engineer was again present in the EOC, stated as follows with regard to the response to impediments:

> Improvement could be made in generating the information and arriving at new evacuation time estimates.
>
> A somewhat similar criticism was directed at the Traffic Engineer in Impell's report on the October 1, 1986 drill: The Traffic Engineer, however, had to be prompted to develop revised evacuation time estimates based upon the rerouted traffic.

Id. at 80. The foregoing evaluations of post-Exercise drills, in the opinion of Suffolk's witnesses, provide no basis to conclude that the addition of a Traffic Engineer has done anything to solve the problems in removing impediments and rerouting traffic as demonstrated by the February 13 Exercise. *Id.* In their view, there is no reason to believe that the presence of a Traffic Engineer in the EOC, not in the field and therefore dependent upon field workers and staging

area personnel to provide him with information necessary for making informed rerouting decisions, will improve performance of LERO personnel. *Id.* at 79. The Traffic Engineer in the EOC represents an additional position and another communication layer in LERO's complex, vertical communications and decisionmaking hierarchy, and it does nothing to address the communications problems within the EOC and between the EOC and the field. *Id.* at 76, 78.

Conclusion on Contention EX-41E. FEMA found the poor communication within the EOC and between the EOC and the field during the February 13, 1986 Exercise to be a deficiency. It recommended that LILCO revise its internal communication procedures and train coordinators and others to more effectively transmit messages. Three drills and more than 6 months later, the Impell Corp. found that the October 1, 1986 drill demonstrated that LERO needed to place much more emphasis on training EOC personnel in accurate and timely communications. Clearly, whatever steps LILCO took during the 6 months following the Exercise to fix the problems noted by FEMA, including the addition of a Traffic Engineer to the EOC, the fixes did not succeed in curing the fundamental flaw in the Plan, viz., the deficient communication structure and procedures.

It may be difficult for LILCO to cure this fundamental flaw because of the training and experience of the personnel used to implement the Plan. As emergency workers, LILCO personnel are amateurs; this fact may be the root cause of the communication problems. While both FEMA and Impell call for more and better training in the area of communication, it is questionable whether utility personnel can ever achieve the level of performance that professional emergency workers, such as the police, display. Nor can Traffic Guides and Route Spotters, communicating with Staging Areas which in turn must communicate with the EOC for decisions, deal with evacuation traffic problems as efficiently and effectively as police who evaluate problems on-the-spot, solicit assistance by lateral communication, and make and implement decisions. Moreover, Traffic Guides and Route Spotters who must be mobilized and briefed before being dispatched to the field will probably never be able to respond as quickly to an emergency as police who are already on duty in the field. Consequently, the LERO approach is generally and fundamentally unsatisfactory, and it may be inherently so.

1.c. Exercise Realism

Contention EX-22I was not admitted separately but was dealt with under Contention EX-41. It challenged FEMA's injection of only two road impediments into the Exercise, on the grounds that LILCO itself has estimated that there would be four accident/breakdowns during an evacuation of the EPZ.

Suffolk County, on the other hand, claims that the reported accidents from the Sixth Precinct of the Police Department, which includes most of the EPZ, indicate that there were over twenty-two reported accidents per day during the period February 6-20, 1986, with more than four, on average, requiring one or more tow trucks and approximately two and a half requiring an ambulance. Suffolk EX-41 Testimony at 70-71. Suffolk's witnesses believe that given LERO's problems with handling only two impediments, there is no way that LERO could effectively deal with even more impediments during a real Shoreham accident. *Id.* at 72.

LILCO argues that while the Sixth Precinct is roughly the size of the EPZ, the population of the Sixth Precinct is about 1.5 times that of the Shoreham EPZ. Thus, to make the Sixth Precinct statistics applicable to the EPZ, Suffolk's accident statistics should be divided by 1.5. Dividing 22 accidents per day by 1.5 gives 14.3 accidents per day predicted for the EPZ, or 0.61 accident per hour.[16] From this prediction, 3.05 accidents would be expected during a 5-hour evacuation. Of these, only 0.61 would be predicted to require tow truck assistance, based on the Sixth Precinct statistics. LILCO EX-41 Testimony at 30-31. LILCO's witness Lieberman calculated another prediction, based on data for the date of the Exercise from Precinct Six police tour two, the 8-hour police shift running from 8:00 to 16:00 hours. Tr. 1051, 1054-55. The total of eleven accidents was divided by 8 hours and gave 1.375 per hour, which was then divided by 1.5 to normalize it to the population within the EPZ. The result, multiplied by 5 hours, yielded a prediction of 4.58 accidents during the evacuation. Less than one would require a tow truck. Tr. 1055.

Witness Lieberman acknowledged that a better prediction might be obtained if normalization of Precinct Six statistics to the EPZ was based on number of vehicle miles traveled rather than population, but that information was not available to him. Tr. 1059. He also acknowledged that there is considerable uncertainty associated with his predictions, but expressed his belief that with twelve Road Crews in the EPZ, eight or ten accidents during an evacuation could be adequately handled. Tr. 1061. Furthermore, because many accidents and more severe accidents tend to occur during periods or in locations of low traffic volumes, witness Lieberman argued that normal accident rates probably overstate the number of accidents that would occur during an evacuation, when traffic would be heavy and moving slowly. LILCO EX-41 Testimony at 31; Tr. 1061.

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[16] Dividing the number of accidents in the Sixth Precinct by 1.5 because the population of the Sixth Precinct is 1.5 times that of the EPZ seems to us to be inconsistent with witness Lieberman's other testimony that the traffic fatality rate in areas of high population density is lower than in low-population-density areas. *See* LILCO EX-41 Testimony at 31; Tr. 1061.

Conclusion on Contention EX-22I. The Board gives more weight to the uncertainty associated with predictions of number of accidents to be expected during an evacuation than to the predictions themselves. We agree that once evacuation traffic has reached heavy volume and is moving slowly, any accidents would probably not be very severe. On the other hand, early in the evacuation, we would expect frightened evacuees to drive at high rates of speed and perhaps be willing to take risks they might not normally take. Therefore, severe accidents might well occur early in the evacuation, creating impediments that would cause delays for the heavy traffic to follow. In any event, there is no basis on which to conclude that FEMA injected an insufficient number of impediments into the Exercise.

2. *Staffing of Traffic Control Posts*

LERO's Traffic Guides, according to the LILCO Plan, are to guide evacuees and encourage them to adhere to the evacuation routes prescribed by the Plan. They are to accomplish this by using traffic control strategies and techniques such as blocked lanes, barricades, and the channelization of selected portions of the evacuation network. Direct Testimony of Assistant Chief Inspector Richard C. Roberts, Inspector Richard Dormer, Inspector Philip McGuire, and Deputy Inspector Edwin J. Michel on Behalf of Suffolk County Regarding Contention EX-40 — Mobilization, Dispatch, and Staffing of Traffic Control Posts During the February 13, 1986 Shoreham Exercise (Suffolk EX-40 Testimony), ff. Tr. 2180, at 16; *see* Plan, Appendix A, at IV-5 through IV-72e and V-2; OPIP 3.6.3. They are also expected to expedite traffic flow out of the EPZ by controlling and routing traffic flow through intersections, using hand and arm movements. Suffolk EX-40 Testimony at 16; *see* OPIP 2.1.1. They help facilitate the traffic strategy outlined in the Plan and are available to perform other needed duties that fall outside the preplanned traffic strategy, such as reporting road impediments. Tr. 1563. The evacuation time estimate for controlled (i.e., guided by Traffic Guides) evacuation is based on the assumption that "[r]equired personnel to control traffic are mobilized and in place at outset of evacuation process or soon thereafter." Plan, Appendix A, at V-2.

Contention EX-40 alleges that the Exercise demonstrated a fundamental flaw in the LILCO Plan because the Plan fails to provide traffic guidance for evacuees until long after they are likely to be on the roads attempting to evacuate. It alleges that the evacuation time estimates are based on the assumption that the Traffic Guides are at their Traffic Control Posts (TCPs) guiding motorists and implementing traffic control strategies during the entire evacuation process. The contention also alleges that beginning with the simulated 10:24 EBS message recommending evacuation, all EBS messages broadcast

every 15 minutes thereafter stated that the Traffic Guides were in place to guide evacuees. *Id* at 12.

Contention EX-40A focuses on the time it took the guides to report to their staging areas after callup. It points out that during the Exercise, pursuant to the Plan, the Traffic Guides were not notified to report to the staging areas until after the declaration of a Site Area Emergency at 08:19. *Id.; see* OPIP 3.3.3 and 3.6.3. It then alleges the numbers of Traffic Guides who had reported to the three staging areas at 09:00 and 09:40, when a General Emergency was declared.

Contention EX-40B points out that during the Exercise, pursuant to the Plan, Traffic Guides were not dispatched from the staging areas until after the evacuation recommendation had been made to the public by simulated EBS message. It alleges that it took substantial amounts of time for Traffic Guides to reach and staff their posts.

Contention EX-40B also alleges that the Exercise demonstrated that the LILCO Plan fails to provide evacuation assistance and guidance until long after evacuees would be on the roads, even if no one attempted to evacuate prior to the announcement at 10:24. It asserts that LILCO lacks the capability to provide such assistance because the Plan as written provides that no Traffic Guides, except for those assigned to posts within 2 miles of the plant (*see* discussion of Subcontention EX-40E), are to be dispatched until after there has been an evacuation recommendation. *Id.* at 13-14.

Contention EX-40C alleges that EBS messages, beginning with the 10:24 evacuation recommendation, contained statements indicating that Traffic Guides were available to assist evacuees long before the Guides were, in fact, at their posts. It was litigated with Contentions EX-38 and EX-39 and is considered and decided in our discussion of those contentions.

Contention EX-40D was not admitted for litigation. Contention EX-40E alleges that the dispatch of Traffic Guides to TCPs within 2 miles of the plant (2-mile zone) upon the issuance of an evacuation order, even if dispatch were accomplished more expeditiously than it was during the Exercise, would not correct the defect in the LILCO Plan. Because of the notification and reporting provisions for Traffic Guides, and the fact that an evacuation order can swiftly follow a Site Area Emergency declaration, this attempted "fix" to the defect in the Plan is ineffective. Consequently, the LILCO Plan is, according to Suffolk, fundamentally flawed in that it fails to comply with 10 C.F.R. § 50.47(b)(10) and NUREG-0654, ¶ II.J. Suffolk EX-40 Testimony at 40.

FEMA's Findings

FEMA found that the objective to demonstrate that TCPs can be established and staffed by Traffic Guides in a timely manner (Field 6) was met at the Patchogue Staging Area and partly met at the Port Jefferson and Riverhead

Staging Areas. Riverhead was the only Staging Area at which FEMA found TCP staffing to be tardy. FEMA Exh. 5 at 9.

FEMA observed eight TCPs in the Riverhead Staging Area's jurisdiction and found that the time between deployment of Traffic Guides and their arrival at TCPs was excessive, taking between 50 and 70 minutes. FEMA Exh. 1 at 74. Following the 10:24 EBS message recommending the initial evacuation, Traffic Guides were given their assignments between 10:53 and 11:01. They did not arrive at their TCP assignments until between 11:50 and 12:10. FEMA noted that travel times from the staging area to the TCPs were up to 20 minutes, and, on average, each Guide spent 30 minutes receiving briefings and field kits. *Id.* Consequently FEMA judged the procedure for deployment of Traffic Guides to be a deficiency, which it stated as follows in the FEMA Report:

> DEFICIENCY
>
> *Description:* The time between deployment of Traffic Guides from the staging area and their arrival at TCPs was excessive, taking between fifty (50) and seventy (70) minutes; approximately thirty (30) minutes was spent in line at the staging area receiving field kits and procedures (NUREG-0654, II, J.10.j).
>
> *Recommendation:* A more expeditious means of dispatching the Traffic Guides from the staging area to the field should be developed.

FEMA Exh. 1 at 75.

LILCO's Arguments

LILCO regards the major dispute among the parties to center on the standard to be applied in determining whether the TCPs were timely staffed. LILCO's Proposed Findings at 98. LILCO does not regard the time it took to implement the various steps in the mobilization process to be important so long as the TCPs were timely staffed. LILCO EX-40 Testimony at 4. LILCO's witnesses put forward two standards against which mobilization should be judged: first, 3 hours (based on the finding contained in the PID that mobilization of all field workers, including Traffic Guides, could be substantially completed in this time (LBP-85-12, 21 NRC at 723)), and second, 1 hour (based on LILCO's assumption that the onset of congestion of the roadways will occur 1 hour following an evacuation recommendation to the public (*see id.* at 720)). However, the witnesses also testified that not all TCPs need to be staffed

at this point. Rather, only the so-called critical TCPs must be operational.[17] LILCO EX-40 Testimony at 6-8.

LILCO argues that both the 3-hour and the 1-hour tests should be employed. The first test should be applied with flexibility. LILCO believes that the second test measures whether Traffic Guide mobilization occurred quickly enough to effect a controlled evacuation. Therefore it should be applied only to the critical TCPs. LILCO's Proposed Findings at 101. LILCO then addresses the mobilization times observed in the exercise.[18]

In the Patchogue Staging Area, eighteen of twenty-eight TCPs, including all critical ones, were staffed by 11:25, about 1 hour after evacuation was first recommended, and about 3 hours after callup. By 11:30, 1 hour and 6 minutes after the evacuation recommendation was first broadcast, twenty-six of the twenty-eight TCPs were staffed. *Id.* at 13. The last Patchogue TCP was staffed at 11:40, 1 hour and 15 minutes after the first evacuation recommendation was broadcast. LILCO believes that the Exercise results show that the Patchogue Traffic Guides can be mobilized in time to ensure a controlled evacuation. *Id.* at 14.

The Port Jefferson Traffic Guides began arriving at their TCPs at 11:25, 61 minutes after the evacuation recommendation was broadcast. By 12:00, twenty-seven of seventy-two Port Jefferson Traffic Guides had arrived at their TCPs, and by 13:00, sixty had arrived. The last Port Jefferson Guide arrived at his TCP at 13:26.

LILCO argues that it is the staffing times of critical TCPs that are relevant to whether mobilization and dispatch at Port Jefferson was timely. *Id.* Seventeen critical TCPs are listed in LILCO's testimony, of which twelve were staffed by 11:45. LILCO believes that this would be only 20 minutes after the anticipated onset of traffic congestion. The last critical TCP was staffed at 12:13, almost 2 hours after the evacuation recommendation was broadcast.

LILCO believes that at Port Jefferson the delays in staffing TCPs would have lengthened evacuation time by an insignificant amount, less than 19 minutes. Although these mobilization times do not satisfy the tests advocated by LILCO, nonetheless it believes that the Port Jefferson Traffic Guides were mobilized in a timely manner. *Id.* at 15.

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[17] A "critical" TCP is one whose operation is intended to: (1) be capacity-enhancing for the highway — that is, increase the maximum number of vehicles that the highway can service — and thereby reduce evacuation time; (2) serve a heavy volume of traffic and, in addition, serve traffic evacuating from within 2 miles of the plant; and (3) in a few instances, serve more than one evacuation path in order to ensure that the capacity of each path is fully utilized. LILCO EX-40 Testimony at 10. LILCO classifies 47 of the total of 128 TCPs as critical. *Id.* at 10-11.

[18] The mobilization times stated by LILCO are accurate. However, it should be borne in mind that the difference of a few minutes can mean a substantial difference in the number of Traffic Guides mobilized. Thus while LILCO accurately states that as of 11:25, eighteen of twenty-eight TCPs assigned to Patchogue were staffed, Intervenors can, with equal accuracy, state that as of 11:24, 1 hour after the evacuation recommendation, only ten were staffed. We do not regard the difference of 1 minute to be significant.

In addition, Mr. Weismantle testified that on the day of the Exercise, the Traffic Guides at Port Jefferson parked in a lot that was about a 10-to-15-minute walk from the building. In an actual emergency they would park much closer to the building. He concludes that this difference should reduce mobilization time at Port Jefferson by as much as 20 to 30 minutes. *Id.* at 16.

LILCO's witnesses testified that they had lost the documents recording the times at which Riverhead Traffic Guides staffed their TCPs. The only times they could report were staffing times recorded by a LILCO observer for seven of the eight TCPs observed by FEMA; the observer did not actually observe the arrival of the Traffic Guides but recorded times that were reported to him verbally by the Guides. *Id.* at 16 and Attach. D. These arrival times do not altogether agree with those contained in the FEMA Report. LILCO's times ranged from 11:15 to 12:10. *Id.* at 18. FEMA's times, on the other hand, which were recorded by FEMA observers at the eight TCPs in the Riverhead Staging Area, ranged from 11:50 to 12:10. FEMA Exh. 1 at 74. LILCO argues that the staffing of all TCPs by 12:10 would not have resulted in a significant lengthening of evacuation times. Therefore they argue that, for the same reasons advanced for Port Jefferson, the Riverhead Traffic Guides were mobilized in a timely fashion. LILCO EX-40 Testimony at 18. LILCO acknowledges, however, that the Traffic Guide for TCP 26 had not arrived by 12:50, but states that this TCP is not critical to meeting the controlled evacuation time estimates. *Id.* at 19.

LILCO also argues that when FEMA's observed equipment issuance and travel times are added to the dispatch times from Riverhead, it is evident that the mobilization was timely. LILCO notes that the Traffic Guides who responded following the first evacuation recommendation were given their assignments between 10:52 and 11:08. *Id.* at 17, Attach. E3; Suffolk EX-40 Testimony at 22; *see* Tr. 1658 (Weismantle). FEMA noted that equipment issuance took on average 30 minutes[19] and that travel time took up to 20 minutes. FEMA Exh. 1 at 74. Thus LILCO argues that mobilization from Port Jefferson would have been in time to meet substantially the controlled evacuation time estimates.

For the above reasons, LILCO believes that the Exercise results refute the FEMA finding of a deficiency in the Riverhead deployment process. LILCO EX-40 Testimony at 19.

In its Proposed Findings (at 109-10), LILCO takes the position that, having demonstrated that no fundamental flaw exists with respect to the mobilization of Traffic Guides, it is unnecessary to address Contention EX-40E.

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[19] LILCO notes that backups at the equipment trailer resulted because that trailer had only one door. It testified that this problem has been eliminated by the addition of a second door. LILCO EX-40 Testimony at 20-21.

Suffolk's Arguments

Intervenors agree that, in the PID, the Licensing Board concluded that mobilization of all field workers should be substantially completed in 3 hours and Traffic Guides should be in place approximately 1 hour after an evacuation recommendation. Intervenors' Proposed Findings at 283-84. Intervenors disagree with LILCO that its failure to meet these standards is insignificant. They assert that LILCO's position is contrary to both the PID and the Plan, and they rely on FEMA's testimony to the effect that Traffic Guides are to be in place at the time contemplated by the Plan, 1 hour following an evacuation recommendation. *Id.* at 288; Tr. 8590-92, 8136, 8569. Moreover, they regard LILCO's identification of certain TCPs as critical to be a *post hoc* attempt to avoid the consequences of its performance at the Exercise. Intervenors' Proposed Findings at 288-89. Even if one accepts LILCO's position, Intervenors point out that LERO failed to staff the critical TCPs in a timely manner. *Id.* at 289-90. Further, Intervenors take issue with LILCO's position that this failure would not have significantly affected total evacuation time. *Id.* at 291-93.

Although Intervenors do not contend that it is a Plan requirement that the Traffic Guides be in place prior to an evacuation recommendation (Intervenors' Proposed Findings at 280), Suffolk's witnesses disagree with the assumption that no one would have attempted to evacuate prior to the evacuation recommendation at 10:24.[20] Suffolk EX-40 Testimony at 30; Tr. 2196-97. Based on their experience as police officers, they believe that traffic throughout the EPZ would become congested rather quickly, even prior to the time evacuees begin to evacuate, both because of preevacuation trips necessary to prepare for evacuation and because of early evacuation. In their view, this congestion would delay Traffic Guides in getting to their posts even more than they were delayed on the day of the Exercise, when there was no unusual traffic confronting the Guides and the date of the Exercise had been announced in advance. Suffolk EX-40 Testimony at 31; Tr. 2255-56.

In addition, the LILCO Plan calls for LERO Traffic Guides to use techniques such as blocked lanes, continuous flow treatments, and traffic channelization treatments in order to increase capacity on roadways and at intersections where traffic demand is high.[21] Channelization treatments involve controlling a traffic stream by adding a lane through use of roadway shoulders, closing existing

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[20] Indeed, given the circumstances during the Exercise, a shadow evacuation might well have occurred. The Licensing Board in the PID found that if confused or conflicting information was disseminated at the time of an accident, a large excess evacuation on Long Island could materialize. PID, 21 NRC at 670. We find, in our consideration of Contentions EX-38 and EX-39, that confusing and conflicting information was, in fact, disseminated during the Exercise.

[21] A 2-mile section of roadway including portions of Lower Rocky Point Road and North Country Road is to be converted to one-way westbound flow by a Road Crew. Suffolk EX-41 Testimony at 29. Our conclusion with respect to the timeliness of the dispatch of the Traffic Guides also applies to this Road Crew.

lanes, and/or adding lanes as turn pockets. These treatments are achieved by placing signs, barriers, cones, and vehicles on the roadway. Suffolk EX-40 Testimony at 32-33; Tr. 1583-84. Suffolk's police witnesses believe that trying to implement this strategy after an evacuation had begun would be difficult if not impossible. Suffolk EX-40 Testimony at 36. Not only is it virtually impossible to set up traffic cones and barriers in the middle of traffic congestion, it is very dangerous to attempt to do so. Tr. 2250-51.[22] Moreover, to establish and maintain traffic flow, especially through intersections, requires special training and experience which Suffolk's witnesses believe LERO's Traffic Guides do not have. *Id.* at 35. If Traffic Guides do not arrive until traffic is already congested, it may be impossible for them to implement their traffic control strategies; as the police put it, "if you don't get in there early and get a handle on things before traffic begins to congest, you simply lose it." Tr. 2251, 2268-69.

Intervenors argue that the Exercise demonstrated that the tardy staffing of TCPs has other important impacts on LERO's performance. They point out that the gravel truck impediment, which was introduced into the Exercise at 10:40, was located 50 yards north of TCP 124. Suffolk EX-40 Testimony at 24-26. However, that TCP was not staffed until 11:30. LILCO EX-40 Testimony, Attach. B. Thus that TCP would not have been of assistance until 40 minutes following the accident. Moreover, the TCPs relied on to reroute traffic once that action was taken, TCPs 35, 53, and 54, were not staffed until 11:00, 11:30, and 11:15, respectively. *Id.*; LILCO EX-41 Testimony at 10. Thus rerouting could not have been implemented promptly following this accident.

Intervenors make the same arguments with respect to the fuel truck impediment, which was introduced at 11:04. This accident was located 75 yards east of TCP 41, which was not staffed until 11:45. TCP 40, which LERO utilized to reroute traffic, was not staffed until 12:14. TCP 57, which was also utilized in the rerouting, was not staffed until 12:00. Suffolk EX-40 Testimony at 28; LILCO EX-40 Testimony, Attach. C.

Intervenors do not regard the so-called "fix" of the FEMA deficiency, which is the subject of Contention EX-40E, to be effective. The "fix" requires that Traffic Guides who are assigned to posts within the 2-mile zone be equipped and briefed separate from and in advance of other Traffic Guides, so that they can be dispatched upon the issuance of an evacuation order. LILCO testified that FEMA has concluded that this modification is adequate. LILCO EX-40 Testimony at 20. Intervenors point out that FEMA's approval is contingent upon satisfactory performance at another exercise. Tr. 8116-17 (Kowieski,

[22] An example of the danger associated with attempts to set up traffic control strategies after evacuating traffic has become congested can be envisioned in the strategy for the interchange of the Long Island Expressway (LIE) and the William Floyd Parkway. The Plan calls for Traffic Guides to block the outside lane of the LIE upstream of the interchange, to expedite the merge of traffic coming on to the LIE from the William Floyd Parkway. Tr. 1584-85, 2227.

Keller). They believe that dispatching the Guides after the evacuation order has been broadcast would not enable the Guides to be in place to render assistance to evacuees or implement traffic control strategies until after evacuation had begun. Suffolk EX-40 Testimony at 40-41.

Moreover, they also contend that LILCO's "fix" ignores many important intersections in the EPZ beyond the 2-mile zone which, because of their significance to the evacuation scheme, would need to be manned early in the evacuation process if not before evacuation began. They listed several, including the following:

LIE & William Floyd Parkway;
Route 25A & Miller Place-Yaphank Road;
LIE Exit 66 w/bound ramp & Patchogue-Yaphank Road;
North Country Road & Mt. Sinai-Coram Road;
North Country Road & Main Street; and
Route 347 & Old Town Road.

Id. at 41-42. The witnesses state that evacuation traffic through these and other intersections would need to be kept moving during an emergency at Shoreham; otherwise LILCO's evacuation time estimates would be significantly lengthened. The LILCO Plan depends on the LERO Traffic Guides to implement the Plan's traffic control strategies; they can carry out such strategies only if they are mobilized and dispatched early enough to arrive at and set up their posts prior to or at the time of the evacuation order. As written, the Plan does not have the capability to accomplish this. *Id.* at 42.

Nonetheless, Intervenors contend that, for purposes of Contention EX-40, the Traffic Guides should have been in place shortly after the evacuation recommendation was issued. Because they believe LERO's performance was untimely under any party's view, they do not regard the issue of when the evacuation process would have begun to be important. Intervenors' Proposed Findings at 280-81.

Staff's Position

Staff believes that we are bound by the PID with respect to the time when TCPs should be staffed. It regards this time to be set at 1 hour following an evacuation recommendation, citing LBP-85-12, 21 NRC at 720-24. Staff's Proposed Findings at 50. Thus, Staff believes that only the Patchogue TCPs were staffed in a timely manner. It views the staffing of both ordinary and critical TCPs assigned to Port Jefferson and Riverhead to have been tardy. *Id.* at 48-49.

Staff rejects LILCO's argument that this tardy staffing should be ignored because it has an insignificant effect on total evacuation time. Staff points out that under the Plan as approved in the prior litigation, LILCO must be capable

of effectuating a controlled evacuation. Thus the significance of the effect on total evacuation time is irrelevant. *Id.*

Because the question of the adequacy of LILCO's fix of the problems identified must be evaluated by FEMA in another exercise, Staff does not believe that we should decide Contention EX-40E. *Id.* at 49-50.

LILCO's Response

LILCO takes issue with the Staff's position that the significance of any delay in total evacuation time is not to be considered in judging whether a fundamental flaw exists. It points out that in the PID, the Board concluded that some evacuation time estimates were based on optimal conditions and that those estimates were not highly sensitive to moderate deviations from this assumption. LILCO argues that the significance of any delays must be considered and that, when considered, it dictates not only that no fundamental flaw exists, but that FEMA was in error in assigning a deficiency. LILCO's Reply Findings, Vol. 1, at 39.

LILCO criticizes Intervenors' position for the same reasons, arguing that the effect that its tardiness might have on the public health and safety must be considered. LILCO denies that its designation of critical TCPs is a *post hoc* rationalization, pointing out that it presented testimony in the prior proceeding that a schedule for staffing TCPs in order of their importance had been devised. *Id.* at 42. LILCO regards the remainder of Intervenors' arguments to raise matters that were decided in the PID. *Id.* at 43. LILCO correctly points out that, while we denied its motion to strike Suffolk's testimony on these matters, we ruled that the testimony was admitted only as "necessary background to understand Suffolk's position." Tr. 1003-04 (Judge Frye).

Discussion

For purposes of this Decision, all parties agree that the Traffic Guides are to be substantially in place at the onset of traffic congestion, which is assumed to occur 1 hour following an evacuation recommendation. We accept this as the standard against which LERO's performance is to be judged.

Applying this standard, we conclude that the mobilization of Traffic Guides from Patchogue was timely, but that mobilization from Port Jefferson and Riverhead was not. In the case of Patchogue, 64% of the Guides were at their posts in about 1 hour, and 93% in about 1 hour and five minutes. However, at Port Jefferson, only 38% were mobilized in 1 hour and 35 minutes, and only 83% in 2 hours and 35 minutes. At Riverhead, although the records were lost,

FEMA placed the activation of TCPs between 1 hour and 25 minutes and 1 hour and 45 minutes. Accordingly, it assigned a deficiency.

LILCO attempts to rationalize this performance by arguing first, that the so-called critical TCPs were timely staffed, and second, where they were not, the delay would not have a significant impact on total evacuation time and consequently on the public health and safety. We cannot accept this position. We do not believe that, in drafting the PID, the Board premised its conclusions on the proposition that a controlled evacuation could be effected by the timely staffing of only a portion of the TCPs. Nor can we accept LILCO's invitation to consider whether the delay would have had a significant effect on public health and safety. Staff has correctly characterized that position as follows:

> LILCO's Proposed Findings (at 105-06) seem to argue that it does not matter if Traffic Guides did not arrive at TCPs in a timely manner as the differences in time between a "controlled" and an "uncontrolled" evacuation are not very substantial. However, this litigation examined the exercise of a plan which provided for a "controlled," and not an "uncontrolled" evacuation. The Licensing Board in its PID ruled that the traffic control procedures in the LILCO Plan are required by 10 C.F.R. 50.47(a)(1) and (b)(10). 21 NRC at 917. The Appeal Board in ALAB-818, 22 NRC 651, 676-77 (1985), faced LILCO's arguments that the need for such traffic control procedures was "immaterial" in the case of Shoreham. It indicated that provisions for the evacuation of the public, including traffic control, in the event of a radiological emergency are a necessary part of an emergency plan. The Commission, in CLI-86-13, stated that while there is no specific mention of traffic control procedures in NRC's regulations, traffic controls may nevertheless be necessary for the protection of the health and safety of the public. 24 NRC at 32. It stated that the question of whether these measures are necessary is principally a question of fact and remanded the question for further hearing in connection with proceedings on "realism." *Id.* The proceeding here was not conducted under that Commission order to see if provisions of the plan were "immaterial," but rather under CLI-86-11 wherein the focus was on whether the exercise of the LILCO Plan revealed any deficiencies which preclude a finding of reasonable assurance that protective measures can and will be taken. Indeed, the question of whether a "controlled" evacuation is needed is not before this Licensing Board whose sole charge is to examine the emergency planning exercise, but is before the Licensing Board considering other Shoreham issues.

Staff's Proposed Findings at 49 n.11.

Clearly, large numbers of TCPs were not staffed until well after traffic congestion would have occurred. Consequently, a controlled evacuation would probably not have been achieved. We agree with FEMA that a deficiency should be assessed, and conclude that LERO's performance demonstrates a fundamental flaw.[23]

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[23] During the course of hearing this contention, we requested that LILCO calculate the change in total population dose that would have been experienced as a result of the tardy mobilization of the Traffic Guides. Tr. 2017-18, 2022-28. LILCO supplied its calculations on May 4. On June 8, Intervenors opposed our consideration of LILCO's

(Continued)

We noted above that LILCO correctly pointed out that much of Suffolk's testimony on the difficulties that would have been encountered as a result of the tardy mobilization of Traffic Guides was admitted as background only. That testimony is not a necessary underpinning for our conclusion. However, it was offered by Suffolk County Police Officers with considerable experience. We agree with the conclusion that they are "experts in the practical problems of the streets . . ." (PID, LBP-85-12, 21 NRC at 807), and therefore regard their testimony that it would be difficult, perhaps impossible, and dangerous to attempt to set up traffic cones and barricades in heavy traffic as very convincing. This testimony lends considerable credence to the conclusion that, given LERO's performance, a controlled evacuation probably would not have been achieved.

Intervenors have not asked us to decide when Traffic Guides must be dispatched from the Staging Areas in order to reach the TCPs in a timely manner. Moreover, we recognize that there could be an accident that progressed so rapidly that complete mobilization of Traffic Guides was not possible and that this fact does not dictate that the Plan be disapproved. PID, LBP-85-12, 21 NRC at 723-24. Nonetheless, we note that LILCO's "fix" of the Plan made in response to the FEMA deficiency moves in the direction of a more prompt dispatch.

Pursuant to the "fix," all Traffic Guides posted within the 2-mile zone plus any beyond 2 miles that are considered necessary to the evacuation of the 2-mile zone will be equipped and briefed before an evacuation is ordered. They are to be dispatched immediately on issuance of an evacuation recommendation. Tr. 5818-20. If future exercises do not reveal a significantly improved performance on LERO's part as a result of this change, it may well be that the Plan must be changed further. At that point, consideration should be given to requiring mobilization and dispatch of Traffic Guides in advance of the decision to evacuate, at a time in the development of an accident when it appears likely that an evacuation may be imminent.

However, for purposes of this Decision, we conclude only that the mobilization of Traffic Guides at the Exercise demonstrated a fundamental flaw. We leave it to the emergency planners to devise a means to eliminate this flaw.

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calculations absent an opportunity for discovery and cross-examination. Intervenors also assert that many of the assumptions employed in making the calculations are suspect.

The calculations raise a complex issue which, as noted above, was remanded by the Commission in CLI-86-13, 24 NRC at 31-32, and is pending before another board. Consequently, it would have been inappropriate for us to have considered them in this proceeding.

C. Reception Center and Monitoring

1. Reception Center

The Allegations

Contention EX-22A alleges that a finding of reasonable assurance may not be made because, on the day of the Exercise, LILCO and FEMA assumed that the Nassau Veterans Memorial Coliseum was available as a reception center for evacuees lacking special needs. In fact, that facility is not available. The contention alleges that Nassau County has expressly refused to permit the use of Nassau County facilities as part of, or to implement, the LILCO Plan. Because their underlying premise is legally and factually incorrect, FEMA's conclusions that objectives EOC 16 and Field 9, 17, 19, and 21 were met or partly met are without basis and are invalid.[24] Direct Testimony of David Harris and Martin Mayer on Behalf of Suffolk County Concerning Contentions EX-47, EX-22A, and EX-49 (Suffolk EX-47, EX-22A, and EX-49 Testimony), ff. Tr. 2992, at 36-37.

The objectives referenced in the contention are:

> EOC 16. Demonstrate the organizational ability to manage an orderly evacuation of all or part of the 10-mile EPZ including the water portion.
>
> Field 9. Demonstrate a sample of resources necessary to implement an orderly evacuation of all or part of the 10-mile EPZ.
>
> Field 17. Demonstrate the ability to mobilize, staff and activate the Reception Center in a timely manner.
>
> Field 19. Demonstrate through rosters the ability to maintain staffing at the Reception Center on a 24-hour basis.
>
> Field 21. Demonstrate the adequacy of procedures for registration, radiological monitoring, and decontamination of evacuees and vehicles including adequate provision for handling contaminated waste at the Reception Center.

Id. at 38.

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[24] The October 3, 1986 Prehearing Conference Order (at 27) provided that the substance of Contention EX-46 was to be dealt with under Contention EX-22A. *See also* December 11, 1986 Memorandum and Order at 8. Contention EX-46 alleges that the Exercise demonstrated that the availability of the Nassau Coliseum (a) was the essential premise of the LILCO Plan as exercised, and (b) was an essential premise of the LERO players in attempting to implement the Plan during the Exercise. It also alleges that since LILCO did not demonstrate during the Exercise that it could implement critical aspects of its Plan if the Coliseum were not available, the Exercise demonstrated that LILCO did not comply with 10 C.F.R. § 50.47(b)(8) and (b)(10), and NUREG-0654, §§ II.A.3, J.9, 10, and 12; hence the contention alleges that a reasonable assurance finding is precluded.

Intervenors' Position

Suffolk's witnesses attested that they were unable to address whether the basic premise underlying FEMA's conclusions was legally correct.[25] With respect to objectives EOC 16 and Field 9, however, they believe that it cannot be said that an "orderly evacuation" can be accomplished if there is no facility available to be the end point of the evacuation. In the absence of a facility where services would be performed to protect the health of evacuees, such as monitoring them for radioactive contamination, Suffolk's witnesses believe there is no basis for a conclusion that an orderly evacuation would or could be implemented. *Id.* at 39. Finally, the witnesses noted that objectives Field 17, 19, and 21 each expressly refer to a "Reception Center." They argue that conclusions based upon a nonexistent facility are not valid. *Id.* at 40.

In their proposed findings (at 336-37) Intervenors assert that the FEMA witnesses agreed that certain of their conclusions were no longer valid and that the LILCO witnesses similarly conceded that FEMA had evaluated certain functions that would not remain the same because of the unavailability of the Coliseum.

LILCO's Position

LILCO's witnesses testified that at the time of the February 13, 1986 Exercise, the Nassau Veterans Memorial Coliseum was identified as the Reception Center for evacuees in the LILCO Plan. Therefore it was included in the scenario and activities in the Exercise. LILCO's Testimony on Contentions EX-22A and EX-49 (Monitoring at Nassau Coliseum) (LILCO EX-22A and EX-49 Testimony), at 3-4. They argue that the Exercise tested organizational functions, not merely resources, so that the exchange of one resource in a plan does not invalidate the results of the Exercise. Provisions for setting up a monitoring system, training people to monitor evacuees, transporting evacuees who need transportation to a place where they can be monitored and, if necessary, decontaminated, documenting the monitoring and decontamination effort, planning ahead so a place is provided for these activities, and notifying the public were all items that were tested in the February 13 Exercise. *Id.* at 4. The subsequent withdrawal by Nassau County of the Coliseum for use in LILCO's Plan necessitated changes in the Plan to make arrangements for other facilities to be used. Those changes, however, are being litigated before the OL-3 Board and are outside the scope of this proceeding. *Id.*

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[25] Suffolk's witnesses were both medical doctors. Dr. Harris is the Commissioner of Health Services for Suffolk County, New York. Dr. Mayer is Deputy Director of Public Health in the Suffolk County Department of Health Services.

FEMA's Testimony

FEMA testified that the Nassau County Coliseum was available for use as a reception Center the day of the Exercise, and the fact that it became unavailable 4 months after the Exercise has nothing to do with the results of the Exercise. Moreover, FEMA believes that an orderly evacuation does not depend on the specific location of a reception center, because any reception center must be beyond the 10-mile EPZ, and evacuees would already have evacuated the risk zone before they arrived at the reception center. FEMA Exh. 5 at 21-22. FEMA also notes that the issue of the new reception center is being litigated before the OL-3 Board. *Id.* at 22.

Staff's Position

The NRC Staff, in its proposed findings, stated that the testimony of Suffolk's witnesses failed to address the issue admitted and was "little more a than the witnesses' *ipsi* [sic] *dixit* that without a facility for use as a Reception Center, that function cannot be accomplished." Staff went on to point out that the FEMA Report found that the Reception Center at the Nassau Coliseum was fully mobilized by 10:15, that the capabilities for 24-hour staffing were demonstrated, and that procedures for monitoring evacuees were generally good. Staff Proposed Findings 391 and 392 at 139-40; *see* FEMA Exh. 1 at xvii, xix, and 79-81. Moreover, Suffolk failed to present any evidence that would show the Coliseum as a Reception Center to be any different from any other large facility that could be used as a Reception Center. Staff Proposed Finding 390 at 139.

Conclusion

We agree with FEMA, the Staff, and LILCO. The fact that 4 months after the February 13 Exercise the Nassau Coliseum was made unavailable for use in LILCO's Plan does not invalidate the findings of FEMA during the Exercise. The Nassau Coliseum was the designated Reception Center on the day of the Exercise, and there is no evidence to suggest that LERO's performance there would be any different from LERO's performance at another facility. As Staff points out, there is no evidence that there is anything unique about the Nassau Coliseum as a Reception Center. We conclude, therefore, that Contentions EX-22A and EX-46 are without merit.

2. *General Population Monitoring*

The Allegations

Contention EX-49 alleges that during the Exercise, LERO demonstrated that it has insufficient staffing and equipment to perform the necessary registration, monitoring, and decontamination of evacuees to comply with 10 C.F.R. § 50.47(b)(1), (b)(8), and (b)(10). The contention is divided into three subparts, each of which will be considered separately. Suffolk EX-47, EX-22A, and EX-49 Testimony at 40.

Contention EX-49A, which subsumes Contention EX-31, notes that the LILCO Plan requires LERO's personnel assigned to radiological monitoring to monitor one evacuee every 90 seconds. It alleges that during the Exercise, monitoring frequently took up to 5 minutes per evacuee. At that monitoring rate, Suffolk contends that the seventy-eight monitors assigned to the Reception Center could monitor only 11,232 evacuees in 12 hours. NUREG-0654 § II.J.12 requires that evacuees be registered and monitored within 12 hours. Suffolk EX-47, EX-22A, and EX-49 Testimony at 40. The contention notes that LERO's simulated EBS messages advised all evacuees from zones A, B, F, G, K, and Q, more than 100,000 individuals, to report to the Nassau Coliseum for radiological monitoring. Such a number of anticipated evacuees could not be monitored within 12 hours. *Id.* at 40-41.

Contention EX-49B alleges that features of the "alternate" monitoring plan specified in OPIP 4.2.3, § 5.11, which involve telephoning the Institute of Nuclear Power Operations (INPO), other power plants, and other entities to obtain additional monitoring personnel, were not implemented during the Exercise. *Id.* at 41. Thus there was no demonstration of the capability of those entities either to provide the personnel or equipment needed or to provide them in a timely manner. *Id.*; *see* FEMA Exh. 1 at 81. Intervenors conclude that the Exercise provides no basis to find that the alternate monitoring plan can be implemented or, if it can be, that it would result in an ability to perform the necessary monitoring of the number of evacuees expected to report to the Reception Center. Suffolk EX-47, EX-22A, and EX-49 Testimony at 41.

Contention EX-49C deals with voluntary evacuees who might go to the Reception Center to seek radiological monitoring. It was litigated and considered with Contentions EX-22F and EX-44.

Intervenors' Position

Suffolk's witnesses testified that the two FEMA evaluators assigned to observe the radiological monitoring at the Reception Center both noted that the LERO monitors spend 4-5 or 4-6 minutes per person, which is considerably longer than the 90 seconds called for in the procedures. *Id.* at 45. They believe

that the 90-second monitoring rate is essential if there is to be any reasonable ability to process evacuees through the center in a timely manner. They attest that if one assumes that only 32,000 evacuees arrived at the Reception Center for radiological monitoring, it would take the seventy-eight LERO monitors 10.25 hours to monitor them at the rate of one every 90 seconds, provided no one took a break.[26] *Id.* at 46. Suffolk's witnesses argue that if some evacuees take more than 90 seconds to monitor and if the monitors take reasonable breaks, LERO would not meet the 12-hour monitoring requirement contained in NUREG-0654. *Id.* Further, they quote a FEMA admission stating that, based on its evaluation of LERO's performance during the Exercise, FEMA inferred that LERO did not have sufficient personnel to handle evacuees in excess of 32,000. *Id.* at 46-47.

Suffolk's witnesses further argue that with tens of thousands of people lined up waiting long periods of time to be monitored, contamination could easily be spread, for example by children who may not know they should not touch persons or things prior to being monitored, or who may be unable to refrain from doing so. In addition, the witnesses state, people will need to eat and use restrooms and other facilities, which could also result in the spread of contamination. *Id.* at 47. Furthermore, they argue that anxiety levels will be high when the evacuees reach the Reception Center because they may have been exposed to radiation during their evacuation. Suffolk believes their anxiety levels will rise even more, potentially to the point of panic, if they are forced to wait long periods of time before they are monitored. *Id.* at 47-48.

Suffolk stated that during discovery depositions LILCO witnesses asserted that during a real accident, LERO monitors would perform their jobs faster than they did during the Exercise. *Id.* at 48. Suffolk's witnesses suggest that if the pressure of a real accident caused LERO monitors to work faster, there would be reason to be concerned about the accuracy and adequacy of the monitoring. They believe that, if anything, the knowledge that people were potentially really contaminated should make the monitors be more careful rather than cause them to speed up. They point out that individual citizens, having no monitoring equipment of their own, would have no way of knowing if they are contaminated except through the LERO monitors. *Id.* at 49.

Suffolk's witnesses testified that the allegation of Contention EX-49B that the alternate monitoring plan for evacuees was not implemented or demonstrated during the Exercise was based on a statement in the FEMA Report that the alternate evacuee monitoring plan was not evaluated at the Exercise. Suffolk EX-47, EX-22A, and EX-49 Testimony; *see* FEMA Exh. 1 at 81. They state,

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[26] We checked this calculation and found it to be correct. Because Suffolk stated that LERO's EBS message advising people to report to the Reception Center actually addressed 100,000 evacuees, we calculated how long it would take seventy-eight monitors to monitor that many people at the rate of 90 seconds per person. It would take them slightly over 32 hours, provided they took no breaks. Obviously, to monitor that many people in 12 hours, LERO needs far more than seventy-eight monitors.

however, that apparently there were telephone calls during the Exercise to INPO and simulated calls to other organizations to request additional monitoring personnel, but none of these organizations participated in the Exercise or actually provided personnel. Suffolk EX-47, EX-22A, and EX-49 Testimony at 50. Consequently, Suffolk argues that the Exercise provides no basis for concluding that additional personnel would be available or could get to the LILCO Reception Center in a timely manner. *Id.* at 50-51.

Suffolk's witnesses conclude by arguing that LERO failed to demonstrate during the Exercise that it could monitor, register, and decontaminate the large numbers of individuals that must be expected at a reception center. Consequently, Suffolk believes that the Exercise provides no basis for concluding that Exercise objective Field 21 was met or even partially met. Moreover, since on several occasions LERO monitors were not able to perform their monitoring function in the time prescribed by their procedures, Suffolk thinks that there is no basis to conclude that LERO could do so in an actual emergency. *Id.* at 51.

LILCO's Position

LILCO's witnesses testified that occasions when monitoring took up to 4 or 5 minutes occurred only a few times when federal evaluators were the individuals being monitored. LILCO EX-22A and EX-49 Testimony at 8-9; Tr. 2777-78. Consequently, they believe that 32,000 evacuees could be monitored within 12 hours. *Id.* at 9. They testified that the whole-body frisking technique used by the monitors can be accurately accomplished in an average of 90 seconds or less per person. *Id.*; Tr. 2774-75. Moreover, they state that the FEMA Report makes it obvious that the vast majority of the monitoring at the Reception Center was completed in 90 seconds or less per person during the Exercise. LILCO's witnesses believe that the fact that there were relatively few evacuees (simulated) to be monitored, as a result of which the monitors were under no pressure to perform their jobs expeditiously, caused the monitors to scan more slowly than was necessary. LILCO EX-22A and EX-49 Testimony at 9.

LILCO believes that a modified monitoring technique provided in OPIP 4.2.3, § 5.11 (Rev. 6), would have enabled 100,000 people to be monitored on the day of the Exercise. The modified monitoring technique calls for monitors to monitor the hands and thyroid of the driver of each car coming to the Reception Center and to take a swipe sample of the car hood and wheelwell. The result of these observations determine whether additional monitoring is indicated. This modified monitoring was initiated during the Exercise when it was learned that approximately 100,000 evacuees had been directed to the Reception Center. LILCO's witnesses believe that the 100,000 evacuees could have been monitored the day of the Exercise by utilizing the modified monitoring technique. *Id.* at 10; Tr. 2787-2801 (Watts).

With regard to Contention EX-49B, LILCO's witnesses testified that INPO provides for mutual aid by participating utilities in a radiological emergency. It maintains a 24-hour emergency number for requests for assistance. Because INPO's agreement is with LILCO and not LERO, the initial requests for assistance by LERO are relayed through the LILCO EOF. Subsequently, LERO and INPO communicate directly. LILCO EX-22A and EX-49 Testimony at 11.

On the day of the Exercise, The Manager of Local Response requested at approximately 12:00 that the EOF contact INPO and make arrangements for additional monitoring resources. At approximately 12:30, INPO called the LERO EOC and was informed by the Manager of Local Response of the potential need for assistance. At 13:00 the Manager called INPO and was told that eighty-eight people from five utilities would be available in about 6 hours. At 13:40 the Manager called INPO again and requested 200 more people. At 14:45, INPO called and told LERO that the additional people would be available in approximately 12 hours.[27] *Id.* at 11-12. When asked whether this information was valid, witness Weismantle replied in the affirmative. He stated that during the January 30, 1986 practice exercise LERO requested assistance from INPO, and INPO actually contacted senior management personnel at numerous utilities to obtain details on the numbers of personnel actually available and their expected arrival times. INPO used those data on February 13 because it felt it would be inappropriate to call the utilities again after only 2 weeks. *Id.* at 12.

FEMA's Findings

FEMA found that the facilities at the Reception Center were capable of handling 32,000 evacuees within the required 12-hour time limit. FEMA Exh. 1 at 80; FEMA Exh. 5 at 29; Tr. 7723-24. FEMA's witnesses acknowledged that the overly long monitoring sessions occurred when the individual being monitored was a FEMA evaluator. FEMA Exh. 5 at 29; Tr. 7729. Nevertheless, FEMA assigned an ARCA to the fact that on several occasions radiological monitoring took 4 to 5 minutes per individual, and recommended that all monitoring personnel assigned to the Reception Center be trained to monitor individuals within 90 seconds as prescribed in the LERO procedures. FEMA Exh. 1 at 81. On cross-examination, the witnesses pointed out that LILCO's modified procedure for monitoring evacuees in excess of 32,000 was acceptable as an *ad hoc* solution, and that it was not evaluated at the Exercise. Tr. 7721-23 (Keller).

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[27] At least some of these phone calls were observed by the FEMA evaluators. The FEMA witnesses, however, testified that they had no way of knowing whether the calls were really being made to INPO and other utilities or whether they were just simulated calls. Tr. 7734-39.

FEMA also noted that the decontamination facility at the Reception Center was set up according to the Plan and that the operational activities generally ran well. On one occasion, however, the FEMA evaluators observed that an evacuee with a contaminated hand (simulated) was told to don plastic booties, which could have resulted in their contamination. Then he was told to put on anticontamination gloves after he had put his booties on using his contaminated hand. FEMA noted that the booties were not necessary, because his feet were not contaminated. This faulty decontamination procedure was rated an ARFI, and FEMA recommended that the decontamination staff be given additional training on evacuee decontamination procedures. *Id.*

Staff Position

In its proposed findings the Staff agreed with FEMA's recommendation that additional training be given the decontamination personnel. It did not, however, see this problem as rising to the level of a fundamental flaw in LILCO's Plan.

Conclusion

We agree with FEMA and the NRC Staff on the monitoring time and decontamination issues. Since from the evidence before us we can identify only three instances of monitors spending 4 to 5 minutes monitoring an individual, and all three of those were FEMA evaluators, we do not find that the monitoring time problem rises to the level of a fundamental flaw. Nor were the faulty decontamination procedures used with one evacuee of sufficient severity to reflect a fundamental flaw in the Plan. We join FEMA and the Staff in recommending additional training for the monitoring and decontamination personnel, however, so that the minor flaws that occurred during the Exercise will not be repeated in the future. We conclude that the Exercise demonstrated that LERO can monitor up to 32,000 people within a 12-hour period as it is required to do. *See* the concluding PID, LBP-85-31, 22 NRC 410, 422-23 (1985).

A more difficult issue emerged from the testimony on LERO's ability to monitor in excess of 32,000 evacuees. The concluding PID obligates LILCO to plan for monitoring all evacuees who seek it. *Id.* at 430-31. The question of the number of evacuees that LILCO should provide for is currently pending before the OL-3 Board. During the Exercise, the population of the zones advised to seek monitoring totalled about 100,000. LILCO's testimony that its modified monitoring plan could have accommodated this number in a 12-hour period stands uncontradicted. However, during the Exercise, LERO sought assistance in performing the monitoring task through the Institute for Nuclear Power Operations (INPO). LILCO's witnesses testified that at 13:00 hours LERO was

advised by INPO that an additional eighty-eight radiological monitors would be there in 6 hours, i.e., at 19:00 hours. After requesting an additional 200 to assist in monitoring the expected 100,000 evacuees, INPO advised LERO at 14:45 that it would take 12 hours for them to arrive, i.e., they would arrive at 02:45 the next morning. Clearly, if these additional monitoring personnel were needed for large numbers of evacuees, it would be difficult or impossible for LERO to comply with NUREG-0654 § II.J.12, which states:

> 12. Each 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 resident and transients in the plume exposure EPZ arriving at relocation centers.

In their proposed findings on this issue (at 350-52), Intervenors take the position that we must reject LILCO's position that it adequately demonstrated the ability to implement its alternative monitoring system because FEMA did not evaluate LERO's performance in this regard. We believe that this position misperceives our charter, which is to determine whether the Exercise demonstrated fundamental flaws, not whether LILCO adequately demonstrated each element of its Plan called into play by the Exercise. While, on this record, we cannot conclude that the ability to monitor in excess of 32,000 evacuees in 12 hours was adequately demonstrated, neither can we conclude that the demonstration that took place revealed a fundamental flaw in this regard. Clearly, the additional monitors from INPO at best would have arrived late in the monitoring process and, by themselves, probably would not have been in time to enable LERO to monitor 100,000 evacuees in 12 hours.[28] However, LILCO's uncontradicted testimony is that its alternative monitoring system could have accommodated the 100,000 in 12 hours. We suspect that that system, if help from the INPO personnel were available, might have come close to achieving that goal.

3. *Registration, Monitoring, and Decontamination for Special-Facility Evacuees*

The crux of Contention EX-47 is that the Exercise provides no basis for evaluating the adequacy or implementability of LILCO's proposals for registration, radiological monitoring, or decontamination of the evacuees from special facil-

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[28] The timeliness of the arrival of these monitors depends to some degree on when the 12-hour period begins to run. The EBS message recommending that this number of evacuees seek monitoring was approved at 13:45. Tr. 2542-43 (Weismantle); Attach. B to LILCO's Testimony on Contentions EX-38 and EX-39, ff. Tr. 3300. If the period begins at that time or sometime after, these monitors would have had a substantial impact before the 12 hours expired.

ities who would be transported to special reception centers during a Shoreham accident. It is premised on the NUREG-0654 requirement of an ability to register and monitor evacuees at reception centers within approximately 12 hours, as well as other cited regulations requiring an ability to implement an evacuation of mobility-impaired EPZ residents. It is undisputed that, during the Exercise, LERO personnel did not separately demonstrate the registration, monitoring, or decontamination of special-facility evacuees. LILCO EX-47 Testimony, ff. Tr. 2879, at 2; Tr. 7740 (Kowieski); Suffolk EX-47 Testimony, ff. Tr. 2992, at 8. Furthermore, there was no dispute that Revision 6 of the LILCO Plan, which was exercised, contains no detailed procedures concerning how evacuees sent to special reception centers would be registered, monitored, or decontaminated.

Contention EX-47 also alleges in Subparts A-E, that a LILCO proposal in Revision 7 of its Plan, generated after the Exercise to address the lack of planning for special-facility residents, was inadequate, unworkable, potentially dangerous, and failed to take into account the practical realities involved in dealing with and caring for individuals with special needs. This proposal has been superseded. *See* LILCO Brief at 126. Consequently, we do not rule on Contention EX-47A-E.

Intervenors' position is that the Exercise revealed the existence of a fundamental flaw in the LILCO Plan — the failure of the Plan to include implementable provisions for registering, monitoring, and decontaminating special-facility evacuees — because this capability was not demonstrated during the Exercise. Thus Intervenors contend that the Exercise results preclude a finding of reasonable assurance that LILCO could or would adequately evacuate, or register, monitor, and decontaminate special-facility residents in the event of a Shoreham emergency. *See generally* Harris and Mayer, ff. Tr. 2992, at 8-9, 21-22.

LILCO points out that Intervenors have not raised any issue under this contention which is related in any way to the Exercise. LILCO Reply Findings, Vol. 1, at 48-49.

FEMA's witnesses testified that objective Field 21 specifically limited its evaluation to the Reception Center which, at the time of the Exercise, was the Nassau Coliseum. FEMA Exh. 5 at 26. FEMA found that the objective of demonstrating procedures for the registration, radiological monitoring, and decontamination of evacuees and vehicles, including adequate provisions for handling contaminated wastes, was partly met at the Reception Center (Field 21). FEMA Exh. 1 at 80.[29] FEMA's witnesses further testified that the exercise objectives did not include any demonstrations of registration, monitoring, and decontamination of evacuees from special facilities who would have been transported to reception centers other than the Nassau Coliseum. FEMA Exh. 5

[29] We discuss FEMA's findings on Field 21 in our consideration of Contentions EX-22A and EX-49A and EX-49B. That discussion need not be repeated here.

at 26. Objective Field 13 pertains to the demonstration of resources necessary to effect an orderly evacuation of the institutionalized mobility-impaired individuals within the EPZ. FEMA's evaluation of that objective was addressed in response to Contention EX-21D. *Id.*

In its proposed findings, the NRC Staff agrees with FEMA that the February 13, 1986 Exercise objectives did not include a demonstration of registration, monitoring, and decontamination of evacuees from special facilities. Staff Proposed Finding 379 at 134; *see* Tr. 8532 (Keller, FEMA witness). Staff argues that since these functions were not exercised, it must follow that the Exercise did not demonstrate a fundamental flaw in the Plan with regard to these functions. Staff Proposed Finding 380 at 135. Moreover, Staff argues that neither objective Field 13 nor 21 required a demonstration of registering, monitoring, and decontamination of mobility-impaired individuals at the Reception Center. *Id.* In addition, Staff points out that the PID adequately treats LILCO's failure to designate reception centers for special-facility evacuees.[30] Staff Proposed Finding 381 at 135.

Conclusion on Contention EX-47. We agree with the NRC Staff and FEMA. The registration, monitoring, and decontamination of special population evacuees was not one of the objectives in the February 13, 1986 Exercise. Nor do we find that FEMA's failure to require these functions as objectives of the Exercise indicates that FEMA's review procedures are defective. We also agree that Intervenors' perception of the scope of objectives Field 13 and 21 was incorrect; those objectives do not apply to special population evacuees. Moreover, Intervenors are incorrect in their position that the failure to demonstrate the capability to register, monitor, and decontaminate special-facility evacuees precludes a finding of reasonable assurance. That position would be correct only if such a demonstration had been called for by the Exercise objectives. We conclude, therefore, that Contention EX-47 is without merit.

D. Protective Action Decisionmaking

Contention EX-36 alleges that LERO personnel made protective action recommendations that were inappropriate and failed to consider alternative protective measures that could have resulted in more dose savings; consequently LILCO failed to satisfy Exercise objectives EOC 8 and 12. Specifically, the contention alleges that EBS messages broadcast every 15 minutes between 12:06 and 15:48 contained the recommendation that persons in the downwind zones (A-M, Q, and R) leave their homes and evacuate. It alleges, further, that

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[30] In the PID, the OL-3 Board ruled: "It will be necessary for LILCO to identify reception centers for special facilities that could be evacuated in an emergency at Shoreham and to support this identification with letters of agreement prior to operation of Shoreham at full power." 21 NRC at 840

documents generated in the EOC fail to show that LERO personnel in the EOC ever considered whether the recommendation to evacuate continued to be the most appropriate protective action throughout this entire period of time. The contention alleges that while these messages were being broadcast, the EOF was projecting a wind shift to occur about 15:00, which would carry the plume away from the original downwind zones. In light of that projection, it may have been more appropriate for people who had not left their houses by 14:00 or 15:00 to remain sheltered until after the wind shift occurred. They could then evacuate with less exposure and smaller doses. Finally, the contention alleges that the failure to consider such an alternative was significant because the LERO players knew that as of 14:40 there were still 20,550 people who had not yet evacuated. Direct Testimony of Gregory C. Minor on Behalf of Suffolk County Concerning Contention EX-36 (Suffolk EX-36 Testimony), ff. Tr. 2612, at 4-5.

Exercise objectives EOC 8 and 12 state:

> EOC 8: Demonstrate that the appropriate official is in charge and in control of an overall coordinated response including decisions on protective action recommendations.
>
> EOC 12: Demonstrate the ability to receive and interpret radiation dosage projection information, and to determine appropriate protective measures, based on PAGs[31] and information received from the Brookhaven Area Office (BHO).

FEMA Exh. 1 at 9-10.

Suffolk's witness testified that specific factors that should be considered prior to the recommendation of protective actions are set forth in OPIP 3.6.1, as follows:

> The dose saving effectiveness of protective actions can be influenced by many variable factors such as expected duration of the releases, involved population, weather conditions, projected evacuation times, and plant conditions. Whenever possible, the factors shall all be considered prior to the recommendation of protective actions.

Suffolk Exh. 1 at 7-8, *citing* OPIP 3.6.1, § 3.1. In addition, OPIP 3.6.1 describes actions to be taken by the Nuclear Engineer using data concerning plant status, meteorological conditions, survey data, dose projections, release data, and evacuation time estimates to determine protective action recommendations for review by the Radiation Health Coordinator. *Id.* at 8, and Attachs. 2, 3, and 4; LILCO's Testimony on Contention EX-36 (Wind Shift) (LILCO EX-36 Testimony), ff. Tr. 2364, at 5-6.

The information available to EOC personnel during the Exercise included: data on plant conditions, including projected release rates and measurements;

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[31] PAGs is the abbreviation for EPA Protective Action Guides.

dose projections and protective action recommendations from the EOF; current and projected meteorological data, including wind direction; and smear and air samples from field surveys. *Id.* at 9-10; Tr. 2480-83.

At 10:10 on the day of the Exercise, LERO's Director of Local Response made the initial evacuation decisions for zones A-M, Q, and R after consulting with the Nuclear Engineer, the Radiation Health Coordinator, the Manager of Local Response, and the person simulating the County Representative in the EOC. He was advised by the Nuclear Engineer that if the situation at the plant continued there could be a core failure and dramatic release of radioactive material. Applying the guidance set forth in Attachs. 5 and 6 of OPIP 3.6.1, the Director of Local Response, Radiation Health Coordinator, and Manager of Local Response conferred and agreed that the appropriate protective action was the evacuation of zones A-M, Q, and R. LILCO EX-36 Testimony at 6-7; Tr. 2414-18.

Intervenor's Position

Suffolk's witness, Mr. Minor, testified that at the time the evacuation recommendation was made, the Radiation Health Coordinator had not performed computer calculations using release data to determine appropriate protective action recommendations, although the EOC did perform a calculation using hypothetical release data shortly afterwards and another later using data from the Exercise scenario. Suffolk EX-36 Testimony at 10. When the evacuation recommendation was made at 10:24, the wind was blowing from the ENE toward the WSW at 5 miles per hour, and it was projected to shift about 18:00 to blow from the WNW toward ESE. *Id.* at 11. At 11:46 the Director of Local Response, on the recommendation of the Radiation Health Coordinator, decided to extend the evacuation recommendation to include zones N, O, P, and S, because of the expected wind shift and the long duration of the anticipated release. *Id.* at 11-12.

The meteorological data changed with respect to the timing of the projected wind shift. As of 10:29 the wind shift was expected about 16:00. As of 11:09 the shift was predicted between 15:00 and 18:00. Finally, at 11:52 it was projected that the wind shift could occur as early at 15:00. Release data and dose projections also changed during the accident. The initial evacuation recommendation was based on plant condition and a single reading from the plant's reactor building standby ventilation system. Subsequently, field survey data from air and smear sampling as well as additional dose projections became available. *Id.* at 13. According to witness Minor, the Radiation Health Coordinator recorded the results of a smear reading taken at 14:00, 7 miles WSW of the plant; the reading was 2700 cpm/cm^2. *Id.* at 17. At 12:45, he recorded an

air dose of 3130 mR/hr located 0.5 mile downwind of the plant, and at 12:10 another air dose reading of 180 mR/hr 2 miles WSW of the plant. *Id.* at 18.

People in the original downwind zones were subject to both a ground dose and a cloud dose once the plume arrived over these zones and before the wind shift. Witness Minor testified that in a car they would receive no shielding from the cloud dose and only a small reduction in ground dose. In the average house, on the other hand, they would have received a 30% reduction in cloud dose and an 80% reduction in ground dose. After the wind shift, these individuals would continue to receive a ground dose but a smaller potential cloud dose. *Id.* at 17. Witness Minor acknowledged, however, that the appropriate dose pathway for consideration in assessing the protective actions was the child thyroid inhalation dose, and that the 0.7 reduction for cloud dose and 0.2 reduction for ground dose do not necessarily apply to the child thyroid dose pathway. Tr. 2615-16.

Witness Minor stated that "EBS messages repeated every 15 minutes from 10:23 through the end of the Exercise recommended that people in the original downwind zone should evacuate if they had not already done so." He alleges that these messages went out without any apparent calculation based on updated data or other confirmation that evacuation was still the response that would likely result in maximum dose savings. Suffolk EX-36 Testimony at 18. When LERO personnel learned that 20,000 people in the original downwind zones had not left their homes as of 14:40, with a projected wind shift away from those zones anticipated about 15:00, Suffolk's witness believes that LERO should have reassessed the relative dose savings from sheltering versus evacuation.[32] *Id.* at 18-19. He does not attest that LERO should have necessarily rescinded the original evacuation recommendation, but rather that LERO should have performed updated calculations of relative dose savings from sheltering versus evacuation. *Id.* at 19. He admits that the decision to continue with evacuation may have been correct, but he contends LERO never performed an analysis that would justify its decision. *Id.* at 20; Intervenors' Proposed Finding 455 at 314-15.

In addition, witness Minor believes that rather than relying throughout an accident on precalculated evacuation times for the dose calculation, the Radiation Health Coordinator should analyze the real data on traffic. For example, when the roadway impediments became known to LERO, the Radiation

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[32] In the Intervenors' proposed findings, LILCO's witness Watts, LERO's Radiation Health Coordinator during the Exercise, is alleged to have acknowledged that the effect of shelter on overall dose savings "continues for at least six hours." Intervenors' Finding 463 at 321. Dose reduction figures, with which witness Watts agreed during cross-examination, are quoted for successive hours from 1 to 6. These dose reduction figures, however, do not reflect a dose savings that "continues" for 6 hours; in fact, the dose reduction during the 6-hour period is based on a 50% dose saving during the first hour and none thereafter, as witness Watts attempted to make clear during his cross-examination. Tr. 2489-90.

Health Coordinator should have been consulted. Suffolk EX-36 Testimony at 21. Additionally, LERO was continuing to recommend evacuation of the original downwind zones at 15:45 when evacuees could have been delayed in traffic by impediments; it may have been more dose-saving to keep them in their homes for a few more hours and then ask them to leave when the plume was no longer in the vicinity. *Id.* at 22.

LILCO's Position

LERO's Radiation Health Coordinator testified that it is not correct that he did not perform updated calculations throughout the Exercise. He attested that they ran computerized dose projections at the EOC throughout the Exercise. LILCO EX-36 Testimony at 7; Tr. 2425-40. Moreover, a wind shift projected for sometime between 15:00 and 18:00 was not a sufficiently compelling reason to change the protective action from evacuation to sheltering, because other factors unequivocally indicated that continued evacuation was appropriate. LILCO EX-36 Testimony at 8.

The other factors that had to be considered were, first, the fact that LERO knew it was faced with a probable long-term release. The release was projected to continue for approximately 9 hours. Tr. 2445. Second, plant release rates and offsite dose rates resulting from the exercise scenario reached much higher levels than those assumed earlier in formulating the original decision to evacuate. Tr. 2508-09; Intervenors' Proposed Finding 296 at 114. Third, sheltering would not have been an effective protective action for people who had not left their homes by 14:00 or 15:00, because by then their homes had already been immersed in the plume for at least an hour, and there was substantial contamination in the downwind portions of zones A-M, Q, and R. LILCO EX-36 Testimony at 8; Tr. 2419-20; Tr. 2445, 2447.

The degree of protection offered by sheltering depends upon the source of the radiation. For a thyroid dose received by inhalation, the protection afforded by sheltering in a house decreases as outside air infiltrates into the house. LERO considered the critical dose pathway to be the child thyroid dose. After a house has been in a plume for over an hour, the inside air can become almost as radioactive as the outside air. Moreover, sheltering was never advised and, consequently, ventilation controls probably had not been implemented in many of the occupied houses, which would render them an ineffective shelter even more quickly.[33] By 14:40 the houses in the downwind area had been immersed

[33] Ventilation control in houses was not recommended during the Exercise because sheltering was never recommended. A ventilation control recommendation is part of the EBS message only when sheltering is the protective action recommendation (PAR). Tr. 2494. This Board believes that house ventilation control should be recommended in EBS messages whenever there has been a release of radioactive material to the atmosphere, regardless of whether the principal PAR is evacuation or sheltering.

in the plume for at least an hour and there was substantial contamination in the area; hence homes no longer afforded effective protection from inhalation of radioactive iodine. LILCO EX-36 Testimony at 10; Tr. 2488-94; 2511-12. If the remaining population had sheltered and waited until after the wind shift to evacuate, the dose actually received would have been greater than that received with evacuation. LILCO EX-36 Testimony at 10-11; Tr. 2505-07, 2519.

After the initial recommendation, the Radiation Health Coordinator performed periodic calculations based on information being received at the EOC which showed that plant releases and resulting dose projections would be much higher than first projected. LILCO EX-36 Testimony at 4, 7, Attachs. D, E, and F; Tr. 2446, 2451-52, 2508 (Watts). As a result, the Coordinator concluded that there was no reason to perform additional calculations to see if sheltering rather than evacuation should be recommended. Tr. 2508-09 (Watts). The EOC protective action decisionmaking team continued to receive and exchange information on weather conditions (including wind shift projection) and road conditions during the day. Tr. 2566, 2594 (Weismantle); Tr. 2604 (Kessler); Tr. 2568-71 (Watts). The projected wind shift led, in fact, to the recommendation to evacuate additional zones at 11:46 a.m. Tr. 2567 (Kessler). Monitoring of the situation continued in order to confirm the validity of earlier evacuation decisions. Tr. 2576 (Watts).

In addition to the foregoing considerations, LILCO's witnesses testified that if LERO had changed its protective action recommendation from evacuation to sheltering when large numbers of people were already evacuating, it would have created public confusion. Both evacuees and persons sheltering would have heard that others in their geographical area were being advised to engage in a different protective action. Consequently some evacuees may have sought shelter and some people advised to shelter may have begun to evacuate. Still others may have waffled, starting one protective action and then changing their minds and beginning the other. In the judgment of LILCO's witness Mileti, the purpose of emergency planning is to minimize the potential for confusion in emergency response. LILCO EX-36 Testimony at 12-13; Tr. 2529-33; Intervenors' Proposed Finding 295 at 114.

LILCO's witnesses believe that evacuation was clearly the appropriate protective action, given the probability of a long-term release. LILCO EX-36 Testimony at 15-16; Intervenors' Proposed Finding 296 at 114. Indeed, FEMA in its postaccident assessment found that appropriate protective action recommendations were made by EOC personnel. LILCO EX-36 Testimony at 15-16; *see* FEMA Exh. 1 at 30-31.

FEMA's Testimony

FEMA testified that LERO personnel made appropriate protective action recommendations, both with respect to the original evacuation recommendation issued at 10:24, and the second evacuation recommendation issued at 12:00 in anticipation of the wind shift. FEMA Exh. 5 at 24-25. The NRC Staff agrees that LERO's Radiation Health Coordinator used good judgment in making protective action recommendation decisions and made proper recommendations based on the consideration of appropriate factors. Staff Proposed Findings 251-260 at 91-95.

Conclusion

The Board finds the evidence presented by LILCO's witnesses to be persuasive on Contention EX-36. We agree with Intervenors' that "the consideration of the relative dose savings from alternative protective actions is the fundamental premise and basis of LILCO's protective action recommendation procedure. . . ." Suffolk EX-36 Testimony at 21-22. We find that LERO engaged in that process in a fundamentally sound manner.

According to the findings in the PID, sheltering would provide a 50% thyroid dose reduction for the first hour and much less after that time. *See* PID, 21 NRC at 772-74. LERO personnel in the EOC did consider updated information and based their recommendations on adequate evaluations of this information. Specifically, they considered the fact that the actual releases were several times greater than those they had assumed when the evacuation recommendation was made initially; in light of this fact LERO decided that it was appropriate to get the people out, and we agree. Moreover, by 14:40, when LERO learned of the people remaining in the downwind zones, their homes had already been immersed in the plume for an hour or more and hence sheltering afforded little protection from inhalation of radioactive iodine. In addition, we agree that a recommendation to shelter at 14:40 when much of the population in the original downwind area was already responding to the earlier recommendation to evacuate would have caused confusion. We find Contention EX-36 to be without merit.

E. Public Information

1. Overview

These contentions are closely related and were heard together. In Contention EX-38, Intervenors argue that the Exercise demonstrated that LERO was unable to provide timely, accurate, consistent, and nonconfusing information to the

news media at the ENC, thus failing to implement § 3.8.B and OPIP 3.8.1 of the LILCO Plan. Contention EX-39 alleges that the Exercise revealed that LILCO is incapable of dealing with rumors or responding to inquiries from the public during an emergency as required by 10 C.F.R. § 50.47(b)(7) and NUREG-0654 § II.G. Intervenors believe that the Exercise demonstrated that there are fundamental flaws in the Plan as it relates to LERO's public information functions.

The Emergency News Center (ENC) Exercise objectives that Intervenors assert were not satisfied are:

> 1. Demonstrate the ability to mobilize staff and activate LERO functions at the ENC in a timely manner;
>
> 3. Demonstrate the ability to brief the media in a clear, accurate, and timely manner;
>
> 4. Demonstrate the ability to share information with other agencies at the ENC prior to its release;
>
> 5. Demonstrate the ability to establish and operate rumor control in a coordinated manner; and
>
> 6. Demonstrate that the ENC has adequate space, equipment, and supplies to support emergency operations.

The LILCO and Suffolk witnesses hold different views concerning the media's role during an emergency. While LILCO witnesses cite the importance of providing accurate information to the media, they believe that the top priority in an emergency public information network is the Emergency Broadcast System (EBS), which uses EBS network radio broadcasts to disseminate emergency information directly to the public. LILCO EX-38 and EX-39 Testimony, ff. Tr. 3207, at 8. LILCO attempts to focus the public's attention on the EBS messages because they contain the information that is essential to the public, such as the status of the emergency, the potential risk associated with emergency events, and protective action recommendations. *Id.* at 8-9; Tr. 3236, 3261 (Mileti). LILCO witnesses assert that the primacy of the EBS network in the overall emergency public information scheme is underscored by the NRC requirement that EBS messages go out in 15 minutes (LILCO EX-38 and EX-39 Testimony at 9; Tr. 3234 (Daverio)), and by the lack of any comparable requirements for press conferences or news releases.

In LILCO's view, other means of communicating emergency information to the public are of secondary importance when compared with EBS messages. LILCO EX-38 and EX-39 Testimony at 12. Thus, although the LILCO Plan provides detailed procedures for operating a news center, conducting joint LILCO/LERO press conferences, and disseminating both LERO and LILCO news releases, the LILCO witnesses consider these functions a less important

means of communicating emergency information to the at-risk public. *Id.* They view the media mainly as a vehicle to follow up and elaborate on EBS messages. *Id.* at 13. LILCO witnesses testified that the media's primary function during an emergency is to cover the event, not to provide information to enhance the public's health and safety. Tr. 3357 (Patterson).

Intervenors assign much more importance to the media's role in an emergency situation. Suffolk witnesses testified that it is the media's responsibility "to provide the public with timely, precise and easily understood information on the basis of which members of the public can make rational individual decisions on the best course of action to insure their personal health and safety." Suffolk EX-38 and EX-39 Testimony, ff. Tr. 3786, at 38. Intervenors assert that LILCO has put too much emphasis on the EBS system (Tr. 4087, 4089-90 (Rowan)), and that "the media is now and would be in a crisis the primary conduit to the public." Suffolk EX-38 and EX-39 Testimony at 88. In short, Intervenor witnesses argue that LILCO "does not understand the media, does not really want to deal with the media, and does not comprehend how good media relations would be essential in a real crisis." *Id.* at 79.

FEMA in general agrees with LILCO that the EBS system is the "primary means of giving necessary emergency information to the public." FEMA Exh. 5 at 32. Staff, citing 10 C.F.R. § 50.47(b)(5) and Appendix E, ¶ IV, agrees with LILCO that the regulations designate the EBS system as the primary means for notifying the public. Staff Proposed Findings at 97, 99.

We find that both LILCO's and Intervenors' arguments have some merit. Clearly, LILCO is correct that the EBS system is the primary means for conveying information to the public and LILCO is correct in placing its principal reliance on it. However, Intervenors are correct to the extent that they assert that the media have a larger function than simply to report the event. EBS messages are, of necessity, limited to furnishing the public with essential information needed to properly respond to an emergency. Consequently, there is little room in the EBS format for much background information or elaboration that would place that essential information in context. The media will step into this void. If they are provided with clear, accurate, and timely information, they will be able to supplement the EBS system and help to ensure an orderly public response. On the other hand, if such information is not provided, the media will at best be a neutral influence and at worst detrimental to an orderly response. Consequently, 10 C.F.R. § 50.47(b)(7) requires that the principal points of contact for the media and procedures for the coordinated dissemination of information to the public be established. We have considered these contentions in this light.

2. Activation of the Emergency News Center

Contention EX-38A correctly notes that the ENC was declared operational at 08:25, and that there was no contact with the media by LERO personnel at the ENC until after that time. Tr. 3443. The first press briefing was held at 08:40. Thus, the ENC provided no information at all to the media until almost 3 hours after the alert was declared, and long after the 6:52 EBS message announcing the Alert condition and school closings had been broadcast. Intervenors maintain that, in a real emergency, such a delay would result in substantial confusion, speculation, rumor generation, lack of confidence in LILCO's ability to deal with the emergency, and refusal to believe information, advice, or instructions subsequently disseminated by LILCO personnel. Suffolk EX-38 and EX-39 Testimony at 40, *et seq.*

Although it concedes that a serious radiological emergency at Shoreham would spur great media interest (LILCO Proposed Findings at 136; Intervenors' Proposed Findings at 382-83), LILCO maintains that the ENC was activated in a timely manner. It notes the lack of regulatory guidance on this issue. LILCO also maintains that there is no substance to the argument that the delay in opening the ENC would have had adverse consequences. LILCO notes there are other sources of information available. In that period, LILCO issued two press releases (which, in a real emergency, would have been carried by AP and UPI) and an EBS message was simulated. Further, it is well known to the media that the LILCO Corporate Communications Department makes a professional available to answer telephone inquiries on an around-the-clock basis. LILCO EX-38 and EX-39 Testimony at 16-18; Tr. 3441.

Intervenors do not agree that the information that was available would have been adequate. Suffolk EX-38 and EX-39 Testimony at 49-60. They postulate an immediate and intense interest on the part of the media following the first word of a problem at the plant. This would, in the Suffolk witnesses' view, mean that many reporters would be clamoring for information prior to the activation of the ENC. Because this thirst for information could not be satisfied at the ENC, these reporters would seek other, less reliable sources of information. Thus not only would the media be forced to rely on and consequently report inaccurate information, they would quickly grow to mistrust LERO as a reliable source. *Id.* at 44-46, 50, 61-62.

FEMA concluded that objective ENC 1, mobilization of staff and activation of the ENC, was demonstrated and that "[o]verall activation of the ENC was done well." FEMA Exh. 1 at 52. FEMA noted that mobilization of the ENC began at the Alert stage (which is consistent with the practice at other nuclear plants in FEMA Region II), that ENC personnel began arriving about 06:41 (22 minutes later), and that mobilization was completed in about 2 hours. FEMA considers this a reasonable amount of time and consequently believes the activation was

timely. FEMA testified that a press briefing held within 15 minutes of activation of the ENC is adequate. FEMA Exh. 5 at 33; Tr. 7756-66. Staff believes that the information that was available was adequate. It points out that the public received timely information via the EBS network, so that activation of the ENC at 08:25 does not constitute a flaw. Staff Proposed Findings at 102.

We agree with FEMA's conclusions. Obviously, a function such as the ENC cannot spring into operation instantaneously, and nothing in the record indicates that activation was tardy. The flaw in the Suffolk witnesses' testimony is their assumption that at the initiating event of an accident, a large and intensely interested press corps would instantly materialize. We do not find this assumption credible. First, we believe that the interest of the media would develop over a period of time as the accident unfolded. Second, it is obvious that, just as it takes some time to mobilize the ENC staff, it will also take some time to mobilize the press at the ENC. Moreover, Staff's point that the public would have received timely information from the EBS system is well taken.

LILCO correctly points out that other sources of information were available during this time. While, from the media's point of view, these sources were less than ideal, we find that they were adequate considering their timing prior to the recommendation of any protective actions (other than the closing of schools for the day) and prior to any release to the environment. Suffolk witnesses paint a dire picture of the reaction of the media. While we agree that activation of the ENC at 08:25 would create some problems for the media, we find that Suffolk witnesses have greatly overstated those problems. No fundamental flaw is demonstrated on this account.

3. Distribution of LERO News Releases and EBS Messages

3.a. Timeliness

Contention EX-38B concerns LERO News Release No. 1, which announced the Alert declared at 06:17 and the fact that there had been no release of radiation to the environment. This release was not provided to the press by the ENC until sometime after 08:25. LILCO EX-38 and EX-39 Testimony at 19; Tr. 3445. Although a Site Area Emergency had been declared at 08:19 and the ENC was informed of that declaration between 08:21 and 08:25 (LILCO EX-38 and EX-39 Testimony at 19-20; Tr. 3445-46), apparently no mention was made to the media of the Site Area Emergency, the fact that a minor release of radiation had occurred, or of the recommendation to place dairy animals on stored feed until the first press briefing at 08:40 (LILCO EX-38 and EX-39 Testimony at 20-21). Thus, the first LERO press release contained dated information at the time it was released to the media at the ENC.

Contention EX-38C concerns LERO News Release No. 2 covering the Site Area Emergency, radiation release, and dairy animal recommendation. These were announced in EBS Message No. 2 broadcast at 08:38. LERO News Release No. 2, which included the information in that EBS message, was not available to the media at the ENC until sometime after 09:15. Tr. 3466. The media were orally informed of the content of EBS 2 at the first press briefing which began at 08:40.

Contention EX-38G concerns LERO News Releases 3 through 7. It alleges that these were distributed much too late, and were inaccurate and in conflict with other data in the public domain by the time they were provided to the media. Although the ENC received LERO Press Release No. 3 at 10:15, it was not posted at the ENC for the press until 11:10. LERO Release No. 4 was received by the ENC at 10:45, but was not posted until 11:56. LERO Release No. 5 covered the 10:24 evacuation recommendation for zones A-M, Q, and R. It was approved by the LERO Director at 11:02, but did not even arrive at the ENC until 11:36, and was not made available to the press until sometime later. LERO Release No. 6, approved by the Director at 12:25, was not posted at the ENC until 14:10; LERO Release No. 7, approved at 13:11, was received by the ENC at 13:47, but not posted for the press until 15:07.[34]

Contention EX-39A raises a related point. There, Intervenors allege that during the Exercise, the LILCO District Offices and Call Boards, which are part of the Rumor Control organization, consistently had incorrect or superseded information concerning the emergency and the protective action recommendations, resulting in the provision of inaccurate and incomplete information to members of the public. Intervenors also allege that this information was incomplete and inconsistent with that being released by other LILCO personnel at other locations (for example, in EBS messages or press releases). The specific factual allegations of the contention, about which there is no dispute (*see* Intervenors' Proposed Finding 601; LILCO Proposed Finding 389, *et seq.*), are as follows.

> (i) The logs kept by all the LILCO Call Board operators, including, for example, those kept by the Port Jefferson, Patchogue, and Brentwood Customer Call Board operators, indicate that the information available to them until approximately 11:00 stated that a Site Area Emergency existed, even though a General Emergency had been declared at 9:39.
>
> (ii) The logs kept by the Call Board operators indicate that the operators did not receive word that people in zones A-M, Q, and R had been advised to evacuate until approximately 12:35, even though that advisory had first been issued to the public at 10:24.

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[34] The times of arrival and posting at the ENC for press releases 5, 6, and 7 are not revealed by the record. However, there does not appear to be any dispute regarding the times alleged. *See* LILCO EX-38 and EX-39 Testimony at 28-30.

(iii) The logs kept by the Call Board operators indicate that the operators did not receive word that LERO had recommended evacuation of the entire EPZ until approximately 2:00, even though that advisory had first been made at approximately 12:00 noon.

(iv) The logs kept by the Call Board operators indicate that the operators did not receive word of the declaration of an Unusual Event until approximately 8:15, although that declaration was in fact made at 5:40; similarly, the Call Board operators did not receive word that an Alert had been declared until approximately 8:30, although the declaration was made at 6:17 and an EBS message was simulated at 6:52.

(v) The Call Board logs indicate that most Call Board operators did not receive word that schools were supposed to be implementing early dismissals until approximately 8:50, although an EBS message regarding early school closings was simulated at 6:52.

Contention EX-38D correctly notes that insufficient copying capabilities at the ENC contributed to delays in the distribution of information. Copier breakdowns delayed the posting of EBS messages, and the posting and distribution of press releases to both the media and Rumor Control. LILCO EX-38 and EX-39 Testimony at 23-24. FEMA assessed a deficiency as a result of the delays in providing EBS messages to the media and up-to-date information to Rumor Control. FEMA Exh. 1 at 53. It noted that there is no time requirement for the distribution of news releases. FEMA Exh. 5 at 36.

Contention EX-38Q alleges that neither LILCO's proposal to expedite the dissemination of information by substituting summary information for press releases and transmitting it by computer to the ENC, nor its proposal to add an extra LERO spokesperson at the ENC, would resolve the deficiencies revealed during the Exercise. Nor would replacement of copying machines. This subcontention misstates the improvements in the information distribution system put in place by LILCO. First, summary sheets are not intended to replace news releases, which will continue to be available and will contain information almost identical to that in the EBS messages. Rather, the summary sheets will contain the basic protective action information found in the EBS messages and will be available almost immediately after each EBS broadcast. They are a substitute for the marked-up EBS messages. Second, there is no plan to add a LERO spokesperson at the ENC. Rather, that position has been made official. During the Exercise, the spokesperson was referred to as a member of the Public Information Staff. LILCO EX-38 and EX-39 Testimony at 49-50; Intervenors' Proposed Findings at 401 n.367.

In their testimony, the Suffolk witnesses begin by saying that the news releases are little more than a regurgitation of the EBS messages. This, in their view, means first, that the news releases are useless because they provide no information not already available, and second, that by the time they were made available the contained information was outdated, inaccurate, and inconsistent with subsequent information. As a result, the witnesses believe that the news

releases were counterproductive. Suffolk EX-38 and EX-39 Testimony at 66-67. The witnesses go on to note, however, that the media at the ENC would either hear or be told of the EBS messages as they were broadcast. This would prompt the media to demand the text of each message in order to relay it immediately and accurately. The failure of the ENC to provide such information would create inaccuracies in the reporting and distrust of the ENC as a source of information. *Id.* at 69-71.

The Suffolk witnesses' criticism appears addressed to two points: first, the failure of the press releases to provide a timely source of information in addition to that contained in the EBS messages, and second, the failure to provide the text of the EBS messages themselves on a timely basis. In their proposed findings (at 396-400), Intervenors argue that it is necessary to provide accurate, timely, and consistent information to the media, that LILCO failed to do so through the use of news conferences and EBS messages, and that therefore we must find that the delayed issuance of press releases, the only remaining way of communicating with the media, constitutes a fundamental flaw. LILCO takes the position, and FEMA agrees, that the news releases are of secondary importance and are compiled mainly for historical purposes rather than to provide a timely source of information. LILCO EX-38 and EX-39 Testimony at 8-9, 13, 20-23, 28-30; FEMA Exh. 5 at 35. LILCO agrees with the County that the news releases provide essentially the same information as that contained in the EBS messages. *Id.* at 13.[35]

Essentially, LILCO attributes the problems in the distribution of EBS messages and press releases to copier breakdowns.[36] LILCO EX-38 and EX-39 Testimony at 59-60. To avoid a recurrence of this sort of problem, LILCO now proposes to electronically transmit summary sheets containing key emergency information to the Call Boards and District Offices simultaneously with the broadcast of EBS messages. News releases will also be electronically transmit-

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[35] In view of the fact that the news releases in question are little more than a restatement of rather than a supplement to the EBS messages and were late, we agree with the County's witnesses that they are largely useless as a current source of information. We also agree that the text of the EBS messages should be furnished to the media on a timely basis. However, Intervenors' arguments in their proposed findings that the failure of the primary means of informing the media requires that a fundamental flaw be found with respect to the news releases is itself flawed in that it seeks to put the news releases in the place of the EBS messages as the primary means. If the primary means failed, it (not the backup) would be found fundamentally flawed.

[36] LILCO regards EX-39A(iv) and (v), which concern events that occurred prior to 08:25, as requiring the Call Boards to be able to furnish up-to-date information even before they are activated. It notes that under approved onsite procedures, Call Boards and District Offices are required to be activated when the ENC is. Thus, there was no requirement that they be able to answer inquiries before the ENC was activated at 08:25. LILCO EX-38 and EX-39 Testimony at 58-59. Intervenors believe that this position is inconsistent with LILCO's testimony that the Call Boards and District Offices are continuously available to the public to answer inquiries regardless of any emergency. Tr. 3532. Regardless of whether LILCO's position is entirely consistent, we may not fault Exercise performance that substantially comports with approved procedures. Here, whether or not the Call Boards and District Offices are in operation at the earliest stages of the emergency, they may not be held accountable for providing information before the Plan contemplates. Of course, they must be prepared to answer inquiries when the public is advised to call them, whenever that may be.

ted. *Id.* FEMA has withheld its review of LILCO's corrections pending the latter's evaluation of the copier problem, and, once approved, must evaluate it at another exercise. FEMA Exh. 3, Attach. 1 at 6-7, and Table 3.4 at 1-2; Tr. 7851-53 (Keller). Although Staff recognizes that the failure to provide current information to the Call Boards is a problem, it views LILCO's corrective actions as adequate. Hence it finds no fundamental flaw. Staff Proposed Findings at 120. Similarly, it does not view the failure to timely distribute press releases to the media as a fundamental flaw because other sources of information would be available and because LILCO has taken steps to correct this problem. *Id.* at 105.

In support of the allegations that LILCO's corrective actions will not work, Suffolk witnesses testified that, although the ENC was aware at 12:22 that evacuation of the entire EPZ had been recommended, this information was not passed on to the media until the next briefing at 12:47. Moreover, they argue that insufficient copying capability should have been compensated for by more frequent briefings, and that LILCO does not understand how to deal with the media and does not wish to do so. Suffolk EX-38 and EX-39 Testimony at 77-78. In their proposed findings (at 400-04), Intervenors also argue that the copier problems recurred at a drill held after the Exercise, that there has been no change in the way news releases are distributed, and that the summary sheets contain substantially less information than the EBS messages themselves.

We agree with Intervenors that the failure to keep the Call Boards and District Offices advised with respect to the current state of emergency response recommendations issued by LERO constitutes a fundamental flaw. The examples cited in Contention EX-39A(ii)-(iii) reveal that the Call Boards were provided protective action recommendations about 2 hours late. Consistent with our view that the media have an important role to play in ensuring an orderly public response to an emergency, we agree with FEMA's assessment of a deficiency with regard to the failure to promptly provide the EBS messages to the media, and regard that failure as an integral part of the above-mentioned fundamental flaw.[37] However, we do not agree that we should pass on the efficacy of LILCO's corrections. We noted above that FEMA has withheld its review of LILCO's corrections pending the latter's evaluation of the lack of copying capability for distribution of EBS messages to the media and, once it has approved the corrections, must evaluate them at another exercise. If we were to rule on the contention that these corrections are not efficacious, our ruling would either improperly bind FEMA to a particular result in advance of its review or would have to be viewed as having no effect. Therefore, it would be inappropriate

[37] We find that the circumstances surrounding the distribution of news releases are not fundamentally flawed or a contributing factor to the fundamental flaw we have found.

for us to determine whether LILCO's corrections will remedy this fundamental flaw.

3.b. Clarity

Contention EX-38F alleges that copies of EBS messages provided to the media contained extraneous information that should have been deleted, and thus were unclear, confusing, and inconsistent with radio broadcasts. It relies on FEMA Exh. 1 at 53, 54. There, FEMA stated that "some hard copies of EBS messages that were provided to the press contained extraneous information (clearly marked for deletion) that should have been omitted to avoid possible confusion." *Id.* at 53. FEMA identified this as an ARCA. In its testimony, FEMA reiterated that the extraneous information was marked for deletion and that its concern was that possible confusion could result, although none did. FEMA Exh. 5 at 38. LILCO asserts that the EBS messages posted during the Exercise were not confusing and that, in any event, corrective action has been taken in that summary sheets highlighting pertinent protective action information have been substituted for the marked-up EBS messages. LILCO EX-38 and EX-39 Testimony at 26-28. Staff believes that LILCO has solved this problem. Staff Proposed Findings at 107. Suffolk witnesses believe that this situation could raise questions regarding LILCO's competence in the minds of the reporters at the ENC. Suffolk EX-38 and EX-39 Testimony at 75-76.

We agree with Suffolk and FEMA that the EBS messages need to be cleaned up before distribution. These messages are the primary means for communicating with the public; hence it is important that the copies made available to the media are clear in order to prevent the reporting of inaccurate or inconsistent information. The copies used during the Exercise are replete with handwritten insertions and deletions which made them confusing. However, because no confusion was shown to have resulted from the EBS messages given the media during the Exercise, we do not conclude that this problem by itself rises to the level of a fundamental flaw. Nor do we view it as a contributing factor to the fundamental flaw discussed above.

4. Communications with the Media

4.a. Timeliness

Contention EX-38H states that the LERO Director recommended evacuation of the entire EPZ at 11:46 and that that recommendation was broadcast in a 12:00 noon EBS message. However, the ENC did not inform the media of the Director's decision, or the content of the 12:00 EBS message, which was supposedly repeated every 15 minutes thereafter, until 12:47. Suffolk

witnesses believe that this was a calculated decision that illustrates a systemic problem. *Id.* at 77-78, 84-87. LILCO concedes that it would have been better to have informed the media on learning of the recommendation (LILCO Proposed Findings at 141), but notes that the media would have been informed by the EBS broadcast (LILCO EX-38 and EX-39 Testimony at 31) and that it is the LERO spokesperson's responsibility to determine when to make herself available to the press based on consultations with other public information officers and the demands of the press (Tr. 3511). Staff does not believe that LERO's delay would have poisoned its relations with the media. Staff Proposed Findings at 108-09. FEMA agrees that the media would have been informed by the EBS broadcast and notes that it assessed a deficiency based on LERO's inability to promptly furnish copies of EBS messages. FEMA Exh. 5 at 40.

Clearly, in an actual emergency, the media would have learned of the evacuation recommendation and demanded information from the LERO spokesperson. Nonetheless, we believe that the spokesperson should have immediately informed the media of the recommendation. Waiting until asked does not inspire confidence and may give rise to the inference that information is being withheld. However, we conclude that this failure by itself does not rise to the level of a fundamental flaw.

4.b. Candor

Contention EX-38I concerns the fact that although LERO workers were instructed to simulate ingesting KI tablets at 9:45, LERO ENC personnel did not inform the media of that fact. Intervenors characterize this as the concealment of pertinent information about the health-threatening effects of the accident which, if found out, would result in further reductions in LILCO's credibility.[38]

LILCO and FEMA, on the other hand, take the position that, in light of New York's policy not to make KI available to the general population (a policy that LERO will follow), there was no reason to inform the public through the media. The information would be of no value to the public, although the ENC was prepared during the Exercise to answer questions had any arisen. LILCO EX-38 and EX-39 Testimony at 32-34; FEMA Exh. 5 at 41; Tr. 7838-42, 8564. Staff concurs. Staff Proposed Findings at 110. This position is clearly correct.

[38] The subcontention originally alleged that the media were informed and asked not to report the story, although in their direct testimony the County's witnesses have accepted LILCO's version which is given above. Suffolk EX-38 and EX-39 Testimony at 71-75; Intervenors' Proposed Findings at 409.

4.c. Accuracy[39]

RESPONSES TO QUESTIONS ON EVACUATION

Contention EX-38J alleges that, during press conferences, the LERO spokesperson was unable to respond satisfactorily or accurately to questions about evacuation, specifically traffic conditions, conditions or evacuation activity on the water portion of the EPZ, protective actions for the correctional facility in the EPZ, manpower at bridges and tunnels on evacuation routes, or the activities of the Nassau County Police. In addition, this subcontention alleges that LERO Public Information personnel were unable to contact Marketing Evaluations, Inc., in a timely manner and therefore had no information concerning siren activation failure.[40]

Suffolk's testimony touches on these allegations at 97, *et seq.*, while LILCO discusses them at 35-43. Staff does not believe that this contention is well taken. Staff Proposed Findings at 110-12. FEMA states that it has no basis on which to form an opinion as to the accuracy of these allegations. FEMA Exh. 5 at 42.

We have reviewed the transcript of the press briefings and conclude that LILCO's characterization of the situation is accurate. With the exception of the fuel and gravel truck incidents, discussed below, the LERO spokesperson appears to have furnished accurate information. The fact that that information was not adequate to respond to the media's needs clearly results from the fact that the spokesperson was reporting simulated events and thus did not have detailed information.

RESPONSE TO QUESTIONS ON TRAFFIC IMPEDIMENTS

Contention EX-38L alleges that the log kept by ENC personnel recorded that at 12:01, the gravel truck impediment was being removed. In fact, as of that time, no equipment had yet arrived at the site of the gravel truck impediment, and when it eventually did arrive, it was inadequate to remove the impediment. Thus, it is alleged, ENC personnel had inaccurate information which, if released, would have misled the public into believing the intersection was clear when in fact it was not. At the hearing, the LILCO witness acknowledged that at the 12:47 news conference, the gravel truck impediment was erroneously reported by the LERO spokesperson to have been cleared.[41] Staff does not regard this to be significant because the erroneous information would not have significantly affected the

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[39] All of the allegations dealt with under this topic concern LERO's performance in press conferences.

[40] Because the sirens were not sounded, Market Evaluations did not participate in the Exercise, and Intervenors have not addressed this particular allegation in their proposed findings.

[41] This matter is also raised by Contention EX-38N.

public. Staff Proposed Findings at 112. It is unclear precisely what information had been received at the ENC with respect to this impediment. Tr. 3538-45.

Contention EX-38M notes that at the 1:48 press conference, the LERO spokesperson was not able to respond to detailed questions about the fuel truck impediment, although that impediment had arisen almost 3 hours earlier. Suffolk EX-38 and EX-39 Testimony at 97. LILCO takes the position that in noting that the fuel truck was blocking the roadway and that traffic was being rerouted, it provided all the information necessary, and that it was unnecessary to inform the media of the condition of the truck and whether fuel was leaking. LILCO EX-38 and EX-39 Testimony at 44-45. Staff concurs. Staff Proposed Findings at 113. FEMA takes no position. FEMA Exh. 5 at 44. We agree with Intervenors that the LERO spokesperson should have been able to respond to detailed questions on these traffic impediments to the extent that those details were contained in the free-play messages.

ALLEGED MISSTATEMENTS

Contention EX-38N asserts that at press conferences, LERO personnel frequently misstated facts and provided inaccurate information. Suffolk witnesses testified that, although the ENC had learned of the recommendation regarding milk-producing animals between 08:21 and 08:25, at the 08:40 press briefing the LERO spokesperson incorrectly stated that the only protective action recommendation concerned the schools. Suffolk EX-38 and EX-39 Testimony at 81-82. Also, it was incorrectly announced at the first briefing that the Site Area Emergency had been declared at 8:23. The correct time was 8:19. Similarly, at the 11:38 briefing, LERO incorrectly announced that the winter population of the EPZ is higher than the summer population.

Dr. Brill, a scientist from Brookhaven National Laboratory, was present and commented on the health effects of the simulated release. In so doing, he made an error in assuming that the "weathering factor" was threefold when the factor stated in the Plan is 0.7. This led him to state a dose of 60 millirem/hour instead of 126. Also, he contradicted LERO's evacuation recommendation by stating that although he lived in the affected zone, in all likelihood he would not evacuate. *Id.* at 91-93.

We agree with LILCO and Staff that the misstatements concerning the time of the Site Area Emergency and the population of the EPZ are trivial. LILCO EX-38 and EX-39 Testimony at 45-46; Staff Proposed Findings at 113. The misstatement concerning the protective action recommendation is more serious and was not addressed by LILCO in its direct testimony. Clearly, the LERO spokesperson should have been able to relay complete and accurate information with regard to this matter. Equally clearly, either LILCO or LERO should have corrected Dr. Brill's calculation based on his assumption of an incorrect

"weathering factor," and should have taken precautions to ensure that he would not contradict the protective action recommendations made by LERO.[42] These failures, together with the inability to provide accurate responses to questions on the traffic impediments, do rise to the level of a fundamental flaw.

5. *Rumor Control*

The main function of Rumor Control is to spot potential rumors (usually indicated by two or more questions on the same topic) and dispel them with corrective announcements at the ENC, although Rumor Control personnel answer every inquiry received. LILCO EX-38 and EX-39 Testimony at 51-56. LILCO's Rumor Control network is headquartered in the ENC, with personnel in each of LILCO's eleven District Offices and four Customer Service Call Boards. Rumor Control is an onsite function run exclusively by LILCO personnel. *Id.* at 52. LILCO instructs members of the public to call any of the District Offices or Call Boards with their questions during an emergency; if the Rumor Control personnel at those offices cannot answer the questions they forward them up an established chain of command to the ENC, and, if necessary, the EOC (for LERO-related matters) or onsite facilities (for LILCO matters) for answers. *Id.* at 52-56.

5.a. Promptness of Responses

Contention EX-39B alleges that during the Exercise, LILCO Rumor Control personnel were unable to provide prompt responses to simulated telephone inquiries from members of the public to LILCO Call Boards and District Offices. The contention provides the following examples. LILCO does not dispute the times stated.

> (i) A rumor message inquiring whether the appliances in the caller's home were radioactive was given to the Patchogue Call Board operator at 13:45; a response was not relayed to the caller until 14:24.
>
> (ii) A rumor message inquiring what to do about a daughter not yet home from Shoreham-Wading River High School was given to the Patchogue Call Board operator at 10:00; a response was not relayed to the caller until 10:52.

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[42] Staff points out (Proposed Findings at 114-15) that the LILCO witnesses asserted that Dr. Brill's statement concerning evacuation was immediately corrected by the News Manager and that the purpose of the news center is not to prevent contradictory statements, but to provide a forum in which to deal with them. Tr. 3572-74 (McCaffrey, Robinson). However, the transcript of the news conference does not confirm the first assertion. *Id.* While we concur with the second assertion that the news center is not to engage in censorship, the provision of inconsistent information by LERO, LILCO, or its consultants in an emergency situation is detrimental to the public health and safety.

(iii) A rumor message inquiring whether the caller, from Bellport, should evacuate was given to the Patchogue Call Board operator at 12:05; a response was not relayed to the caller until 13:00.

(iv) A rumor message inquiring about how extensive evacuation will be, and what to do about trucks going into the Shoreham area, was given to the Hicksville Call Board operator at 07:51; a response was not relayed to the caller until 08:20.

(v) A rumor message inquiring whether the cooling towers on the Shoreham plant had blown up was given to the Riverhead Call Board operator at 13:30; a response was not relayed to the caller until 13:53.

(vi) A rumor message inquiring if lobsters caught off the Shoreham jetty that morning were safe to eat was received by the Riverhead District Office at 11:30; a response was not relayed to the originating party until 12:28.

(vii) A rumor message from a caller whose husband works at the plant and was not home yet, inquiring whether he had been hurt, was given to the Brentwood Call Board operator at 12:43; a response was not relayed to the caller until 13:30.

(viii) A rumor message inquiring whether the plant had been taken over by Arab terrorists was received at 09:54; a response was not relayed to the caller until 10:37.

(ix) A rumor message inquiring what to do with a horse was given to the Port Jefferson Call Board operator at 10:14; a response was not relayed to the caller until 10:47.

(x) A rumor message inquiring how to get off Shelter Island because the ferry had been cancelled was given to the Hampton Call Board operator at 14:51; a response was not relayed to the caller until 15:24.

(xi) A rumor message from a caller who lived in Medford, but worked in Melville, inquiring what he should do was given to the Huntington Call Board operator at 14:32; a response was not relayed to the caller until 15:05.

(xii) A rumor message inquiring if he could eat the food in his refrigerator was given to the Babylon Call Board operator at 11:59; a response was not relayed to the caller until 12:29.

(xiii) A rumor message from a dairy farmer asking what to do if he is asked to evacuate was received at 09:38; a response was not relayed to the caller until 10:12.

The above are thirteen examples out of a total of thirty-five inquiries made to Call Boards, District Offices, and Rumor Control at the ENC. LILCO EX-38 and EX-39 Testimony at 63. The responses in these examples took from 23 to 58 minutes, and averaged 39 minutes.

Suffolk witnesses attributed the delays to the rigidity and inefficiency inherent in LILCO's "cumbersome system" for responding to public inquiries. Suffolk EX-38 and EX-39 Testimony at 128. Callers would not wait for responses during a real emergency, Suffolk witnesses testified; they would ignore LILCO's instructions and act on their preexisting fears instead. Moreover, these delays would, in these witnesses' opinion, foster the development of rumors and damage LILCO's credibility. *Id.* at 128-30, 138. LILCO witnesses, however, testified

that Rumor Control's responses were timely, emphasizing accuracy over speed, and that the timeliness of response depends on the nature of the information sought in the question. LILCO EX-38 and EX-39 Testimony at 61. FEMA witnesses agreed that accuracy of response is more important than immediacy of response. FEMA Exh. 5 at 51. We find no fundamental flaw with respect to this matter.[43]

5.b. Adequacy of Responses

ALLEGED LACK OF GOOD JUDGMENT

Contention EX-39C alleges that Rumor Control personnel were unable to provide accurate, satisfactory, or reasonable advice or information to simulated public inquiries; instead, they frequently provided inaccurate or superseded information or demonstrated poor judgment in responding. The contention provides seven examples.[44] We address those examples covered in Intervenors' proposed findings, dealing first with the purported examples of poor judgment.

> (ii) In response to an inquiry at 11:30 (Rumor Control Question No. 11) whether lobsters caught that morning on the Shoreham jetty were safe to eat or touch, the Riverhead Call Board operator responded (at 12:28) that there was no reason to believe, and no data to indicate, that anything was wrong with the lobsters. As of 12:28, however, there had already been a major release of radiation, and the entire EPZ had been advised to evacuate. In light of these facts, it was inappropriate to advise the simulated caller to eat the lobsters, without even inquiring as to when that morning they had been caught, and where the caller was located.

LILCO maintains that this response was correct given the facts that the simulated release was airborne and that the lobsters were taken early in the morning. LILCO EX-38 and EX-39 Testimony at 67. Intervenors do not quarrel with the accuracy of the answer given, rather they point out that it did not go far enough. The call was placed from Rocky Point, within the area in which evacuation had been ordered. Thus Intervenors maintain that the caller should have also been advised to evacuate but was not. Tr. 3657-58, 3667; Attachments R and S to LILCO EX-38 and EX-39 Testimony. We agree with Intervenors that this failure illustrates poor judgment.

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[43] We agree with Staff's observation that Rumor Control personnel should have basic information on radiation, the plant, the EPZ, and the protective action recommendations readily at hand. Staff Proposed Findings at 121. *See* our conclusion on Contention EX-39C.

[44] In their proposed findings, Intervenors have specifically abandoned EX-39C(vii) (Proposed Findings at 440 n.411), and have not addressed three others (EX-39C(i), (iii), and (iv)). Additionally, they have added three examples: EX-39B(i), (iii), and (xii).

(v) A rumor message simulated at 11:45 was purportedly from Dan Rather, who wanted "to take a TV crew into the Shoreham plant," and inquired how to get there. In response, the Rumor Control responder stated "We don't advise going to the plant. There is a Site Area Emergency. You will be in the way." The responder then gave directions to the plant. At 9:39, however, a General Emergency had been declared and as of 11:45, LILCO was recommending that almost all of the EPZ be evacuated. (At 11:46, the decision was made to evacuate the entire 10-mile EPZ.) The suggestion that going to the plant was inadvisable but nonetheless possible was incorrect, and such suggestion, combined with the giving of road directions to the plant, indicated extremely poor judgment.

The controversy over this contention is more complex. The facts are not disputed. LILCO maintains that the response was proper because:

1. LERO could not prevent anyone from entering the EPZ and going to the plant, although LILCO could prevent entry to the plant; and
2. The operator's advice was proper in the circumstances even though a General, rather than a Site Area Emergency was in effect.

LILCO EX-38 and EX-39 Testimony at 68.

Intervenors maintain that the response was deficient because Rather should have been advised that:

1. A General Emergency was in effect and evacuation of the area surrounding the plant had been advised;
2. LILCO would prevent his entry to the plant site; and
3. He should go to the ENC for more information. Tr. 3701-04.

We find that good judgment would have dictated that the information specified by Intervenors be supplied in addition to that supplied.

The allegations of Contentions EX-39B(i) and (iii) were also cited by Intervenors as an example of inadequate responses by Rumor Control. The first of these concerns the answer to an inquiry whether the caller's appliances, located in Patchogue, were radioactive, and the second concerns the answer to a question whether a caller, living in Bellport, should evacuate. Both inquiries were referred up to the EOC prior to being answered. LILCO EX-38 and EX-39 Testimony, Attachs. R and S. Intervenors maintain that both inquiries should have been handled on a lower level and more promptly by reference to a map of the EPZ. *See* Tr. 3645-51.

The allegations of Contention EX-39B(xii) concern the answer to an inquiry whether a caller, living in Coram, could eat the food in his refrigerator. That answer was affirmative, and included the advice that if the caller was within the EPZ, he should evacuate. LILCO EX-38 and EX-39 Testimony, Attachs. R and S. Intervenors maintain that the caller should have been told whether he needed to evacuate.

Again, we agree that good judgment would have produced the kind of response that Intervenors say should have been made. However, the lack of that judgment illustrated by all of these instances does not rise to the level of a fundamental flaw in the Plan.

5.c. *Alleged Inaccurate Information*

The contention cites the following as examples of inaccurate or superseded information:

> (iii) In response to a rumor message from *The New York Times*, simulated at 8:45, and inquiring "what's going on" at the Shoreham plant, the Rumor Control responder related that at 5:40 an Unusual Event had been declared, and at 6:17 an Alert had been declared. By 8:45, however, a Site Area Emergency had been declared, schools had been closed and simulated EBS messages had advised that dairy animals be put on stored feed. Thus, the information provided by LILCO's Rumor Control personnel was inaccurate, misleading, and inconsistent with information being disseminated by other LILCO personnel.
>
> (vi) In response to a rumor message simulated at 1:17 inquiring "what areas are to be evacuated," the Rumor Control responder at 1:21 related that zones A-M, Q and R should evacuate. By 12:00, however, a simulated EBS message had advised that the entire 10-mile EPZ was to evacuate. Thus, the information provided by LILCO's Rumor Control personnel was inaccurate, misleading, and inconsistent with information being disseminated by other LILCO personnel.

LILCO concedes the facts stated in these two examples and attributes the delay to the copier problem. LILCO Proposed Findings at 154. These matters were considered earlier with respect to Contention EX-39A.

Except to the extent noted in connection with Contention EX-38, we find that the allegations of Contention EX-39 do not demonstrate a fundamental flaw.

6. *Miscellaneous*

Contention EX-38E reflects FEMA's comment that there were insufficient and inadequate maps and displays in the media briefing room at the ENC; FEMA identified this as an ARCA. FEMA Exh. 1 at 52, 54. LILCO asserts that this shortcoming has been corrected. LILCO EX-38 and EX-39 Testimony at 25-26. Suffolk did not address this point in its direct testimony, and Intervenors have accepted LILCO's representation that the matter has been corrected. *See* Intervenors' Proposed Findings at 423.

Contention EX-38O notes that although LILCO Press Releases 4 and 5 were received by the ENC at 8:45 and 9:05, respectively, they were not given to the Media Monitoring personnel at the ENC until 9:31. Intervenors address this point at 421-22 of their proposed findings. LILCO notes that it is acceptable

to delay transmitting news releases to the media monitors because the news reports that they monitor for accuracy are necessarily delayed accounts of past events. Thus their function is not impaired if the delivery of the news releases is delayed. LILCO EX-38 and EX-39 Testimony at 47-48. The facts alleged in this contention do not rise to the level of a fundamental flaw.

7. Summary of Fundamental Flaws — Contentions EX-38 AND EX-39

We find that the following matters, discussed above, constitute fundamental flaws:

First, the inability of LERO to furnish timely information on the protective action recommendations in the form of copies of the EBS messages to the media at the ENC and to Rumor Control. Although the contentions do not squarely raise the question of the tardiness of the EBS messages given the media, we believe that this issue was aired in terms of the failure to provide copies of Press Releases and agree with FEMA's conclusion that a deficiency should be assessed. Moreover, to ignore the delays in providing EBS messages to the media while finding a fundamental flaw in the delay in providing the same messages to Rumor Control would exalt form over substance to the detriment of the public health and safety. Contention EX-39A clearly raises the timeliness of the information furnished the Call Boards and District Offices, and Contention EX-39C(iii) and (vi) provide examples of inaccurate information being given out as a result.

Second, the provision of inaccurate information at press conferences. Specifically, the failure to:

(1) respond fully to questions concerning the fuel truck impediment (Contention EX-38M);

(2) respond accurately to questions concerning the status of the gravel truck impediment;

(3) respond accurately concerning protective action recommendations (Contentions EX-38L and EX-38N);

(4) correct Dr. Brill's assumption concerning the "weathering factor" and his consequent miscalculation of the population dose; and

(5) correct Dr. Brill's contradictory advice concerning protective actions (Contention EX-38N).

Together, these failings constitute a fundamental flaw.

8. Shadow Phenomenon

In the remaining contentions considered with EX-38 and EX-39, Intervenors assert that there would be a substantial shadow evacuation that would further hinder LILCO's ability to carry out its Plan. These contentions are: EX-44, EX-49C, EX-22F, and EX-40C.[45]

Only the first sentence of Contention EX-44 was admitted and it was consolidated with Contentions EX-38 and EX-39. It alleges that, because accurate, clear, consistent, and nonconflicting information was not provided during the Exercise, a substantial evacuation shadow would have developed. Contention EX-49C asserts that, for the same reasons set forth in Contention EX-44, a substantial monitoring shadow would also develop.

Contention EX-22F was not separately admitted, but its allegations were set down for consideration with Contentions EX-38 and EX-39. It alleges that the assumption employed during the Exercise — that the public would follow LERO's protective action recommendations and no evacuation shadow would occur — was false and that consequently FEMA's conclusions on Exercise objectives EOC 12, 16; SA 9; and Fields 6, 9, 10, 11, 13, 14, 21, and 22 are invalid. As a result, the contention asserts that no finding of reasonable assurance can be made and that accordingly, the Plan is fundamentally flawed.

Finally, Contention EX-40C alleges that LILCO's fifth and succeeding EBS messages falsely stated that Traffic Guides were in place to assist the public in evacuating, when in fact they were not. Intervenors take the position that while this allegation does not in itself rise to the level of a fundamental flaw, it does support their public information allegations. Intervenors' Proposed Findings at 482. In its testimony (FEMA Exh. 5 at 70), FEMA suggested that the EBS messages be reworded to state that Traffic Guides are being dispatched to assist with the evacuation. LILCO regards the messages used at the Exercise as carrying some potential for misleading the public and suggests that we direct that they be reworded as suggested by FEMA. LILCO Proposed Findings at 158. We adopt LILCO's suggestion and do not further consider this contention.

In the planning phase of this litigation, the Licensing Board heard extensive testimony on the shadow phenomenon, including sociological data on human behavior in emergencies and several public opinion polls taken on Long Island by Intervenors and offered in support of their assertion that people would evacuate even when it was not recommended that they do so. The Licensing Board concluded that

[45] FEMA takes the position that Contentions EX-22F and EX-44 state planning issues and thus, apparently, should not have been admitted. It believes that Contention EX-49C is being addressed by the OL-3 Board.

> a rational public will behave predominantly in accordance with public information that is disseminated at the time an emergency happens.

PID, LBP-85-12, 21 NRC at 670. It also concluded that public opinion polls

> have no literal predictive validity because the residents of Suffolk and Nassau Counties do not now have that additional information [that would become available at the time of an accident] that respondents would need to determine their actions in an emergency.

Id. at 667. However, these conclusions were not unqualified:

> The Board's ultimate finding on this contention strongly depends on there being clear nonconflicting notice and instructions to the public at the time of an accident. If for any reason confused or conflicting information was disseminated at the time of an accident, the Board accepts that a large excess evacuation on Long Island could materialize.

Id. at 670. *See generally id.* at 655-71. In its concluding Partial Initial Decision, LBP-85-31, 22 NRC 410, 429, the Board reiterated these conclusions.

The parties are in agreement that EBS messages should include specific, clear, and understandable information about the risk involved in a radiological accident. They agree that messages should describe the risk agent (radiation); explain where it is located and where it will be in the future; tell people its potential effect on their health and safety, what they should do to protect themselves, and how much time they have to do it. *See* Intervenors' Proposed Finding 631 at 455, *citing* LILCO EX-38 and EX-39 Testimony at 8-9, 11; Tr. 3242-44, 3264 (Mileti); Suffolk EX-38 and EX-39 Testimony at 190-91.

The Suffolk witnesses testified that the Exercise EBS messages were seriously flawed on this score. They asserted that the messages were vague; that they did not attempt to explain the health effects of what had occurred or what was projected to occur during the emergency; that they failed to tell the public what was happening, or why particular LILCO recommendations should be followed; and that the information about radiation releases and doses was expressed in terms either so ambiguous, or so technical, as to be essentially unintelligible. Suffolk EX-38 and EX-39 Testimony at 188-218.

LILCO's EBS messages speak for themselves. They appear in Attachment B to LILCO's prefiled testimony, ff. Tr. 3300. Intervenors maintain that LILCO conceded that the EBS messages contain little explicit information on the radiation risk, including where the radiation is, where it is going to be, or its potential health impact, citing generally Tr. 3237-80. It is true that the EBS messages do not contain statements such as "The radiation is in Zone X" or "A dose of X amount may cause cancer." However, a perusal of the cited testimony reveals that LILCO maintains that such information is implicit in the messages. Thus, for example, according to LILCO, the public would have concluded where

the radiation was going to be from the statements in the EBS messages about which zones needed to evacuate. *See* Tr. 3263-68 (Mileti). Intervenors ask us to find this method of communication inadequate and inappropriate. We decline to do so. We conclude that the EBS messages convey the necessary information effectively, and we would be extremely reluctant to reach a conclusion that could have the effect of making these messages more complex.

Intervenors ask us to find that the Exercise EBS messages are deficient in failing to provide clear reasons for the recommended protective actions. They assert that the lessons learned from TMI suggest that to get the public to respond to a recommendation, particularly when it runs counter to their natural instincts or firmly held beliefs or fears, the public must be given reasons for taking the actions recommended. Suffolk EX-38 and EX-39 Testimony at 214-15. Thus, they regard this alleged flaw in LILCO's EBS messages as particularly significant with respect to the early messages that told the public there was no need to evacuate. *Id.* at 208. Intervenors assert that their data demonstrate that such advice would conflict with the natural inclination of the majority of Long Island residents — to evacuate upon first learning of a Shoreham accident. *Id.* at 159-60, Attach. 14, at 10-11, 20.

We agree that more information could be provided the public regarding the nature of the risk requiring protective action. However, we believe that this matter was adequately addressed in the PID, where the Board considered the adequacy of the radiological information furnished to the public in LILCO's public information brochure and concluded that the brochure did not provide any real guidance on the effects of radiation at the levels that might be expected in an accident. It therefore directed that these effects be quantified to the extent of indicating "that a few hundreds of rem could cause acute illness or death and that a few tens of rem could increase the risk of cancer and genetic effects." It deemed this important because of the quantitative mention of projected doses in the EBS messages before it. The Board obviously was concerned that there be a source of information readily available to the public which would provide some explanation of the doses given in the EBS messages. However, the Board refused to order "anything near the detail that Suffolk County's witnesses provide. . . ." LBP-85-12, 21 NRC at 769-70.

Intervenors could not question LILCO's compliance with this direction.[46] Because the EBS messages do provide for dose information, we believe that compliance with this direction should provide the information that Intervenors believe is necessary.

Intervenors highlighted several inconsistencies in the EBS messages that would detract from their effectiveness and decrease the likelihood that LERO's protective action recommendations would be followed.

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[46] The Public Information Brochure was not evaluated in the Exercise. *See* LBP-87-32, 26 NRC at 491 n.13.

EBS No. 2 stated that "[a] very minor release has occurred . . ." and then, in the same message, stated that a release was "not imminent." LILCO admitted that this could have been confusing and that it was not "trivial." LILCO EX-38 and EX-39 Testimony at 14-15; Tr. 3212-13, 3365-66 (Mileti). Dr. Mileti argued, however, that in his opinion, the confusion arising from EBS No. 2 would have only made the public "more vigilant" and more likely to keep tuned to LILCO's EBS system. LILCO EX-38 and EX-39 Testimony at 15; Tr. 3376-77 (Mileti).

Intervenors disagree. First, they note that the only basis Dr. Mileti gave for this conclusion was his assertion that "early on in an emergency like this, people initially when they get emergency information try to seek out more information . . . ." Tr. 3376 (Mileti). Intervenors believe that even if people were to seek to have their confusion removed, there is no reason to believe they would choose to do so by continuing to listen to a source that generated the confusion in the first place. Moreover, any subsequent "vigilance" to LILCO's EBS network during the Exercise would only have been rewarded by hearing the same message broadcast every 15 minutes until EBS No. 3 was aired about 56 minutes later. *See* Suffolk EX-38 and EX-39 Testimony, Attach. 10.

LILCO also conceded that there was a problem with EBS No. 7. The message stated that the expected thyroid dose was 40% of the EPA evacuation guidelines "at 10 miles downwind of Shoreham"; it went on to advise, however, that "If you are outside the 10-mile emergency planning zone, there is no reason to take action." EBS No. 7. LILCO acknowledged that this message contained conflicting information. Tr. 3391-92 (Mileti). Dr. Mileti said that more explanation of why a 40% risk at the EPZ border required no action, when the entire EPZ was being advised to evacuate, could have resulted in "better understanding" on the part of people on the EPZ border. He also acknowledged that EBS No. 7 was inconsistent with LERO News Release No. 7, which stated that people outside the EPZ need not take any action because the released radiation was not expected to reach beyond the 10-mile EPZ. LILCO EX-38 and EX-39 Testimony at 15; Tr. 3382-83, 3889-90, 3393 (Mileti).

EBS No. 2 was also recognized to be internally inconsistent and confusing. It tells the public they need take no action beyond figuring out what zone they reside in, but at the same time recommends sheltering milk-producing animals. This information clearly raises a question whether, if animals need shelter for protection, humans are in some danger. Suffolk EX-38 and EX-39 Testimony at 206-207; *see* EBS No. 2; Tr. 3245-46, 3256-59.

The Suffolk witnesses testified about additional problems with the Exercise EBS messages. *See generally* Suffolk EX-38 and EX-39 Testimony at 191-222. Their testimony was essentially uncontroverted. We find the following problems to be significant.

First, some of those messages give dose projections while the LILCO news releases and Mr. McCaffrey in the news conferences spoke in terms of dose

rate projections. *See* LILCO EX-38 and EX-39 Testimony, Attachs. E and P; Tr. 3695, 3699 (McCaffrey). There is a difference between the two, and that difference needs to be explained to the press.

Second, the messages described the releases in terms such as "small," "minor," "major," and "significant." Some quantification of these terms needs to be provided, perhaps in the public information brochure, and they must be consistently applied. *See* Intervenors' Proposed Findings at 192.

Third, the messages state the emergency classification that has been declared and that it is one of four classifications. Some explanation needs to be given of where the current classification stands in the hierarchy. *Id.* at 198.

While there is much information that is well presented in the EBS messages, we agree with Intervenors that the above inconsistencies detract from the effectiveness of the EBS messages and are likely to confuse the public. We view this matter as an integral part of the fundamental flaw found under Contentions EX-38 and EX-39.

Contention EX-49C alleges that there is no basis to assume that only those persons expressly advised by LERO to report to the reception center for monitoring because of potential exposure during evacuation activities would actually seek such monitoring. It alleges that, upon hearing that residents of so many zones had potentially been exposed, and in light of the large voluntary evacuation likely to occur for the reasons set forth in Contention EX-44, substantially more people than the number expressly advised to report would be likely to seek such monitoring.

Intervenors maintain that considerably more people would seek monitoring for many reasons. For example, the County's witnesses testified that large numbers would be likely to discount the zone concept altogether; individuals' fear of radiation, combined with a lack of understanding of its effects, would make them seek monitoring; some people might focus on only the parts of the EBS messages stating that "the public" will be monitored for radioactive contamination, or that "they may have been exposed"; and people who were not residents of the named zones might seek monitoring because they might not know which zones they had gone through, or traveled near, during their trips out of the EPZ. Suffolk EX-38 and EX-39 Testimony at 279-81.

We decline to decide this contention. The issue of the number of persons whom LERO should be prepared to monitor is currently pending before the OL-3 Board. Hence it would be inappropriate for us to consider this issue.

The October 3, 1986 Prehearing Conference Order ruled on Contention EX-22F as follows:

> The substance of basis F will be dealt with under Contention EX-38 or EX-39, and need not be admitted here.

Id. at 14. Later in that same Order, Contention EX-44 was discussed at length.

> The factual question raised by this contention is whether or not an evacuation shadow phenomenon will arise in an evacuation as a result of an inability of LILCO to provide clear nonconflicting information to the public. This contention is therefore of a contingent nature. Its resolution is dependent on the outcome of litigation on the information contentions numbered EX-38 and EX-39. An acceptable basis for the contention is traceable to our initial decision where the Board found:
>
> > The Board's finding on this contention strongly depends on there being clear non-conflicting notice and instructions to the public at the time of an accident. If for any reason confused or conflicting information was disseminated at the time of an accident the Board accepts that a large excess evacuation on Long Island could materialize. 21 NRC 644, 670 (1985).
>
> Other than a citation to our initial decision, Intervenors provide nothing more in their discussion of Contention EX-44 that would provide an acceptable basis for admission of matters that have been previously litigated. We need not look again at consequences of shadow evacuation because this was previously litigated and decided and because Intervenors have shown no basis for believing they could learn anything new on this subject from an exercise that did not include a public evacuation.
>
> We find no basis for assertions of Intervenors that we must require LILCO to test its preparedness for a large shadow evacuation or to plan for an *ad hoc* expansion of the EPZ. . . . If Intervenors prevail on Contention EX-38 and EX-39 and the evidence is sufficient to conclude that a large shadow evacuation will occur, Intervenors will be free to claim that this constitutes a fundamental flaw in the plan because the evacuation could not be controlled. We see no value in taking the matter further than that. . . .

Id. at 25-26.

In their proposed findings (at 448), Intervenors argue that the ruling quoted above is the law of the case and that, under it, they needed only to demonstrate that LERO disseminated unclear, confusing, or inconsistent information "in order to prevail on their contention that the Exercise assumption of no voluntary evacuation was false, rendering the Exercise results invalid."

We agree with the Intervenors that the quoted ruling is the law of the case. However, we do not entirely agree with the remainder of their statement. We have found that confusing and conflicting information was promulgated during the Exercise. That finding brings the PID's conclusion that an excess evacuation could occur into play. In such an event, a controlled evacuation, which is required by the Plan, probably could not be achieved.[47] Thus, we conclude that a fundamental flaw was demonstrated.[48]

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[47] *See* our discussion of the requirement that a controlled evacuation be achieved in connection with Contention EX-40 at 130-32.

[48] Aside from the requirement that a controlled evacuation be achieved, we have concluded that the weaknesses demonstrated in the public information program demonstrate a fundamental flaw in LERO's capability to

(Continued)

The existence of this fundamental flaw does not justify the conclusion that the Exercise results are invalid. Indeed, the Prehearing Conference Order relied on by Intervenors expressly held that there was no basis to require LILCO to test its preparedness for a large shadow evacuation or to plan for an *ad hoc* expansion of the EPZ. To the extent that these contentions argue that the Exercise results must be thrown out because LERO's ability to deal with a large shadow was not tested, they are denied.

In light of the conclusions we have reached above, we find it unnecessary to consider the survey and focus group data offered by Intervenors in support of these contentions.

F. Training

1. Overview

Contention EX-50 consists of nine subparts (A-I) which allege, based on references to the FEMA Report and to other contentions, that the Exercise revealed a fundamental flaw in the LILCO Plan in that LERO personnel are unable to carry out the Plan effectively or accurately because they have been inadequately trained. The Contention alleges that the bulk of LERO personnel had undergone training annually for 3 years prior to the February 13, 1986 Exercise. It alleges, further, that the large number of training problems revealed during the Exercise demonstrates LILCO's lack of compliance with 10 C.F.R. § 50.47(b)(14) and (15).[49]

The Shoreham OL-3 Licensing Board found, in the PID, that "the LILCO Plan training program meets the regulatory standards," but went on to state that "[t]his conclusion is made subject to confirmation by a finding, to be made by FEMA after a graded exercise, that the Plan can be satisfactorily implemented with the training program submitted and that LILCO possesses an adequate number of LERO workers." LBP-85-12, 21 NRC 644 (1985), 756. Thus, the issue of the adequacy of LILCO's training program was left open and subject to test in the Exercise. FEMA identified a significant number of training problems and inadequacies in its Report on the Exercise, and it did not make a finding that the Plan can be satisfactorily implemented with the training program in use at the time of the Exercise. Tr. 8296-98.

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communicate emergency information and protective action recommendations to the public. Moreover, these weaknesses appear to be a part of a pervasive problem in LERO's communications generally.

[49] Contentions EX-42 and EX-45 and the factual allegations in Contentions EX-23, EX-27, and EX-28 were consolidated with Contention EX-50 and will therefore be considered here.

2. *The Purpose of Training*

Suffolk's witnesses, all of whom were either university professors or police experienced in police training, presented testimony on the purpose of training emergency workers. A successful emergency response organization must be comprised of individuals who work individually and together in an efficient and effective manner in confronting both the routine and nonroutine demands that arise during a response to an emergency. Training is the process by which an organization and its constituent members learn to work individually and together so that the organization can perform in an integrated manner. Suffolk Exh. 95 at 25-26. Training for organizations responding to a nuclear emergency must go beyond the training required for some other organizations. Any organization must train to perform routine tasks, and some tasks under the LILCO Plan, such as driving a bus or reading a dosimeter, would fall into the routine category. For an emergency, however, training must also prepare personnel to perform nonroutine, unexpected tasks. In fact, Suffolk's witnesses believe that it must become "routine" for LERO personnel to perform as necessary in dealing with nonroutine events. *Id.* at 26-27; Tr. 6390-91.

Training to achieve this goal is especially necessary for LERO, because its personnel do not routinely perform the emergency functions to which they are assigned under the LILCO Plan. It has been found that organizations whose daily operations can be switched to the emergency at hand perform better than organizations that must change their predisaster functions to perform in a disaster. NUREG/CR-3524 (Suffolk Exh. 57) at A-2; Tr. 6421-25. For example, if police are required to direct traffic during a nuclear emergency, they are applying skills that they routinely use in their work; it is reasonable to assume that they can do the same thing successfully in a nuclear emergency. LERO Traffic Guides, on the other hand, are not skilled at directing traffic, although it is assumed that they can do so during an emergency at Shoreham. The only way to give them such skill is through adequate training. Tr. 6539-40, 6774-78.

Effective emergency response training involves the use of several training techniques. The first can be called "basic training," which uses instruction and other rote methods to teach people how to respond to predictable, repetitive events. The next training level involves "learning by doing" and includes training through drills and exercises, training gained through experience, and training gained by interacting with others and by responding to particular events. Suffolk Exh. 95 at 28-29. Learning by doing should focus on unusual events and teaching persons to perform tasks that require communication, coordination, and cooperation. Communication should include information exchange among personnel and dealing with the media. The final training hurdle is teaching persons to deal with unanticipated and unrehearsed events, including teaching them how to use good, independent judgment. This type of training occurs in

exercises or drills, where complex exceptions to the routine are simulated (as in free-play messages) or occur naturally. *Id.* at 30-32.

3. *LILCO's Training Program*

LILCO's training program for offsite emergency response personnel involves classroom presentations, drills/tabletop sessions, and exercises. The classroom instruction provides basic training, utilizing video presentations, workbook materials, and instructor discussions and demonstrations. It covers radiation protection and basic dosimetry for everyone, and then job-specific training for LERO personnel. *Id.* at 22-23; *see also* Plan at 5.1-3 through 5.1-5 and Figure 5.1.1. LILCO employees annually participate in drills and tabletop sessions. The purpose of drills/tabletop sessions may vary, depending on the level of training of the trainees or the difficulty of a given task. Early in LILCO's training, LILCO observers critique trainees as they go through the drill/tabletop session, to correct inappropriate performance or to reinforce appropriate performance. Suffolk Exh. 95 at 23-24; *see* Plan at 5.1-2, 5.2-1 through 5.2-6. The final phase of LILCO's training program involves specific preparation for a FEMA-graded exercise, in which a full-scale dress rehearsal is conducted. During the 2 months prior to the February 13, 1986 Exercise, LILCO held at least three full-scale dress rehearsals. Suffolk Exh. 95 at 25, 37; Tr. 5477-84, 8292.

4. *Standards for Evaluation*

The standards that should be used by the Board in evaluating LILCO's training program were addressed by LILCO, the Intervenors, and by the NRC Staff in its proposed findings. LILCO took the position that the Board should determine whether the alleged problems with training establish a systemic problem or pattern of defects with the LERO training program, rather than a group of isolated, independent problems. LILCO Testimony on Contention EX-50 (LILCO EX-50 Testimony), ff. Tr. 4368, at 12-13. LILCO argues that organizational performance is the standard by which its training program should be evaluated. *Id.* at 11.

LILCO's witnesses acknowledged, however, that to draw conclusions about the ability of an organization to accomplish its tasks, functions and goals, it is necessary to look at individual behavior. Tr. 4979-80; 4693-94. Moreover, they also acknowledge that errors in the performance by individual members of an organization can be the result of an inadequate training program. Tr. 4983. Indeed, LILCO's witness Dr. Mileti, who was an author of NUREG/CR-3524 (which deals with organizational effectiveness), stated that individual performance and

actions must be used to measure organizational behavior and effectiveness because:

> The only real unit that exists are [sic] individuals. I mean you can't really observe an organization if you take the individuals out of it. There is nothing left.

Tr. 4978-79.

The Intervenors took the position that the FEMA Report identified a large number of training inadequacies. Tr. 6542-43. They acknowledged that a much larger number of LERO workers were mobilized than were observed by FEMA, but of the small number observed, more had problems than they would have expected. Tr. 6544-45. Considering the large amount of training provided for the LERO workers prior to the Exercise, Suffolk's witnesses believe that the large number of problems observed by FEMA reflects the fact that the training program was inadequate. Suffolk Exh. 95 at 37-38. Intervenors also argue that the drills conducted since the February 13, 1986 Exercise have revealed that the serious inadequacies that became apparent during the February 13 Exercise continue to exist. *Id.* at 44-46.

FEMA's witnesses testified that in those instances where participants demonstrated inadequate actions, the effectiveness of the training program must be enhanced to assure that the LERO personnel will be able to carry out their assigned roles. FEMA Exh. 5 at 73.

The Staff emphasized the necessity of looking to the provisions of the regulations that deal with training, principally 10 C.F.R. § 50.47(b)(15), and the criteria used by the NRC and FEMA in evaluating compliance with that standard, NUREG-0654, Rev. 1. In addition, Appendix E to Part 50 establishes required elements of training, notably those related to the participation in training and drills and the testing of this implementation of procedures, equipment, communications, and notification through an exercise. Staff Proposed Finding 406 at 146-47. Staff also agreed with LILCO that to indicate a breakdown in the training program that would preclude the finding of reasonable assurance that adequate protective measures could be taken in the event of a radiological emergency at SNPS, the training problems would have to be pervasive or systemic in nature. Staff Proposed Finding 414 at 150.

There is merit to some of the arguments from all the parties about the standards we should use to evaluate the success of LILCO's training program. The position we are taking with respect to the standards by which LILCO's training program shall be judged is somewhere between the positions taken by the parties, and of course we agree with the Staff that we must consider the regulations. We agree with LILCO that it is appropriate for us to look for a systemic problem or pattern of defects, and we believe this can be done only by noting the performance of individuals. We agree with Suffolk that we must

analyze the results of the Exercise and additionally determine whether problems found during the Exercise have recurred during post-Exercise drills. With these standards in mind, we turn now to testimony on the subcontentions.

5. *Subcontention EX-50A*

Subcontention EX-50A alleges that the LILCO training program has not adequately trained LERO personnel to respond properly to unanticipated and unrehearsed situations. An unanticipated situation is one that is not expected to occur and which therefore takes one by surprise. Since it is unexpected, it is a situation for which specific training is not given. An unrehearsed situation is an occurrence for which a response has not been practiced; it may or may not be also unanticipated. Thus, during the Exercise the overturned fuel truck probably presented both an unanticipated traffic impediment, because presumably it was unexpected, as well as an unrehearsed situation, because a response to an overturned fuel truck had not been practiced prior to the Exercise. Suffolk Exh. 95 at 55-56.

LERO's response to the two evacuation impediment free-play messages is considered in detail by us under Contention EX-41, where we found that the vertical communications chain called for by the Plan constituted a fundamental flaw. We also noted there that LERO personnel were not adequately trained in emergency decisionmaking and communication. FEMA, which found a Deficiency in LERO's response to the road impediments, recommended additional training, in the following words:

> Additional training is needed to ensure that the procedures, whether new or current, are properly implemented. All coordinators at the EOC, and those who initiate messages, must be trained to include all pertinent information on the LERO message forms and to analyze the equipment requirements to clear impediments.

FEMA Exh. 1 at 39. FEMA identified a significant number of training problems and inadequacies in the FEMA Report. Tr. 8297.

LILCO's witnesses testified that they considered just about everything that happened during the Exercise to have an element of surprise. They stated that LERO players did not know the time events would be declared, the progression of the accident, the free-play messages that would be injected, or the area to be evacuated. LILCO EX-50 Testimony at 34. With regard to the responses to the impediment free-play messages, they argue that during an actual emergency there would be no delays in response, because the impediments would be visible to LERO workers and others and hence reported promptly. They believe that much of the delay in responding to them during the Exercise resulted from artifacts of the scenario that hindered detection or verification of the impediments.

Id. at 37. They also argue that their Traffic Engineer, Mr. Lieberman, believes that any accidents during the evacuation would probably be minor and would not block major roadways. Consequently their training focused on less severe accidents than were presented in the Exercise. *Id.* at 38. Finally, LILCO's witnesses argue that some of the examples of misinformation dispensed by LERO during the Exercise, which are cited in Contention EX-50A, are so isolated and trivial that they cannot be considered to demonstrate a flaw in the LERO training program. *Id.* at 40.

Suffolk's witnesses, on the other hand, interpreted the delays in response to the impediments, the incomplete messages about them, the improper rerouting schemes used, and the inadequate road-clearing equipment dispatched to remove the impediments all to demonstrate inadequate training of LERO personnel. They believe that the response by LERO to the road impediments demonstrates that LILCO's training program has been ineffective in training personnel to respond to unanticipated and unrehearsed situations. Suffolk Exh. 95 at 61-65. They listed a number of actions that they said were not carried out but would have been had the training been effective: followup to ensure that instructions were being carried out; redundant communications along parallel channels to ensure that communications got through; getting people to the scene to verify the logic of rerouting schemes; and verification that proper equipment had been sent. *Id.* at 65-66. Finally, Suffolk's witnesses testified that as experienced trainers they had learned that when mistakes are made they usually reflect how well the individuals who made the mistakes were trained. They recognize that different people possess differing levels of competence, so that it cannot be assumed automatically that an entire training program is inadequate because of a few mistakes by a few individuals. However, because so may basic mistakes were made by so many different people during the Exercise, the witnesses believe that the most reasonable conclusion is that the training program was flawed. *Id.* at 68.

In addition to finding a Deficiency in LERO's response to the impediment free-play messages, FEMA also found an Area Requiring Corrective Action (ARCA) in connection with the response to the impediments. The ARCA resulted from the delayed dispatch from Port Jefferson of the Route Spotter assigned to verify the fuel truck impediment. FEMA recommended additional training in response to this ARCA just as it did in response to the Deficiency, in the following words:

> Personnel need to be trained in the development of alternative approaches when delays are reasonably anticipated in the field verification of impediments to evacuation. Development of alternatives should include consultation between, at a minimum, the Evacuation Coordinator and the Evacuation Route Coordinator.

FEMA Exh. 1 at 41. FEMA found the impediment response as evidence that at the time of the Exercise LILCO's training program was inadequate. Tr. 8298.

Finally, the NRC Staff, in its proposed findings, concluded that the evidence on LERO's response to the road impediments during the Exercise supports the allegation in EX-50A that LERO personnel are not sufficiently trained to effectively deal with unanticipated events that have the potential to disrupt the taking of protective actions. Staff Proposed Finding 429 at 160.

Conclusion on Subcontention EX-50A. We conclude that the training of LERO personnel in responding to unanticipated and unrehearsed events, in communicating information about such events, in analyzing the kind of equipment needed to respond to serious roadway accidents, and in the development of alternative actions when actions called for by the Plan do not or will not work effectively, has been inadequate. We have already found that the communication problem constitutes a fundamental flaw in the Plan; this flaw resulted in part from the long chain of communication and in part from inadequate training. We believe that LILCO must significantly expand and improve its training program in communications before there can be reasonable assurance that adequate protective measures can and will be taken in the event of a Shoreham emergency (*see* Conclusion on Subcontention EX-50C).

6. *Subcontention EX-50B*

Subcontention EX-50B alleges that the Exercise demonstrated that LILCO's training program has been ineffective in teaching LERO personnel to follow and implement the LILCO Plan and procedures, and in imparting basic knowledge and information essential to implementing the procedures. As a basis for these allegations, the contention cites several other contentions and the FEMA Report. Suffolk Exh. 95 at 99.

Suffolk's witnesses testified that an ability to follow and understand the Plan and procedures is "absolutely critical" if LERO personnel are to be able to then improvise in response to unanticipated and unrehearsed situations. If routine tasks cannot be done by rote, then performing them will take all the time and intellectual energy that LERO personnel have, leaving none to deal with nonroutine problems of a real emergency. *Id.* at 101-02; Tr. 6400-01. The witnesses listed the following examples from the Exercise that they believe demonstrate the ineffectiveness of the training program to teach LERO personnel the basic knowledge needed to follow and implement the Plan and procedures:

> The difficulties experienced by LILCO's Bus Drivers in locating residences and going to wrong locations (*e.g.*, FEMA Report at xv, xvi, 65 and 66);
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> Erroneous announcements of pertinent information by personnel (*e.g.*, FEMA Report at 33, 68 and 69);

Mr. Brill, the BNL scientist assisting LILCO at the ENC, provided answers inconsistent with the EBS Messages (Videotapes of Press Briefings held at ENC during the Exercise);

Inadequate use and readings of dosimetry equipment and failure to know excess exposure levels, excess exposure authorization procedure, KI ingestion procedures (*e.g.*, FEMA Report at 59, 68-70, 76 and 77);

Excessive route alerting times (*e.g.*, FEMA Report at xiv, xv, and xvii);

Delayed dispatching of personnel (*e.g.*, FEMA Report at xvi, xviii, 37, 41, 57-58, 62, 66-67, 74-75);

Use of wrong security procedures (*e.g.*, FEMA Report at xv, 61 and 63);

Incorrectly completing message forms (*e.g.*, FEMA Report at xvii, 42, 71-73);

Excessive time in monitoring personnel (*e.g.*, FEMA Report at xvii, 80-81);

Confusion in contacting the FAA (*e.g.*, FEMA Report at 29, 39);

Pertinent information not included on message forms (*e.g.*, FEMA Report 30, 37, 39, 65);

Untimely internal communications of information (*e.g.*, FEMA Report at 36-37, 39);

Failures to provide press information in timely manner (*e.g.*, FEMA Report at 52-53);

Extraneous information included in EBS messages (*e.g.*, FEMA Report at 53);

Dissemination of outdated information by rumor control personnel (*e.g.*, FEMA Report at 53);

Traffic Guides not knowing location of reception center or where public was to be directed for monitoring and decontamination (*e.g.*, FEMA Report at 64);

Personnel not reporting to assigned location or where directed to go (*e.g.*, FEMA Report at 64-65);

Failures to update status boards (*e.g.*, FEMA Report at 72, 73);

Personnel directed to wrong places by their superiors (*e.g.*, FEMA Report at 65, 67).

Id. at 102-04.

In addition, Suffolk's witnesses cited a number of instances during LERO's responses to the impediments that, they believe, represent failures to follow or implement the Plan and procedures. For example, the Evacuation Coordinator is supposed to direct LERO's actions in the areas of traffic control, transportation, and evacuation. During the Exercise, however, he was never informed by LERO personnel about the impediments, even though such communication is required by OPIP 3.6.3. *Id.* at 105; *see* FEMA Report at 36. This and other allegedly similar failures to follow the Plan or implement its procedures led to substantial delays by LILCO in responding to the impediments. Suffolk Exh. 95 at 105.

Moreover, LERO personnel in the EOC failed to include on LERO message forms essential information communicated to them in the free-play impediment messages, nor did they otherwise communicate such critical information to

LERO personnel expected to respond to the impediments, as required by OPIP 3.6.3 and 4.1.2. For example, the Evacuation Route Coordinator's message to the Evacuation Support Communicator for Route Spotter/Road Crews about the gravel truck impediment failed to mention that three cars as well as the truck were involved. Similarly, the message to the Communicator about the fuel truck impediment failed to mention that fuel was leaking from the truck, that there was danger of a fire, and that both shoulders of the road were blocked. LILCO's Plan requires that such essential information be communicated. Suffolk Exh. 95 at 105-07; *see* FEMA Report at 30, 37, 39.

Another example of LILCO's failure to teach personnel to follow the Plan and procedures, according to Suffolk's witnesses, was the failure of LERO personnel to use LERO message forms to communicate essential information correctly or to use LERO message forms at all. FEMA noted this problem during the Exercise, and listed it as an ARFI. FEMA Exh. 1 at 30, 42, 71-72. FEMA recommended additional training that stresses the mandatory use of standard message forms and the importance of legibility. *Id.* at 42, 39. This problem recurred during the June 6, 1986 drill and also during the September 10, 1986 drill, when messages often were written on scraps of paper. Suffolk Exh. 96, Attach. 7 at 3; Attach. 8 at 3. During the September drills, messages written on paper were often later transcribed to LERO message forms, which caused delays in delivering the messages and caused transcription errors. *Id.* Some messages were not written at all, but were delivered verbally to the communicator for transmittal. *Id.* at 11. Again during the December 2, 1986 drill an estimated 20% of the message writers used scraps of paper rather than the standard LERO message forms. Suffolk Exh. 96, Attach. 9 at 3. Intervenors argue that the fact that this problem occurred not only during the Exercise but also during most of the subsequent drills supports the conclusion that the LILCO training program is incapable of teaching LERO personnel the LILCO Plan and procedures. Suffolk County, State of New York, and Town of Southampton Proposed Findings of Fact and Conclusions of Law on the February 13, 1986 Shoreham Exercise (Intervenors' Proposed Findings), Vol. II, at 564. Suffolk's witnesses attributed this continuing problem in performance to an underlying major problem in LILCO's training methodology. Tr. 6506.

As an example of the failure of the LILCO training program to impart the basic knowledge necessary for Plan implementation was the fact that only one Traffic Guide out of fourteen from the Patchogue Staging Area interviewed by FEMA knew the location of the Nassau Coliseum Reception Center, and one Traffic Guide believed that the public was to be directed to LILCO's Emergency Worker Decontamination Facility (EWDF). Suffolk Exh. 95 at 117; *see* FEMA Exh. 1 at 64. FEMA found this to be an ARCA and recommended improved training as the appropriate corrective action. *Id.* at 67. Suffolk's witnesses argue that this lack of basic knowledge on the part of Traffic Guides indicates that

the LILCO training program has failed to impart the basic knowledge to LERO personnel that they need to implement the LILCO Plan. Suffolk Exh. 95 at 118. The NRC Staff agreed that this lack of knowledge was "clear evidence of a failure to provide adequate training." Staff Proposed Finding 467 at 175.

Suffolk's witnesses allege that the performance of LERO personnel during drills held since the February 1986 Exercise reinforces the conclusion that LILCO's training program has been unsuccessful in teaching personnel to follow the LILCO Plan and implement its procedures. Suffolk Exh. 95 at 118. For example, during the Exercise some personnel failed to demonstrate an understanding of procedures regarding allowable exposure levels, a problem that basic training should be able to correct easily. *Id.*; *see* FEMA Report at 68, 76. During the June 6 and again during the September 10 drills, a number of Traffic Guides were still unclear as to the maximum allowable doses and the procedures governing the use of KI. Suffolk Exh. 95 at 119; Suffolk Exh. 96, Attach. 7 at 6; Attach. 8 at 4-5, 6. Yet again, during the October 1 drill, Traffic Guides were unclear as to the maximum allowable doses. Suffolk Exh. 95 at 120; Suffolk Exh. 96, Attach. 8 at 11. Suffolk's witnesses argue that learning the maximum allowable doses is a relatively easy task that is relevant to the workers' own health and safety, and if these procedures have not been learned, other material not as crucial to personal safety surely has not been learned. Suffolk Exh. 95 at 120.

There were numerous other problems during drills that Suffolk's witnesses believe reflect inadequate training. During the September 10 drill there was poor coordination between the Director of Local Response and Coordinator of Public Information over the coordination of siren activation and the broadcast of EBS messages (*id.* at 121); the Radiation Health Coordinator ordered the ingestion of KI without performing the required calculations needed to justify this action (*id.*); the personnel who reported to establish the EWDF were unfamiliar with their jobs, failed to use a checklist as required by the Plan, and took no action until prompted by the Controller (*id.* at 121-22); personnel at the staging areas were unfamiliar with their duties and had to be prompted and trained during the drill by the Controllers (*id.* at 122-23).

Drills conducted on December 2 and 10 involved Shift 1, which had last participated in the February 13 Exercise (Suffolk Exh. 96, Attach. 9 at 1); the December 2 drill was intended to allow the participants to use the first drill as a learning process to become familiar with the latest procedures, and the December 10 drill was intended to reinforce the knowledge gained the preceding week (*id.*); in both drills, as was the case during the February 13 Exercise, some Traffic Guides did not arrive at their posts until more than an hour after the EBS broadcast recommending evacuation (Suffolk Exh. 95 at 123 n.54; Suffolk Exh. 96, Attach. 9 at 19-21, 24, 27-28; Suffolk Exh. 95 at 124, Attach. 9 at 32, 35, 39-40); once again, as was the case in the February 13 Exercise, pertinent

information concerning a simulated impediment on the Long Island Expressway was not properly communicated during the December 10 drill, resulting in confusion and delays in responding to the impediment (Suffolk Exh. 95 at 124; Suffolk Exh. 96, Attach. 9 at 4).

Suffolk's witnesses conclude that the many mistakes made and many examples that exist of failures by LERO personnel to follow and implement the Plan demonstrate that the problems revealed during the Exercise are the rule and not the exception. The drills demonstrated that despite the training, LERO personnel still have not been successfully trained to carry out the functions they are assigned under the LILCO Plan. Consequently, they believe that LERO personnel would be unable to implement the actions called for by the Plan to protect the public health and safety in the event of an emergency at the SNP. Suffolk Exh. 96 at 125.

LILCO's witnesses testified that in view of the fact that over 1000 LERO personnel participated in the Exercise over an 11-hour period the incidents cited by the Intervenors are sporadic and not representative of a pervasive failure in training. In addition, they state that many of the instances cited are either not relevant to the training issue or are without merit because they are factually baseless. LILCO EX-50 Testimony at 41; Tr. 5523-25. With respect to the other contentions listed in Subcontention EX-50B as providing bases, LILCO's witnesses state that of the contentions cited, Contentions EX-36, EX-38, EX-39, EX-45, and EX-49 contain allegations that have nothing to do with training. LILCO EX-50 Testimony at 41. Contention EX-49 alleges that the radiological monitoring procedure frequently took longer than the prescribed 90 seconds, which indicates that the training program did not effectively train the monitoring personnel to follow procedures. LILCO's witnesses state, however, that monitoring occasionally, not frequently, took longer than 90 seconds, and this occurred when FEMA evaluators were being monitored. *Id.* at 42. Apparently it was true that the only times when monitoring was observed to take more than about 90 seconds was when FEMA evaluators were being monitored. Tr. 7982-85. Nevertheless, FEMA found that taking 4 to 5 minutes to monitor some individuals was an ARCA. FEMA Exh. 1 at 81; Tr. 7985. Finally, LILCO's witnesses maintain that, of the contentions cited in Subcontention EX-50B, Contentions EX-37D, EX-38N, and EX-45E and PSA-ARCA-3 raise issues that are insignificant or minor. As an example they cite PSA-ARCA-3, which states that LERO personnel used second-floor telephones at the staging area, contrary to OPIP 4.7.1. LILCO claims that this incident was a practical solution to the need for telephones even though it meant LERO personnel did not follow procedures to the letter. LILCO EX-50 Testimony at 43.

FEMA did not explicitly address Subcontention EX-50B; indeed, FEMA chose not to address any of the subcontentions EX-50A through H, on the grounds that they accurately reflected the contents of the FEMA Report by

citing various Deficiencies of ARCA's directly from the Report. FEMA stated in general, however, that most of the Exercise inadequacies that were identified as either Deficiencies or ARCAs were attributable to breakdowns in the LILCO training program. FEMA Exh. 5 at 73.

The NRC Staff, in its proposed findings, noted that enough workers made errors to indicate a pattern related to deficiencies in training. Staff suggested that until the ability to maintain emergency response skills has been demonstrated, it retained serious doubts about the adequacy of the LILCO training program. Staff Proposed Finding 468 at 176.

Conclusion of Subcontention EX-50B. While we recognize that the absolute number of instances a LERO player was observed to fail to follow the LILCO Plan and procedures may be small relative to the total number of LILCO personnel that participated in the Exercise, this comparison is not the appropriate one. The appropriate comparison is the number of failures in the total sample of observed participants. Viewed from this perspective, the proportion of LERO workers observed failing to follow the Plan or procedures was disturbingly great.[50] These failures occurred frequently enough to suggest that there is, indeed, a pervasive problem in training LERO workers to follow the Plan. We conclude, therefore, that the allegation made in Subcontention EX-50B is valid; LILCO's training program has not adequately trained LERO personnel to follow the LILCO Plan and procedures.

7. Subcontention EX-50C

Contention EX-50C (along with Contention EX-23 and the bases for EX-45) alleges that LILCO's training program has failed to teach LERO personnel to communicate necessary and sufficient data and information, to inquire and obtain such information, or to recognize the need to do so. Contention EX-50C cites a number of other contentions and FEMA findings that are alleged to describe Exercise events that support this contention. Suffolk Exh. 95 at 125-26.

Suffolk's witnesses identified a number of examples of breakdowns in communications during the Exercise which they attribute to a failure in LILCO's training program. The first and "most glaring example" is that of the communication difficulties that occurred during LERO's handling of the free-play impediments. *Id.* at 127. This has been discussed in detail in our consideration of Contention EX-41 and need not be described again here. Suffice it to say that FEMA found those communication problems to be a Deficiency, and we found

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[50] To illustrate the point, FEMA observed eight bus drivers for the general population, of which three either got lost or missed part of their route. Tr. 8547-48. Thus approximately 37% of the sample of eight failed to carry out their function properly. If the eight observed by FEMA were a truly representative sample of the total of 333 general-population bus drivers who were mobilized during the Exercise, then one might expect 37% of 333 bus drivers, or approximately 125, to fail to carry out their function properly. Tr. 8548.

them to constitute a fundamental flaw in the Plan. As we have noted above, similar communication problems occurred during the response to a simulated impediment during the June 6 and December 10, 1986 drills.

Suffolk's witnesses cited some other Exercise events that they believe illustrate breakdowns in communications between LERO personnel. One involved LERO's response to the free-play message requesting LERO to provide a bus and driver to assist in transporting forty children from the Ridge Elementary School. The request was communicated to the Special Population Bus Dispatcher within about 10 minutes, but Suffolk alleges that the staging area personnel did not respond quickly or appropriately in processing the communication. *Id.* at 128. Suffolk's witnesses believe that LILCO's training program has failed to instruct LERO personnel on the need to communicate information in a timely manner and to follow up on communications to make sure that tasks are completed. *Id.* at 128-29.

Additional examples of communication breakdown cited by Suffolk include the following:

- LERO was unsuccessful in attempting to communicate with the FAA in order to get air traffic diverted from the EPZ [*id.* at 130; *see* FEMA Report at 29];
- The Long Island Railroad (LIRR) was not contacted during the Exercise in order to divert trains from the EPZ [*id.*];
- The downwind distance of a sample taken by a DOE RAP field monitoring team for one of the thyroid dose projections was incorrectly reported as 7000 meters rather than 700 meters. The error was corrected in about five minutes, but it meant that the initial calculation of thyroid dose was 9000 mRem/hr at 4.3 miles downwind instead of 9000 mRem/hr at about 0.5 miles downwind [Suffolk Exh. 95 at 130; FEMA Exh. 1 at 33];
- Several extrapolated doses at various distances were reported on the dose assessment status board as actual measurements rather than as projected doses, an error which went uncorrected for two and one-half hours [Suffolk Exh. 95 at 130-31; FEMA Exh. 1 at 33];
- Several times the Director of Local Response was not in the command room and not available to take calls over the RECS telephone or the dedicated telephone. His secretary, who took the calls in the Director's absence, told the callers that the Director would call back. Because both telephones are used to communicate vital emergency information, FEMA found this situation to be an ARFI and recommended that persons answering the telephone when the Director was busy elsewhere be trained to take the message in writing and then deliver it to the Director immediately upon completion of the transmission [Suffolk Exh. 95 at 131; FEMA Exh. 1 at 31, 42].[51]

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[51] Suffolk's witnesses included two other examples involving status boards that were mentioned in the FEMA Report, but our reading of the Report indicates that those were more in the nature of equipment problems. *See* *(Continued)*

Suffolk's witnesses also list the following examples of what they believe to be the failure of LILCO's training program to effectively train personnel to communicate necessary and sufficient data and information, as evidenced by the inability of LERO personnel at the staging areas to accurately, appropriately, or in a timely manner obtain, record, or transmit, or act upon emergency data:

- At the Riverhead Staging Area, LERO Personnel did not properly record or identify event status information on the Emergency Event Status Forms or on the status board [Suffolk Exh. 95 at 132; FEMA Exh. 1 at 72];
- The Bus Dispatcher at the Patchogue Staging Area repeatedly announced incomplete and misleading information to bus drivers about the dose levels at which they should call in [Suffolk Exh. 95 at 132; FEMA Exh. 1 at 68];
- The bus Transfer Point Coordinator at Brookhaven National Laboratory Transfer Point directed one bus driver to proceed to the EWDF despite an earlier message transmitted by the Bus Dispatcher to all Transfer Point Coordinators requesting that all drivers arriving before 16:00 be directed to the Reception Center [Suffolk Exh. 95 at 133; FEMA Exh. 1 at 65];
- At 9:19 the LERO Manager was informed that no County resources would be available to assist in the Exercise, with confirmations coming at 10:15, 10:26, and 10:36. Despite this fact, the Evacuation Coordinator recorded in his log at 9:20 that the SCPD had offered its assistance on traffic control, and between 10:02 and 10:15 the Traffic Control Coordinator informed the staging areas that they should expect a large number of SCPD officers to report for briefing. This misinformation was transmitted to Lead Traffic Guides, Dosimetry Recordkeepers, and various other staging area personnel. The erroneous information was finally corrected sometime between 10:26 and 10:50 [Suffolk Exh. 95 at 133-34].

Suffolk's witnesses testified that communication problems have occurred repeatedly during post-Exercise drills. For example, during the June 6 drill LERO personnel relayed inaccurate information about the location of a traffic impediment, as occurred in the Exercise, again resulting in delays in responding to that impediment. *Id.* at 139-40; Suffolk Exh. 96, Attach. 7 at 5. In our discussion of Contention EX-50B, we have already noted that a similar situation occurred during the December 10 drill. There were also delays in issuing EBS messages in the June 6 drill. For example, the EBS message announcing the Alert was not broadcast until 48 minutes after the Alert was declared, which resulted in the early dismissal of schools being delayed, and the EBS message informing evacuees of the road impediment was not broadcast until 45 minutes after the simulated accident had occurred. Further, it took LERO 25 minutes to

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Suffolk Exh. 95 at 130, 131; and FEMA Exh. 1 at 29-30. Therefore we are not considering those two examples here.

issue the EBS message for the General Emergency after the decision to initiate protective action. Suffolk Exh. 95 at 140; Suffolk Exh. 96, Attach. 7 at 2, 4-5.

During the September 10 drill, the EBS messages for the traffic impediments were slow in being generated, and the messages were ambiguous and not concise. Suffolk Exh. 95 at 141; Suffolk Exh. 96, Attach. 8 at 2. Further, there was approximately a ½ hour delay by the Road Crew Communicator in getting the message transmitted to respond to one of the road impediments. Suffolk Exh. 95 at 141-42; Suffolk Exh. 96, Attach. 8 at 3. Moreover, the dose assessment staff at the EOC and the dose assessment staff at the EOF had problems communicating. According to the Impell Report, "the lines of communication for technical data was [sic] almost nonexistent." Suffolk Exh. 96, Attach. 8 at 3; Suffolk Exh. 95 at 141-42. At the Riverhead Staging Area it took 20 minutes for a message from the EOC to go from the Administrative Support Staff to the Lead Traffic Guide, as a result of which the dispatch of Route Spotters was delayed. *Id.* at 142; Suffolk Exh. 96, Attach. 8 at 5. A Road Crew from the Port Jefferson Staging Area dispatched to respond to a traffic impediment never arrived at the impediment site. *Id.*

During the September 17 drill, information flow from a Staging Area to the EOC needed improvement. Messages were often left on the communicator's desk for 10 to 15 minutes before they were transmitted to the proper individual at the EOC. Suffolk Exh. 95 at 143; Suffolk Exh. 96, Attach. 8 at 6-7. In addition, the message from the EOC indicating that an alert had been declared was sent at 10:38, after the alert was declared at 10:14. Suffolk Exh. 8 at 143; Suffolk Exh. 96, Attach. 8 at 7. Another communications problem was the fact that telephones of key coordinators would go unanswered when they were at staff meetings. Suffolk Exh. 95 at 143. Finally, LERO personnel often failed to use message forms; as we have already noted, many messages were written on plain paper and later transcribed onto message forms, which resulted in delays and the transmission of erroneous information because of transcription errors. *Id.*

Communication problems recurred during the October 1 drill. The distribution of RECS messages from the Patchogue Staging Area to the EOC staff was very slow. Suffolk Exh. 95 at 144; Suffolk Exh. 96, Attach. 8 at 11. A message from the EOC to the Staging Area concerning failed sirens was sent at 9:48. Apparently because of inefficient message handling at Patchogue, however, the Route Alert Drivers were not dispatched until 10:25. The message to dispatch traffic guides at the Port Jefferson Staging Area was not transmitted until 13 minutes after the decision to recommend evacuation was known to the EOC personnel. *Id.* Moreover, three separate dispatch messages arrived in the Staging Area within a few minutes of each other, causing confusion and further delaying the dispatch of the Traffic Guides. Suffolk Exh. 95 at 144; Suffolk Exh. 96, Attach. 8 at 11-12. The message to dispatch the bus drivers did not reach the Riverhead Staging Area until 13:30, despite the fact that a release of radiation

had occurred at 12:35, and even then only after the Riverhead Bus Dispatcher had requested it from the EOC. And the Staging Area was not told of the 12:35 release until 13:40; thus the bus drivers were dispatched into the plume without knowledge of it. Suffolk Exh. 95 at 144; Suffolk Exh. 96, Attach. 8 at 12.

The Impell Report on the September and October drills came to the following conclusions with regard to communications:

> One of the major areas of concern during this drill series continues to be the communications between the EOC and the Staging Areas. Long delays in getting information to the Staging Areas were experienced throughout the drills. Much more emphasis needs to be placed on communications, both in accuracy and timeliness.
>
> Delays in the response by the Staging Areas can be traced back to delays in transmitting information or instructions by the EOC. The information flow from the EOC to the ENC also proved to be [the] major deficiency in one particular drill. It appears that the common denominator in communications delays is the EOC, and emphasis must be placed in training that facility.
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> * * *
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> Another area of communications that has been a problem in the past, and is still a problem with certain shifts, is the communications link between the EOC and the EOF in the area of dose assessment. The exchange of information from the EOF to the EOC needs to be improved. This will continue to be examined in future drills where the EOF and EOC are both participating.

Suffolk Exh. 96, Attach. 8 at 13-14.

Problems with communications also occurred during the drills on December 2 and 10. During the December 2 drill, as we noted in our discussion of Contention EX-50B, approximately 20% of the players wrote messages on scraps of paper rather than on standard LERO message forms. Suffolk Exh. 95 at 145; Suffolk Exh. 96, Attach. 9 at 3. Also, the EOC issued status reports containing conflicting information. Suffolk Exh. 95 at 145; Suffolk Exh. 96, Attach. 9 at 4. Further, EOC personnel receiving calls for/about LERO workers did not return the confirmations of delivery of the messages to Family Tracking pursuant to procedures but were instead returning them to the original caller. Procedures call for the EOC to deliver the messages to Family Tracking; Family Tracking will then make the confirmatory call after the message has been delivered to the LERO worker. Suffolk Exh. 95 at 145; Suffolk Exh. 96 at 12.[52]

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[52] Some Traffic Guides were more than an hour getting to their TCPs, a fact that Suffolk's witnesses attribute to untimely communications. It is not clear from the record, however, that the delayed arrivals of Traffic Guides during the December 2 drill resulted from communication delays. Suffolk Exh. 96 at 20. In addition, Suffolk's witnesses discuss three Traffic Guides who were unable to communicate with their Staging Areas. The record is not clear, however, as to the cause of this inability to communicate. Finally, one TCP could not be reached with a rerouting message by either the EOC, Port Jefferson Staging Area, or an adjacent TCP. The Traffic Guide at that TCP reported later that he had attempted to radio the Staging Area to verify his re-routing responsibilities but could not get through because the frequency was busy. *Id.* These communication failures are certainly communications problems, but it is not clear that they resulted from inadequate training.

The December 10 drill scenario included four road impediments, and communications problems arose in LERO's response to two out of the four. The most serious problem involved a pretended brush fire on the Long Island Expressway (LIE); information in the internal communications about the brush fire changed as the message was transmitted through the LERO organization. The initial message stated that the brush fire was causing a complete blockage of the east- and westbound lanes of the LIE and also the north- and southbound lanes of Patchogue–Mt Sinai Road. The Lead Controller at the EOC decided to initiate the message at the ENC rather than EOC as the message dictates. When the information was transmitted at 09:30 from the ENC to the LERO EOC, the information on which roads were blocked was omitted. After being prompted by the Public Information Controller, the Public Information Group in the ENC recontacted the EOC at 09:42 with the complete information. Then at 10:25 the Patchogue Traffic Controller, simulating a Route Spotter, reported that only the westbound lanes of the LIE were blocked. Suffolk Exh. 95 at 146-47; Suffolk Exh. 96, Attach. 9 at 4. The other impediment about which LERO had problems communicating was a simulated duck truck accident. The message was introduced to the ENC at 12:00, and again the ENC transmitted erroneous information; this time it incorrectly stated that the EOC was already aware of the impediment. After being prompted by the Public Information Controller, the ENC gave the message to the Evacuation Coordinator at 12:23. At 12:52 he called for a Road Crew to remove the impediment. The Road Crew did not arrive at the scene until 13:53, and the duck truck was moved from the road at 14:00. In this drill the evacuation recommendation was issued about 12:54. Since the impediment occurred prior to the evacuation recommendation, LERO did not respond promptly because it initially considered the duck truck to be a Suffolk County problem.[53] Suffolk Exh. 96, Attach. 9 at 10; Tr. 5793-97.

Suffolk's witnesses concluded that the recurrence of communications problems and the repeated instances of communication failures, in spite of dress rehearsals, drills, and tabletops over a period of 3 years, demonstrates that LILCO's training program has been ineffective in training personnel to communicate properly. Moreover, the repeated instances of communications failures show a failure to instill necessary communications discipline, which also indicates a flawed training program. They conclude that the Exercise demonstrated

[53] The December drill report gives a generally more favorable impression of LERO's performance than the reports on the June, September, and October drills. The earlier reports were all prepared by the Impell Corporation, under contract with LILCO. The December drill report, on the other hand, was prepared by an in-house consultant for LILCO, working full-time for and under the supervision of LILCO. Tr. 5739-41. When asked why LILCO had changed contractors, LILCO's witness Daverio answered that it was his understanding that LILCO's Emergency Preparedness Division wanted to have "more input and control in formulating the report." Tr. 5740. Suffolk's witness Cosgrove testified that many negative comments that were in the observer reports from the December drill never got into the December drill report. Tr. 6739.

fundamental flaws in LILCO's training program, and that nothing since the Exercise leads to any different conclusion. Suffolk Exh. 95 at 148.

Suffolk's witnesses argue that timely, accurate, and commonsense communications provide the backbone of a successful response to an emergency situation. Such communications are important not only in terms of the abilities of emergency response personnel to perform their tasks, but also in terms of the media and the public having confidence in those responses. Successful communications depend upon detailed training and extensive learning by doing. Suffolk Exh. 95 at 136. The police witnesses attested that for police personnel, effective communication is perhaps the most difficult task to be learned, requiring repeated learning-by-doing experiences before an adequate proficiency is reached.[54] *Id.* at 136-37.

LILCO's witnesses argue that the contentions cited as having bases that support Subcontention EX-50C are actually irrelevant to whether the Exercise revealed a flaw in the training program that renders LERO personnel incapable of communicating effectively. With regard to Contention EX-45, which was consolidated with Contention EX-50, LILCO's witnesses argue that not one of the eight subparts of the contention supports the allegation that the training program failed to train LERO personnel to communicate effectively. LILCO EX-50 Testimony at 45. Subcontention EX-45A alleges that the delay in responding to traffic impediments resulted from communication failures. LILCO ascribes the delay to: (1) the fact that the Evacuation Route Coordinator failed to transmit all of the information contained in the free-play messages to staging area and field personnel, and he failed to inform co-workers and superiors in the EOC of the impediments; and (2) the manner in which FEMA introduced the free-play messages. *Id.* at 45-46. LILCO's witnesses argue that LERO responded appropriately to the traffic impediments and therefore the responses do not reflect adversely on the communication training program. *Id.* at 46.

LILCO's witnesses acknowledged that there was a problem in communication, but they argued that it should not be blamed entirely on deficient training. LILCO argued further that the Evacuation Route Coordinator's actions were not really inconsistent with his procedures, but resulted from the fact that he failed to appreciate the severity of the accident and what the consequences were, and also initially he took the message to be a rumor. They acknowledged, how-

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[54] As experienced trainers, the police witnesses were able to describe how police recruits are taught to communicate successfully. One technique that has been used effectively in training recruits in proper communication skills involves having the instructor tell one recruit a story involving numbers, dates, etc. This recruit then tells the story to a second recruit, who tells it to a third recruit, and so on. The entire process is videotaped. The results the first time recruits go through this process are distortion of critical information due to inattention to detail and failure to listen carefully. The recruits learn the consequences of these mistakes. The needed communication skills are emphasized through frequent, almost daily, role-playing, drills, and written exercises. Through training of this type, the recruit learns both the proper methods of communicating and the consequences of improper communication. Suffolk Exh. 95 at 137 n.58.

ever, that he should have communicated information about even the suspected impediments to his superiors and co-workers. Moreover, LILCO attributes the delays in communications about the impediments to artifacts of the scenario and FEMA's unrealistic simulation; they argue that in the real world information about the accidents would have been communicated back to the EOC by LERO workers in the field who saw the accidents, which would have resulted in a more timely response. LILCO EX-50 Testimony at 36-38; Tr. 966-68, 973-74, 5497-98, 5549-52; *also see* LILCO's Proposed Findings at 164.

With regard to the free-play message requesting dispatch of a bus to pick up students at the Ridge Elementary School, LILCO's witnesses testified that the bus driver was dispatched at 11:23, 33 minutes (rather than 40 minutes) after the Special Populations Bus Dispatcher received the request. LILCO believes that this was not an inordinate delay considering that the Dispatcher was concurrently handling the dispatch of approximately forty-four other vehicles. The driver, after picking up his bus, arrived at the school at 12:14. He then traveled to the Nassau Coliseum Reception Center where he arrived at 13:51. LILCO EX-50 Testimony at 46-47. The Public School Coordinator at the EOC called the school Superintendent (simulated) at 11:28 and requested that the Superintendent call him when the bus arrived. After waiting for the call from the Superintendent until 13:23, the Public School Coordinator again called the Superintendent (simulated) who confirmed that the bus had already arrived and had left for the Reception Center. The Public School Coordinator called the Reception Center at 16:11 requesting confirmation. LILCO's witnesses argue that it is not surprising that the Reception Center personnel called the Public School Coordinator at 16:23 to tell him that they could not confirm the arrival of the bus, because the bus had come and gone 3 hours earlier. *Id.* at 47. LILCO's witness does not believe that the failure of the Reception Center personnel to advise the EOC of the arrival of the bus was a communications breakdown because the Reception Center personnel were unaware that the bus had arrived. Tr. 5564-65. There was nothing to distinguish that particular bus from the other buses that arrived at the Reception Center. LILCO EX-50 Testimony at 47-48.

With regard to the alleged failure of LERO to notify the FAA and the LIRR, LILCO's witnesses testified that the Evacuation Coordinator did contact the FAA, but the number listed in the procedure was "not the best number to call." Procedures existing at the time of the Exercise did not call for notification of the LIRR. Since the Exercise, procedures for notifying the FAA have been modified and procedures for notifying the LIRR have been included in the Plan. *Id.* at 48; Tr. 5571-74. FEMA found that the confusion regarding the method for notifying the FAA and the absence of procedures for notifying the LIRR were ARCAs and stated that procedures should be reviewed and revised and the LERO staff trained accordingly. Tr. 5574; FEMA Exh. 1 at 29, 39. Thus, LILCO's witnesses do not consider this situation to result from a training problem. Tr. 5574.

With regard to the Director sometimes not being available to answer the RECS telephone, LILCO's witness Daverio testified that FEMA was wrong because the RECS phone isn't in the command room. Tr. 5575. FEMA mentioned both the RECS phone and the dedicated telephone, however, and the dedicated phone is in the command room. Tr. 5576; FEMA Exh. 1 at 42. The witness does not believe any urgent calls came in on the dedicated line while the Director was absent. Tr. 5576. Moreover, LILCO believes that had an urgent call come in, the caller would have stated that the call was urgent. LILCO EX-50 Testimony at 176. LERO has not changed any procedures to respond to this problem, even though as we noted, *supra*, FEMA judged it to be an ARFI. Tr. 5577; FEMA Exh. 1 at 42.

Finally, LILCO attributed the misinformation about assistance from the Suffolk County police to FEMA. LILCO's witnesses testified that FEMA personnel simulating Suffolk County personnel gave inconsistent input to the LERO EOC. LILCO EX-50 Testimony at 50-51. LILCO's witness Behr testified that he was in the command cell and observed the confusion, which he stated was caused by the simulators and also possibly by a "lack of consistency" by the FEMA Controller who, he opined, really did not know what their position was going to be on the issue. Tr. 5587. Because of confusion coming from the county executive simulator and the Suffolk County Police simulator, at one point the Lead Controller in the command cell stopped operations in the command cell to make sure it was clear to everybody what FEMA's position was on the use of Suffolk County Police for LERO emergency response activities during the Exercise. Tr. 5588. At that point it was communicated to the EOC that the information about police assistance had been wrong and that the police would be used only for crime control. Tr. 5589-90.

LILCO's witnesses also testified on the post-Exercise drills. The drills are analyzed to evaluate the effectiveness of the LERO organization and to determine whether changes in procedure or training need to be made. They also serve as training experiences for the LERO personnel. Tr. 5733-34. The witnesses testified that in general they did not dispute the statements in the drill reports, although they might find individual comments that they felt were overly critical. Tr. 5745.

LILCO's witnesses do not take issue with Impell's conclusion from the September and October drills that emphasis must be placed on training the EOC to communicate in a more timely manner. Tr. 5770, 5772. During the October drill, information flow from the EOC in accident status reports was not timely, as a result of which field personnel were working with information and data that was up to 30 minutes old. Tr. 5767-69. The witnesses also agreed that LERO took too long to issue EBS messages during some of the drills, notably the June 6 drill, although they noted that the shift that participated in the June 6 drill did a better job issuing EBS messages during the October 1 drill. Tr. 5750-51. The

time required to dispatch Traffic Guides has been too long because the Traffic Control Point Coordinator must refer to the OPIP and, based on the protective action recommendation, make a list of the zones to be evacuated; he then gives the list to the Evacuation Support Communicator who transmits the information to the staging area. An additional delay may result from messages backing up at the communicator's desk. To try to solve this problem, LERO intends to have the administrative support staff transmit information directly to the staging areas rather than turning them over to the communicator when a backup occurs. This practice may sometimes cause a problem, however, such as occurred in the October 1 drill when three messages reached a staging area at the same time. Tr. 5763-64, 5780-83.

LILCO's witnesses were unable to explain why the Road Crew dispatched from Port Jefferson to an impediment during the September 10 drill never arrived at the impediment site. When asked whether they could identify the people who were on the missing Road Crew, the witnesses answered that they thought they could do that but apparently no one had done so. Tr. 5786-87. Similarly, the witnesses were unable to explain why, during the December 2 drill, a Traffic Guide took 75 minutes from dispatch at Patchogue to reach his TCP. Tr. 5810, 5813. They testified that this was another problem that LERO intended to attack in the coming months. *Id.*

FEMA's witnesses attested that they agreed with the facts presented in Contention EX-45, but in many instances they disagreed with the conclusions or analyses presented in the contention. Tr. 8251. They believe that the FEMA Report accurately reflects the seriousness of the problems it identified, whereas the contention in many cases goes beyond that. *Id.* The root of the Deficiency that FEMA identified as causing LERO's delayed response to the impediment free-play messages during the Exercise was the performance in the EOC. FEMA Exh. 5 at 75; Tr. 8252. The poor performance involved a failure in communicating information about the impediments to the Evacuation Coordinator in a timely manner and a lack of internal communication in that pertinent information was not included in messages from the Evacuation Route Coordinator to the Evacuation Support Communicator for Route Spotters/Road Crews. Thus the root of the deficiency was failed communications in the EOC. FEMA's recommendation for correcting the Deficiency included additional and improved training. FEMA Exh. 1 at 39.

Several of the ARCA's identified by FEMA likewise involved communication, and, in two of those, additional or different training was recommended by FEMA as all or part of the corrective action. The confusion regarding the notification of the FAA was identified as an ARCA, and FEMA recommended that the EOC staff be trained so that the FAA can be notified in a timely manner. *Id.* The failure to notify the LIRR was also identified as an ARCA, and part of the recommendation to correct it was training the EOC staff in revised

procedures so that the LIRR can be notified in a timely manner. *Id.* at 39-40. Another ARCA that resulted at least partially from a failure in internal communication was that given because of the delay in the dispatch of Route Spotter #1005 to verify the fuel truck impediment. FEMA's recommended corrective action involved training personnel in the development of alternative approaches when delays are anticipated, with consultation between at least the Evacuation Coordinator and the Evacuation Route Coordinator. *Id.* at 41.

The NRC Staff, in its proposed findings, found that the evidence adduced with regard to LERO's response to the evacuation impediments supports Suffolk's Subcontention EX-50C. Staff Proposed Finding 470 at 176-77. The other situations described by Suffolk as being examples of inadequate training in communication, however, do not, in Staff's view, support Subcontention EX-50C. But in its consideration of EX-50C, Staff did not address the communication failures that have recurred during the post-Exercise drills.

Conclusion on Subcontention EX-50C. LERO EOC and/or ENC personnel failed to communicate accurate and complete information about roadway impediments not only during the February 13, 1986 Exercise, but also during the June 6, 1986 drill and again during the December 10, 1986 drill. This recurrence of a problem that produced a Deficiency in FEMA's assessment of the Exercise strongly suggests that LILCO's training in the area of communications, at least, is woefully inadequate in that it has failed to teach LERO personnel how to improve their performance.

Other less serious, but nonetheless bothersome, communication defects likewise persisted during post-Exercise drills. For example, internal communication between the EOC and one or more staging areas was often slow and occasionally erroneous or incomplete during the June 6, September 10 and 17, October 1, and December 2 and 10 drills, as well as during the February 13 Exercise. Communication between the EOC and the EOF in the area of dose assessment was poor during the September and October drills. Some important EBS messages were slow to be generated during at least the June 6 and September 10 drills, as well as during the Exercise.

LILCO argued that the communication problems during the Exercise, to the extent that they were attributable at all to LERO, resulted from poor judgment on the part of their Evacuation Route Coordinator. LERO shift 1, which participated in the February 13 Exercise, participated in only the December 2 and 10 drills. Shift 2 participated in the June 6 and October 1 drills and shift 3 participated in the September 10 and 17 drills. The fact that shift 1 demonstrated the same kind of communication problems in December 1986 that they demonstrated in February 1986 indicates that either the training program taught them little about effective communications between February and December, or that the EOC personnel on shift 1 are incapable of learning. The fact that the same kind of communication problems occurred in other drills, on the other

hand, suggests that the level of training in other shifts is comparable to that in shift 1. The conclusion that must be drawn is that the training program as conducted before and since the Exercise has failed to teach LERO personnel how to communicate emergency information effectively.

Because the consequences of poor communication during the Exercise resulted in a finding of a Deficiency by FEMA and a Fundamental Flaw by us, and because we agree with Suffolk's witnesses that timely and accurate communications provide the backbone of a successful emergency response, we conclude that LILCO's training program is fundamentally flawed in the area of communications. We recommend that LILCO institute a training program in emergency communications modeled after that described in note 54, *supra*.

8. *Subcontention EX-50D*

Subcontention EX-50D alleges that the Exercise demonstrated that LILCO's training program has not successfully or effectively trained LERO personnel to follow directions given by superiors during an emergency. Suffolk Exh. 96 at 148; LILCO EX-50 Testimony at 51. As bases for the allegation, the subcontention cites several other contentions and a number of the findings in the FEMA Report. Suffolk Exh. 96 at 148; LILCO EX-40 Testimony at 51.

Suffolk's witnesses testified that they were not in a position to agree or disagree with the contention because of insufficient data. They cited two examples of LERO workers failing to follow directions: (1) bus drivers who failed to read their dosimeters every 15 minutes in spite of directions to do so, and (2) a Transfer Point Coordinator who directed a bus to go to the EWDF in spite of instructions to direct buses to the Reception Center. On the basis of the data available to them, the witnesses testified that they could not provide additional bases to support this subcontention. They stated, however, that their lack of support for the subcontention should not be construed as constituting an agreement that LILCO's training program has been successful in this regard. Suffolk Exh. 96 at 149-50.

LILCO's witnesses, citing as an example FEMA's favorable evaluation of the performance of the Port Jefferson Staging Area Coordinator, argue that good performance by supervisors must mean that those they are supervising are following their directions. *See* FEMA Exh. 1 at 56. They also argue that the fact that LERO succeeded in deploying approximately 1000 workers indicates that LERO personnel are correctly responding to directions. LILCO EX-50 Testimony at 51-52. The few instances of failure of LERO workers to follow directions cited by the Intervenors are, in the opinion of LILCO, isolated, minor incidents that do not demonstrate a flaw in the LILCO training program. *Id.* at 53-54.

Staff likewise does not believe that enough incidents have been cited by Intervenors to support this subcontention. Staff Proposed Finding 476 at 178-79.

Conclusion on Subcontention EX-50D. The parties are in agreement that there is insufficient evidence to support the allegation that LILCO's training program failed to teach LERO workers to follow the directions of their superiors. We agree; therefore we find Subcontention EX-50D to be without merit.

9. *Subcontention EX-50E*

Subcontention EX-50E alleges that LILCO's training program has not successfully or effectively trained LERO personnel to exercise independent or good judgment, or to use common sense, in dealing with situations encountered during an emergency or in implementing the LILCO Plan and procedures. The subcontention cites several other contentions and the FEMA Report as providing bases and support for EX-50E. Suffolk Exh. 95 at 150.

Suffolk's witnesses stated that examples of failure of LERO workers to exercise independent or good judgment or common sense can be found in LILCO's inability to handle unanticipated or unrehearsed situations as discussed in EX-50A, as well as in EX-38/39. In addition, they cite a number of other situations that they believe demonstrate a failure by LERO workers to use independent or good judgment or common sense. For example, they consider the failure of LERO personnel to obtain additional information about the gravel truck impediment, which resulted in LERO's dispatching a single tow truck that was incapable of clearing a loaded gravel truck from the roadway, to demonstrate poor judgment on the part of LERO players. Similarly for the fuel truck, LERO again failed to dispatch a truck that could have handled the job, again demonstrating poor judgment by the LERO personnel. *Id.* at 152; *see* FEMA Exh. 1 at 37, 65. Suffolk's witnesses cited still other examples of the exercise of poor judgment by LERO workers, as follows:

> — The decision by the Evacuation Coordinator to choose a traffic rerouting strategy without consulting persons familiar with the roadways in the area of the impediments, which resulted in a decision to employ an illogical rerouting strategy. [Suffolk Exh. 95 at 153.]
>
> — A field monitoring team stopped to report dose assessment data while still within the plume. [*Id.*]
>
> — A simulated evacuee who had been found to have contaminated hands while being monitored at the Reception Center was advised to put on rubber booties before he was advised to put on anticontamination gloves. [*Id.*]
>
> — In response to an inquiry from a person who had trucks going to Suffolk about how extensive the evacuation would be, a LERO Call Board operator advised that

the only protective action was closing of schools, and that evacuation had not been recommended. Suffolk contends that it would have been better judgment to have as few people and vehicles as possible in the EPZ and suggests that it would have been more appropriate had the operator exercised such judgment independently. [*Id.* at 154.]

— In response to an inquiry whether lobsters caught that morning on the Shoreham jetty were safe to eat, a Call Board operator responded at 12:28 that there were no data to indicate that anything would be wrong with the lobsters. Suffolk contends that a response advising caution would have shown better judgment, and that giving a response without even asking what time the lobsters had been caught demonstrated a further lack of judgment and common sense. [*Id.* at 155.]

— In response to a simulated call from Dan Rather, who wanted to take a TV crew to the SNPS, the LERO responder advised against going to the plant because "You will be in the way" and then gave directions to the plant. Suffolk contends that the fact that the responder advised against going to the plant yet told Rather how to get there demonstrates poor judgment and lack of common sense. [*Id.* at 155-56.]

— LERO's failure to contact the LIRR in order to tell the railroad to divert its trains from the EPZ resulted from a failure by LERO personnel to use independent judgment. [*Id.* at 156.]

— The Emergency News Manager delayed opening the ENC from 8:08 to 8:25 because one apparently nonessential staff member had not arrived. He showed poor judgment in delaying the operation of the ENC until roll call had been completed. [*Id.*]

— Although the EBS message ordering evacuation of the entire EPZ was broadcast (simulated) at 12:00 and the LILCO spokesperson in the ENC received this information at 12:22, she waited until the 12:47 press briefing to release this information to the press. Suffolk contends that there was no reason for this delay, which reflected both poor judgment and defective training. [*Id.* at 156-57.]

— Another error in judgment was displayed in the ENC when Dr. Brill from Brookhaven National Laboratory, whom LILCO had available in the ENC, told reporters that he would not follow LERO's evacuation recommendation. [*Id.* at 157.]

— Suffolk contends that LILCO showed poor judgment in not checking the compatibility of the electrical system in the ENC with the copying equipment to be used there in advance of the graded exercise. Moreover, given the failure of the copying machines, LERO personnel in the ENC showed poor judgment by not attempting to compensate for the useless copying machines by relaying information from the EOC to reporters orally. [*Id.* at 157-58.]

— Finally, the public information staff at the EOC displayed poor judgment in preparing EBS messages by filling in the "sample" fill-in-the-blank EBS message contained in the LILCO Plan, which resulted in unintelligible or confusing messages. Common sense and good judgment dictated the rewriting of the messages to tailor them to specific situations. [*Id.* at 158-59.]

Suffolk's witnesses attested that their review of LILCO's training program indicated that the training program was so procedure-specific that LERO workers

are taught, if anything, not to use independent judgment. Suffolk's witnesses believe emergency personnel must be taught to think on their own, because to be able to handle unexpected occurrences, emergency response personnel must be able to "think on their feet." *Id.* at 159-60.

LILCO's witnesses testified that LERO's training program is not intended "to train a group of free thinkers; LERO personnel, particularly in non-management roles in LERO, are to implement the Plan, not develop *ad hoc* responses in the field." LILCO EX-50 Testimony at 55. Further, they believe that many of the examples of use of poor judgment or lack of common sense cited by Suffolk from other contentions or in remarks by FEMA were not, in fact, examples of such. Rather, the LILCO witnesses believe that LERO's response to the traffic impediments demonstrated, in several instances, the use of good judgment in response to unanticipated events; they noted as examples the Traffic Guide who called for traffic cones and another Traffic Guide at his TCP; the telephone calls to Hess Oil Company and the Miller Place Fire Department; and the dispatch of a Route Alert Driver to monitor the radiation exposure of fire department personnel. *Id.* at 56.

LILCO's public information consultant Dr. Mileti testified that he believed people could be trained to use better and more informed judgment and probably independent judgment. He did not think you could teach people common sense, however; either they have it or they don't, in his view. Tr. 5169-70. He agreed that flexibility was important in an emergency response organization, because in an emergency, circumstances arise when workers need "to exercise good judgment and not go by the letter of the book." Tr. 5170-71.

FEMA witnesses Keller and Baldwin agreed that the failure of LERO personnel to contact the LIRR showed a lack of independent judgment, although they acknowledged that the Plan did not call for notification of the railroad. Tr. 8273-74. Witness Baldwin added that it would have been good judgment for LERO to notify the railroad, even though such notification was not called for in the Plan. Tr. 8274. It is FEMA's position that this inadequacy, as with most of the Exercise inadequacies that it identified, is attributable to a breakdown in the LILCO training program. FEMA Exh. 5 at 73.

The NRC Staff accepted FEMA's findings on Contention EX-50E and stated that LERO failed to show redundancy and diversity in its response to the road impediments. Staff Proposed Finding 444 at 167.

Conclusion on Subcontention EX-50E. We conclude that the weight of the evidence supports Suffolk's contention that LERO workers are not adequately trained to use independent and good judgment in response to unanticipated events. LILCO itself admits that its training program is intended to teach LERO workers to implement the Plan and not to make *ad hoc* decisions during an emergency. We are convinced, however, that situations would arise during a radiological emergency at SNPS that could be dealt with effectively only if

the emergency workers are able to make good, independent judgments and *ad hoc* decisions. Professional emergency workers, such as the police, are certainly required to make independent, *ad hoc* decisions. LILCO should expect the same for its emergency workers. LILCO's training program should be modified to teach LERO personnel that they can and should exercise independent judgment and common sense when faced with unanticipated events that require a prompt, effective response.

10. Subcontention EX-50F

Subcontention EX-50F alleges that the Exercise demonstrated that LILCO's training program has not successfully or effectively trained LERO personnel to deal with the media, or to otherwise provide timely, accurate, consistent, and nonconflicting information to the public through the media during an emergency. Several contentions and comments by FEMA are cited as supporting Subcontention EX-50F. Suffolk Exh. 95 at 166. Suffolk's witnesses stated that they would cite only several examples of exercise events that support the subcontention; other examples, they said, are considered under Subcontention EX-38/39. *Id.* at 167.

The first example presented by Suffolk dealt with the time of activation of the ENC. Although the first EBS message was broadcast at 6:52, it was not until 8:25, an hour and a half later, that the ENC became operational. Suffolk's witnesses believe that the media would have begun pressing LILCO for information shortly after the 6:52 EBS broadcast, and that the delay would probably have resulted in confusion, speculation, rumor generation, and a lack of confidence in LERO's ability to deal with the emergency. *Id.* They argue that LERO's hour and a half delay in setting up the ENC reflects a lack of adequate training and a "substantial lack of good judgment." *Id.* at 168.

Suffolk's second example was LERO News Release No. 1, announcing an Alert Condition and stating that there had been no release of radiation; this announcement was made at 8:21. At 8:19, however, the ENC had been informed that a Site Area Emergency had been declared, that a minor release of radioactive material had occurred, and that LILCO recommended that dairy animals be placed on stored feed. Suffolk's witnesses think that the short time between the ENC's notification of the Site Area Emergency and the issuance of News Release No. 1 makes it somewhat explainable that News Release No. 1 reported the earlier condition. *Id.* That they consider inexcusable, however, is the fact that no prompt correction was released; the Site Area Emergency and radiation release was not made known to the press until the issuance of News Release No. 2, which still had not been released to the press as of 9:15. LERO News Release No. 3 was received at the ENC at 10:15, but it was not posted for the press until 11:10. News Release No. 4 was received at 10:45, but was not

posted until 11:56. News Release No. 5, which covered the 10:24 evacuation recommendation for zones A-M, Q, and R, was approved by the Director at 11:02 but did not arrive at the ENC until 11:36, and was made available to the press some time later. *Id.* at 169. News Release No. 6 was approved by the Director at 12:25 but was not posted until 2:10, and Release No. 7 was approved by the Director at 1:11, received by the ENC at 1:47, but was not posted until 3:07. Finally, although the decision to evacuate the entire EPZ was reached by the Director at 11:46 and announced in an EBS message at 12:00, the ENC did not inform the media of the decision or the content of the EBS message until 12:47. *Id.* at 170.

Suffolk's witnesses argue that these examples demonstrate that LERO personnel were unable to provide timely, accurate, consistent, and nonconflicting information to the public through the media. They believe that during an emergency the ability to provide timely and accurate information to the media is essential to ensure that the public is kept informed concerning the status of the emergency and the protective actions being recommended. The witnesses suggest, further, that fear of nuclear hazards could cause the public to react irrationally if it is not kept informed and up-to-date regarding the status of the emergency. *Id.* at 170-71.

The police witnesses testified that they frequently confront situations in which immediate media contact is likely, and therefore they have trained respondents to deal with the media on a rapid basis. From experience with natural disasters, hostage-taking situations, and technological disasters such as chemical spills, the police witnesses attested that the media immediately seek out officials who are in charge and demand information from them about what has happened and what to expect in the future. If the officials are not prepared to respond immediately, the media publicize the lack of preparation and seek other, potentially unreliable, sources of information. *Id.* at 172.

Suffolk's witnesses testified that from their review of the documents, LERO personnel had no understanding of how important it was to have the ENC in operation at the earliest possible time or consider a meaningful alternative means of communicating with the media prior to ENC activation. They believe that this lack of understanding by LERO personnel demonstrates that LILCO's training has been inadequate. Adequate training would have stressed to LERO personnel the need to take charge of information flow to the news media almost from the minute the first EBS message was broadcast. *Id.* at 173. Suffolk believes that the Exercise revealed that LERO personnel had not been trained to realize or understand the importance of appearing to be a credible source, or how one goes about presenting that image to the media. *Id.* at 174.

Suffolk's witness Colwell testified that he had personally held numerous local, statewide, and national news conferences, and that he had appeared "live" on national news networks, where he was interviewed concerning events such

as aircraft hijackings, kidnappings, shooting incidents, fugitive apprehensions, bombings, and major legal cases such as ABSCAM. He stated that if a spokesperson for a news-disseminating organization is to be effective, the spokesperson must instill a sense of confidence that full disclosure is being made. Once the media believe that the most current and accurate information is not available at the news center, they will leave to pursue other lines of inquiry and other sources. *Id.* at 181-82. In addition, witness Colwell pointed out that the ability to deal effectively with the media could be gained only through experience or through extremely realistic role-playing exercises, and that in these simulated situations the role player should be put under pressure because he will be under intense pressure from the media in a real emergency. He stated that the media in this country are known for, and pride themselves on, asking the hard questions and refusing to be put off by vague or ill-informed answers. *Id.* at 182-83.

Finally, witness Colwell attested that while he was unaware of the specific training that the LILCO spokesperson had received for her job, nevertheless her performance during the Exercise indicated that the training had been inadequate. He testified that the ENC continually lagged behind the EBS station in releasing information, at least in part because the spokesperson would await the next scheduled press briefing to release information rather than issue a news release immediately. Witness Colwell attested that he had viewed the ENC videotapes made during the Exercise, and that the spokesperson frequently appeared flustered by the questions she was asked. *Id.* at 183. In witness Colwell's opinion, the spokesperson's performance made it clear that, although she was the LERO spokesperson, she exhibited little understanding of the operational details of LERO, little access to higher levels in the organization and the information flowing from them, and little skill in establishing rapport with the media and effectively fielding their questions. *Id.* at 184-85.

LILCO's witnesses believe that the Exercise demonstrated that LERO personnel were capable of providing the public with timely, accurate information about the emergency. They attribute delays in transmitting information to the media to the breakdown of the copying machines at the ENC rather than to the training of LERO personnel, and they further state that there are now five copying machines available to the ENC. LILCO EX-50 Testimony at 57; Tr. 5652. The witnesses contend that the public was given accurate information directly and in a timely manner through the EBS messages, and the media received essential information through periodic news conferences held at the ENC by LERO and LILCO personnel. *Id.* at 57-58.

As we noted in our consideration of Subcontention EX-38, prior to activation of the ENC, information could have been provided to the press by the Corporate Communications Department (CCD), which maintains a telephone line that is covered 24 hours a day, 7 days a week. *See id.* at 49-60; Tr. 3435-41. The

role of the CCD in an emergency is described in EPIP 4-3. *See* Suffolk Exh. 47. In addition, in discussing EX-38, we noted that FEMA had concluded that activation of the ENC was done well. We agreed with FEMA, and we also concluded that other sources of information would have been available to the media prior to activation of the ENC.

With regard to the lapse of time between issuance of the EBS messages and the news releases, we noted in our consideration of EX-38 that the first LERO News Release contained dated information at the time it was released, although FEMA did not consider this to be a serious problem. We also mentioned the fact that FEMA noted that there is no time requirement for the distribution of news releases.[55] FEMA's position is that news releases are of secondary importance because EBS messages are the primary means by which essential emergency information and instructions are communicated to the public. *See* FEMA Exh. 5, at 35.

Both Suffolk and FEMA criticized LERO for providing the press with hard copies of EBS messages which contained extraneous information marked for deletion. They thought that confusion might result. In our consideration of EX-38 we agreed with Suffolk and FEMA that the EBS messages should be cleaned up before being distributed to the press. The fact that they were not, during the Exercise, probably reflects an inadequacy in the training program.

It took the ENC 47 minutes following the first broadcast of the EBS message containing the evacuation recommendation to get that information to the press in a news release. Suffolk and FEMA agree that the media would have been informed of the evacuation recommendation via the EBS messages. We observed in our discussion of EX-38 that upon thus learning about the evacuation, the media would have demanded more information from the ENC. But the media's confidence in the ENC would have been eroded, and it might even appear that the ENC was withholding information. LILCO's spokesperson should have made it a point to get the evacuation recommendation out to the press as promptly as possible. Her failure to do so probably reflects another inadequacy in the training program.

In its proposed findings the NRC Staff concluded that while the ENC lagged behind the EBS messages in giving out information, the media had the same access to EBS messages as the public and therefore it seems unlikely that confusion would have resulted from the lag. Staff Proposed Finding 483 at 180. Further, Staff believes that the detailed information that the spokesperson

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[55] FEMA's witnesses were uncertain whether the media were given the content of EBS messages verbally shortly after they were received by the ENC. The evaluator at the ENC stated EBS messages were received by phone at the ENC in a timely fashion, but there was a delay in getting hard copy posted in the press area. Tr. 7823-24. Our reading of the Exercise Evaluation Critique Form prepared by the ENC Evaluator suggests that EBS messages were not promptly read to the press. The Evaluator commented that the time "lag means that reporters do not have an accurate picture of the protective actions." Suffolk Exh. 101.

could not provide correctly was not essential information, and therefore there is no evidence that there was a failure to properly train the spokesperson. Staff Proposed Finding 474 at 180-81.

In our consideration of EX-38 we agreed with Suffolk that LILCO's spokesperson should have been able to respond to detailed questions about the fuel truck impediment, to the extent that details were contained in the free-play message. FEMA took no position on this issue. We also found in our consideration of EX-38 that the LILCO spokesperson should have been able to relay accurate information about the gravel truck impediment; instead, she incorrectly reported that it had been cleared approximately 45 minutes before it was, in fact, cleared. The fact that the spokesperson was unable to respond adequately to questions about either roadway impediment probably results from inadequate training.

Conclusions on Subcontention EX-50F. The delays and inaccuracies in communicating information about exercise events to the media is undoubtedly another reflection of the inadequate training LERO personnel have received in communication skills. If and when LILCO follows the advice we offered, *supra*, regarding note 54, the ability and skill of the LILCO/LERO spokespersons in communicating with the media should improve.

11. Subcontention EX-50G

Subcontention EX-50G alleges that LILCO has failed to provide training to persons and organizations who are not employed by LILCO but who are relied upon for implementation of the LILCO Plan. Suffolk Exh. 95 at 186; LILCO EX-50 Testimony at 59-60. Contentions EX-27 and EX-28 plus several EOC-ARCAS are cited as support for EX-50G.

Suffolk's witnesses cited the FEMA Report that assigned several ARCAs because bus drivers used for school evacuation had not been trained in dosimetry, because neither ambulette drivers nor the bus drivers had been trained in KI policy and the use of KI, and because neither ambulette drivers nor bus drivers used for school evacuation had been trained regarding who can authorize exposure in excess of the general public Protective Action Guides (PAGs). Suffolk Exh. 95 at 188-89; *see* FEMA Exh. 1 at 45-46.

Another example cited by Suffolk was the performance of Dr. Brill, LERO's scientist from Brookhaven National Laboratory, who appeared at the ENC press briefings and who (1) gave out technically incorrect information, and (2) contradicted the LERO evacuation recommendation when asked by the press what he would do given that recommendation. Suffolk Exh. 95 at 189. Suffolk alleges that LERO members in the ENC when Dr. Brill made the latter statement failed to correct it immediately. Suffolk argues that Dr. Brill's performance

demonstrates that LILCO has failed to provide adequate training for non-LILCO employees who are relied upon to help implement the Plan. *Id.* at 190.

LILCO's witnesses testified that the ambulance and ambulette drivers had received training prior to the Exercise in radiological protective procedures. They attested, further, that their investigation of the problem noted by FEMA during the Exercise had determined that it resulted from attrition among drivers who had been trained. To combat this attrition problem, training of ambulance and ambulette drivers has been conducted monthly since the Exercise. LILCO EX-50 Testimony at 60; Tr. 5685-88. LILCO's witnesses also stated that while some school bus drivers had been trained before the Exercise, training of all school bus drivers had not been accomplished because only the Shoreham-Wading River School District was going to participate in the Exercise. They testified, further, that procedures were being developed to facilitate the participation of all school bus drivers in the radiological training sessions, but as of May 12, 1987, plans had been formalized with the Shoreham-Wading River School District only. LILCO EX-50 Testimony at 61; Tr. 5682-84.

FEMA's findings with regard to the allegations of Subcontention EX-50G were that dosimetry and training had not been provided to the school bus drivers, which was identified as an ARCA. FEMA found that some of the ambulette drivers were not aware of when to take their KI, which was identified as an ARCA. FEMA also found that school bus drivers had not been trained in KI policy, nor was the supply of KI for bus drivers sufficient; this, too, was identified as an ARCA. FEMA Exh. 1 at 45, 76. Finally, FEMA found that neither all ambulette drivers nor any of the school bus drivers had been trained regarding who can authorize exposure in excess of the general public PAGs; each of these inadequacies was identified as an ARCA. *Id.* at 46.

Staff does not consider the failure to provide dosimetry training to personnel belonging to organizations not participating in planning to be an inadequacy in the LILCO training program, although Staff acknowledges that it nevertheless could be a problem. Staff Proposed Finding 462 at 174-75.

Conclusions on Subcontention EX-50G. We agree with Suffolk that the training problems identified by FEMA resulted from an inadequate training program prior to the Exercise. Whether the post-Exercise training of ambulette drivers and the proposed training of school bus drivers will solve the problems remains to be seen. In its review of Revision 7 and 8 of LILCO's Plan (the February 13, 1986 Exercise was based on Revision 6) FEMA's Regional Assistance Committee (RAC) found that LILCO had adequately addressed the ambulette driver problem, but it found LILCO's response to training the bus drivers to be inadequate. Tr. 5688; *see* FEMA Exh. 3 at 16. Whether the problems cited in Subcontention EX-50G have been adequately solved must be demonstrated in another graded exercise.

12. Subcontention EX-50H

Subcontention EX-50H alleges that LERO personnel are not adequately trained in the area of dosimetry, radiation exposure control, KI use, understanding of radiation terminology, and related areas. Consequently LERO personnel cannot assist members of the public and non-LILCO personnel who are relied upon to help implement the Plan during an emergency as SNP, and who would expect LERO personnel to be able to respond accurately and effectively concerning these subjects. Suffolk cites Contentions EX-42 and EX-45 and several ARCAs identified by FEMA as providing support for Subcontention EX-50H. Suffolk Exh. 95 at 186-87.

Other examples cited by Suffolk in support of EX-50H were the following:

- A LERO Route Alert Driver who thought he would receive KI authorization in an EBS message. [*Id.* at 192; *see* FEMA Report at xvi, 69-70.]
- Traffic Guides at two TCPs who did not know dose authorization limits. [Suffolk Exh. 95 at 193; *see* FEMA Report at 70.]
- Traffic Guides at two TCPs who did not fully understand the chain of command for excess exposure authorization, plus some Traffic Guides who indicated that they might question the authority of the Lead Traffic Guide to issue the authorization for excess exposure. [Suffolk Exh. 95 at 193.]
- Two of the eight Traffic Guides observed by FEMA who did not fully understand the difference between low-range and mid-range direct reading dosimeters (DRDs). [*Id.*; *see* FEMA Report at 76.]
- The Patchogue Bus Dispatcher who misinformed bus drivers when instructing them via bull horn on how to read their dosimeters. [Suffolk Exh. 95 at 193; *see* FEMA Report at 68, 69.]

Suffolk's witnesses argued that these few examples are significant because of the small number of LERO workers observed by FEMA. They believe that the existence of so many training deficiencies in the small number of workers evaluated by FEMA suggests that such problems are widespread. Suffolk Exh. 95 at 193-94.

LILCO's witnesses contend, on the other hand, that Suffolk has cited only minor examples of individual failures, and argue that instances of field workers not reading the dosimetry or ingesting their KI would not impair protection of the public health and safety. They do not believe that these breaches in personal radiological procedures by LERO personnel individually or collectively demonstrate a flaw in the LILCO training program. LILCO EX-50 Testimony at 62. Nevertheless, because LILCO is concerned about the safety of its personnel, it has made several modifications in its personnel dosimetry and exposure control training to emphasize to trainees the importance of reading dosimetry,

of knowing when to take KI, and of knowing who and by what means excess radiation exposure is authorized. *Id.*

LILCO's witnesses argue also that dosimetry and related areas are generally a problem at FEMA exercises because people find it difficult to remember detailed information that they rarely use. LERO's post-Exercise approach to correcting this problem has been to issue Identification Badges to all LERO workers to be worn on the outer garments for easy identification. On the back of the badges, personal radiological protection procedures are listed for quick reference in the field. *Id.* Thus, eliminating the need to memorize dose limits plus increasing the emphasis in training on personal radiological procedures will, LILCO's witnesses believe, be an effective solution to the problem. *Id.* at 62-63.

LILCO's witnesses also do not believe that Contention EX-42, one of two contentions cited by Suffolk as supporting Subcontention EX-50H, in fact supports EX-50H. LILCO points out that only subpart D of EX-42 is relevant. It notes that three Traffic Guides did not understand the procedures for excess exposure. *Id.* at 63; Tr. 5705. Since FEMA questioned thirty-three Traffic Guides about dosimetry, these three isolated instances do not demonstrate a programmatic flaw in LERO training, according the LILCO. LILCO EX-50 Testimony at 63.

Similarly, LILCO believes that the other contention cited by Suffolk, Contention EX-45, has a single relevant subpart, subpart H, dealing with personal radiological procedures. It alleges that the Bus Dispatcher at Patchogue made inaccurate announcements to bus drivers about dosimetry. LILCO argues that it is untrue that he made inaccurate statements; rather he failed to be complete and precise. Moreover, they state that the Dispatcher was only quickly refreshing the drivers' memories just before their departure about comprehensive dosimetry instructions they had received only minutes earlier. But even if Suffolk's allegations were true, LILCO does not believe that Contention EX-45G, either alone or in combination with other "sporadic instances" demonstrates a flaw in LERO's training in dosimetry, KI use, or procedures for excess dose authorization. *Id.* at 63-64.

Although FEMA found that most of the emergency workers it evaluated demonstrated knowledge of use of dosimetry and actions required in response to certain radiation-level readings, it nevertheless did not view the Patchogue Bus Dispatcher's instructions to drivers as lightly as LILCO would have us view them. It assigned an ARCA because of his performance. FEMA Exh. 1 at 68-69. It also assigned an ARCA because one evacuation route Bus Driver read DRDs only twice, when instructed to do so by the Transfer Point Coordinator, while another read his DRDs only when it was convenient. *Id.* FEMA also assigned ARCAs because Traffic Guides at two TCPs did not know dose authorization limits, because a Route Alert Driver believed that he would receive KI authorization in an EBS message, and because Traffic Guides at two TCPs did

not fully understand that the Lead Traffic Guide had the authority to authorize excess exposure by radio and some Traffic Guides indicated that they might question this authority. *Id.* at 70. FEMA also assigned ARCAs because two of eight Traffic Guides observed at Riverhead did not fully understand the difference between low- and mid-range DRDs. *Id.* at 77. An ARCA was also assigned at Riverhead because one Bus Driver simulated ingestion of his KI prematurely, before he was assigned an evacuation route. *Id.* For all of these ARCAs, FEMA's recommendation called for additional training. *Id.* at 69-70, 77. Under cross-examination, FEMA's witnesses stated that the problems with knowledge of dosimetry and use of KI observed during the Exercise were similar in nature to those identified at other sites in New Jersey and New York State.[56] Tr. 8535. In response to LILCO's claim that problems with dosimetry are a general problem in FEMA exercises, which FEMA's testimony would seem to suggest, Suffolk stated that a review of all other Region II exercises demonstrated that there were more dosimetry-related problems at Shoreham than at virtually any other exercise. Suffolk Proposed Finding 792 at 570; *see* Suffolk Exhs. 62-80.

The NRC Staff would have us find that the lack of knowledge concerning personal radiation protection was pervasive, but these problems do not directly affect the health and safety of the public. Staff suggests, further, that the problem appears to be readily correctable through the use of the ID badge information aids and more training. Staff also agrees with LILCO's witnesses Lindell and Mileti, who, when asked why they thought LERO workers would look at the back of the badges when they forgot to even look at their personal dosimeters, stated that in a real emergency LERO workers would look at their badges and dosimeters because of concern for their own safety. Tr. 5200-02.

Conclusions on Subcontention EX-50H. The fact that FEMA believes that all of the ARCAs it identified with respect to radiation dosimetry, KI use, and procedures for excess dose authorization can be corrected by more and/or better training leads us ineluctably to the conclusion that LILCO's training prior to the Exercise was somewhat inadequate. The fact that most of the LERO workers demonstrated satisfactory knowledge about these matters indicates that the training program was not totally flawed, but obviously it needed to be improved. Whether the measures that LILCO has instituted to respond to FEMA's criticisms are adequate remains to be demonstrated by another graded exercise. We agree with the Staff, however, that the lack of adequate knowledge about personal radiation protection by LERO workers should not directly affect

[56] FEMA's witnesses distinguished the problems with knowledge of dosimetry and KI from the problems with the road impediments, however, because counties in the State of New York generally handle impediments very well. Tr. 8535-36.

the public health and safety. Therefore the training problem relating to personal radiation protection is not a fundamental flaw in the LILCO Plan.

13. Subcontention EX-50I

Subcontention EX-50I alleges that LILCO's post-Exercise modifications to its training program intended to correct the problems identified in the FEMA Report will not be successful in correcting the problems revealed by the Exercise. Suffolk Exh. 95 at 196; LILCO EX-50 Testimony at 64. Suffolk's witnesses testified that they were familiar with SNRC-1269, which lists the modifications LILCO has made to the training program in response to FEMA's findings, and with a few minor changes to the training program in addition to those listed in SNRC-1269. Suffolk Exh. 95 at 197.

Suffolk believes that the minor changes in the training program proposed and implemented since the Exercise will not solve the "many problems in LILCO's program" because the training program is conceptually no different than it was when first implemented 3 years ago. *Id.* at 198. Suffolk's witnesses cited several examples of changes that they think will be ineffective. For example, they state that LILCO now proposes to tell trainees during classroom lectures and tabletop drills to be "aware" of the particular jobs and the functions they need to perform. Suffolk's witnesses view this as merely repeating what the LERO workers have already been told during 3 years of prior training. Another example of a minor change is the creation by LILCO of "action diagrams" which Suffolk's witnesses characterize as nothing more than charts depicting job tasks of LERO personnel that are highlighted in different colors. They suggest that LILCO's training materials must already have contained information which depicted job tasks. *Id.* at 199. Changes such as these, in the opinion of Suffolk's witnesses, do nothing more than tell LERO personnel what to do, which LILCO has been doing for 3 years of prior training. They do not teach personnel how to accomplish their jobs or institute learning by doing, which Suffolk thinks is what is needed. Suffolk thinks that LILCO's training methodology is no different than it has been for the past 3 years, and consequently there is no basis to conclude that the training program will be any more successful in the future. *Id.* at 199-200.

Suffolk supported its view by citing several post-Exercise drills in which dosimetry-related problems occurred. Suffolk Proposed Finding 793 at 571. During the June 6, 1986 drill several Traffic Guides were still not clear on the procedure regarding reaching certain exposure levels. *Id.* at 572 n.538; *see* Suffolk Exh. 96, Attach. 7 at 6. During the September 10, 1986 drill, of nine Traffic Guides questioned, most were unaware of the maximum allowable dose and the procedures governing the use of KI. Suffolk Proposed Finding 793 at 572 n.538; *see* Suffolk Exh. 96, Attach. 8 at 4-5. In addition, two Road Crews

were unaware of the procedures for use of dosimetry and maximum exposure allowances. Suffolk Exh. 96, Attach. 8 at 6. During the September 17, 1986 drill the distribution of dosimetry was not well controlled, and many LERO workers arrived at the dosimetry briefings near the end of the session and were not afforded the benefit of a complete briefing. *Id.* at 8. During the October 1, 1986 drill again there were LERO personnel who were unclear as to dose authorization. Suffolk Proposed Finding 793 at 572 n.538; *see* Suffolk Exh. 91a at 7. Finally, during the December 10, 1986 drill it was observed that one member of a two-man Road Crew failed to use his dosimeter. Suffolk Exh. 93c at 5.

LILCO pointed out in its reply to the proposed findings of the Intervenors and Staff that the LERO badges with the dosimetry information on the back were not provided until the December 1986 drills. LILCO Reply Findings at 181. Further, during the December 10 drill a Field Controller observing two TCPs noted that the LERO workers simulated reading their dosimetry every 15 minutes and that they were aware of the information on the back of their badges. *Id.; see* Suffolk Exh. 93a at 6. Moreover, during both the December 2 and 10 drills, Field Controllers observing various locations (Transfer Points and TCPs) reported that LERO workers were reading their dosimeters every 15 minutes and were aware of their usage and limits. Suffolk Exh. 96, Attach. 9 at 40.

The NRC Staff, in its proposed findings, noted that LILCO had treated the problems observed during Exercise in responding to road impediments as deficiencies in training for road impediments, rather than as deficiencies in responding generically to unexpected events. Staff Proposed Finding 487 at 181-82. While the Staff agrees with Suffolk that repeated drills on slightly different road impediment scenarios introduce little in the way of surprise, this kind of repetition was in fact a form of "learning-by-doing" training that has been emphasized by Suffolk's witnesses. Staff Proposed Finding 477 at 181; *see* Suffolk Exh. 95 at 80-89, 93; Tr. 6768-72. Staff believes that this repetition has shown some positive results. It notes that, following the problems in the June 1986 drills, response to the road impediments improved substantially in the September/October 1986 drills. Staff Proposed Finding 489 at 182; *see* Suffolk Exh. 96, Attachs. 7, 8. Staff also noted that while LILCO pointed to good responses to impediments during the December 1986 drills, there was a delay in response to one of the four impediments and communication problems on another. Staff Proposed Finding 489 at 182; *see* LILCO EX-50 Testimony at 71; Suffolk Exh. 96, Attach. 9 at 4. Staff notes that LILCO's observation of Traffic Guide performance during the June, September, and October drills was favorable. Staff Proposed Finding 490 at 182; *see* Suffolk Exh. 96, Attachs. 7, 8. In the December drills, dispatch of Traffic Guides, Bus Drivers, and other field workers appeared to be timely. Suffolk Exh. 96, Attach. 9 at 18-26. Finally,

remedial "road rallies" of bus drivers continued through the December drills, but they were not evaluated. *Id.* at 42; *see* LILCO EX-50 Testimony at 72-73. Staff believes that these apparent improvements lend credence to the correctability of the deficiencies in knowledge exhibited during the Exercise and in the ability to handle road impediments. Staff also believes that the post-Exercise drill evidence tends to show greater emphasis on "learning by doing." Nevertheless, because the drills were observed by neither FEMA nor Suffolk County, but only by LILCO contractors, Staff does not think decisive weight can be accorded the evidence from the post-Exercise drills. Staff Proposed Finding 491 at 183.

Staff points out, however, that even LILCO acknowledges that training problems found in the Exercise have persisted. For example, according to LILCO's witness Behr, dispatch problems at staging areas continue to be an area of concern. Staff Proposed Finding 493 at 183; *see* Tr. 5786-87. More significantly, LILCO acknowledged that response and communication problems continued in the June, September, and October drills. Staff Proposed Finding 493 at 183; *see* Tr. 5758-59, 5769, 5784 (Behr), 5772-73 (Daverio). Staff notes that while the December drill "may have shown improvement," communications problems still occurred in dealing with the brush fire and truck impediments. Staff Proposed Finding 493 at 184.

Staff concludes by observing that over 1000 LERO personnel were mobilized for the Exercise, and this was only one of three shifts. Staff Proposed Finding 494 at 184; *see* LILCO EX-50 Testimony at 10. Although LILCO's training program conducts quarterly drills, because of the size of LERO, individuals receive training only annually. Staff Proposed Finding 494 at 184; *see* Tr. 5725. In addition to the burden of training so many, it is more difficult to train LERO personnel to be emergency response workers for a nuclear accident than it is to train persons who regularly perform emergency response work. Staff Proposed Finding 494 at 184; *see* Tr. 4465 (Behr), Tr. 5137 (Mileti). Staff observes, further, that unlike police or fire department personnel, who interact as respondents to emergencies on a regular basis, the LERO organization is intermittent in nature, drilling for emergency response only periodically. Staff Proposed Finding 495 at 184-85; *see* Suffolk Exh. 95 at 206; Tr. 6425 (Perrow). Staff believes that there is some evidence that LILCO's post-Exercise training efforts have paid dividends. Nevertheless, the FEMA Deficiency findings, and evidence of continuing problems in effective communication and in dealing with the large span of control at the staging areas, particularly in nonroutine situations, have raised substantial doubt in the minds of the Staff about whether LILCO's training program has been intense enough to overcome the burdens placed upon LERO. Staff Proposed Finding 495 at 185. Because of substantial doubt that LERO personnel have sufficient training to communicate and respond effectively to a major unanticipated problem, plus substantial questions about the timely dispatch of LERO Traffic Guides, Bus Drivers, and other emergency

workers and their prompt performance of their tasks, Staff finds that there is not at this time reasonable assurance that adequate protective measures can and will be taken in the event of an emergency at SNPS. Staff Proposed Finding 496 at 185-86.

Conclusion on Subcontention EX-50I. We agree with the NRC Staff. The evidence before us in this proceeding, while suggesting that there may have been some improvement in LERO's performance since the February 13, 1986 Exercise, generates substantial doubt that LERO personnel have been adequately trained in the areas of communication, responding to unanticipated events, and timely dispatch of and prompt performance of duties by emergency field workers, especially Traffic Guides and Bus Drivers. Although these problems can probably be corrected, we are not convinced that they have indeed been corrected. LILCO's training program, therefore, is fundamentally flawed in teaching emergency communication and the timely dispatch and response of field personnel.

14. Overall Conclusion on Contention EX-50

Deficiencies in the following areas, which are significant to the ability of LERO to implement the LILCO Plan, were found during the Exercise and were not demonstrated to have been compensated for or corrected:

(1) training for, and execution of internal communications within the LERO command structure and between that structure and field personnel in response to unexpected events;

(2) basic knowledge of Traffic Guides and Bus Drivers of their assigned functions; and

(3) training for timely and prompt response of Traffic Guides, Bus Drivers, Route Spotters, and Road Crews in the performance of their emergency tasks.

These deficiencies in LILCO's training program preclude a finding of reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at SNPS and therefore constitute a fundamental flaw in the Plan. A finding of reasonable assurance must await further demonstration in a FEMA-graded exercise of those portions of the Plan where deficiencies were found that corrective measures have been adequate.

III. CONCLUSION

For the reasons indicated above, we have concluded that fundamental flaws were demonstrated by the February 13, 1986 Exercise of the offsite emergency plan for the Shoreham Nuclear Power Station. We summarize those flaws below.

1. Flaws relating to communications were demonstrated:
   a. Within the EOC in that the Evacuation Route Coordinator did not inform his superiors or co-workers of the traffic impediments on receipt of the free-play messages, did not include complete information on the impediments in the messages relayed to the route spotters, and did not request the prompt dispatch of one route spotter to verify one impediment;
   b. Among field workers in that the plan does not permit such lateral communications;
   c. At the ENC in that LERO was unable to furnish timely information on protective action recommendations in the form of EBS messages to the media and to rumor control, and was unable to accurately respond to questions concerning the traffic impediments and protective action recommendations at news conferences; and
   d. In the EBS messages in that they contained some conflicting information concerning protective action recommendations and were, in some respects, confusing in their discussion of doses, releases, and emergency classifications.

2. A flaw was demonstrated in that large numbers of Traffic Control Posts were not staffed until well after traffic congestion would have occurred.

3. Flaws in the training program were demonstrated in the areas of communications, functions of Traffic Guides and Bus Drivers, and prompt response of field personnel.

In its proposed conclusions of law, Staff urges that:

> A finding of reasonable assurance must await further demonstration in a FEMA-graded exercise or drill of those portions of the Plan where deficiencies were found, in order to show the adequacy of corrective measures.

Staff's Proposed Findings at 187. Staff believes that we should retain jurisdiction until such corrective measures are completed, although it has not elaborated on this position or addressed the Commission's mandate to us contained in CLI-85-11, 23 NRC 577 (1986). The other parties have not addressed this question at all. Before reaching a decision on this limited issue, we wish to have the views of all the parties. Consequently, we retain jurisdiction in order to decide whether the Commission's mandate requires that we pass on LILCO's efforts to correct the flaws we have found, and direct that the parties, including Staff, furnish us with their views within 15 days following service of this Initial Decision.

In accord with 10 C.F.R. § 2.760(a), this Initial Decision will constitute the final action of the Nuclear Regulatory Commission thirty (30) days after its date unless an appeal is taken. In accord with 10 C.F.R. § 2.762(a), any party may

take an appeal by filing a notice of appeal within ten (10) days after service of this Initial Decision.

THE ATOMIC SAFETY AND
LICENSING BOARD

Frederick J. Shon
ADMINISTRATIVE JUDGE

Oscar H. Paris
ADMINISTRATIVE JUDGE

Bethesda, Maryland
February 1, 1988

Separate Opinion of Judge Frye:

While I am in agreement with the bulk of the conclusions reached in this Initial Decision, I find it necessary to note my separate views with regard to the following points.

COMMUNICATIONS

I must respectfully dissent from one of the conclusions reached with regard to Contention EX-41B. This conclusion concerns the communications breakdown experienced by LERO in its response to the two traffic impediments inserted into the exercise by free-play messages. While I concur that such a breakdown did occur and that it amounts to a fundamental flaw, I believe that one of the conclusions reached with respect to that fundamental flaw is not supported by the record. Specifically, I find no support in the record for the conclusion that the exercise demonstrated that the communications structure set up by the plan is itself flawed.

In reaching this conclusion, my colleagues correctly note that the communications system approved in the PID is an administrative one that permits communication vertically only, rather than laterally among field workers. I agree that the endorsement of this system in the PID was less than enthusiastic. However, I part company with my colleagues with respect to their conclusion that the exercise demonstrated that lateral communications among field workers are necessary in order to adequately respond to an "emergency-within-an-emergency."

The Exercise demonstrated that both lateral and vertical communications *within the EOC* were flawed. The communications breakdowns all occurred within the EOC. Once the problems that resulted from those breakdowns were overcome, LERO's response to the impediments was adequate. There simply is no indication in this record that the plan requirement that field workers communicate only with their superiors, rather than with each other, in any way hampered the response to the impediments. Indeed, FEMA's deficiency assigned to this matter is carefully limited to communications within the EOC.

While I can readily agree that the plan's vertical communications system is less desirable than a system that permits both lateral and vertical communications, I cannot conclude that the exercise demonstrated that the plan is fundamentally flawed because of its failure to provide for the latter.

Similarly, I must also dissent from my colleagues' conclusion on Contention EX-41E. In doing so, I note that all parties to this proceeding appear to agree that the addition of a Traffic Engineer at the EOC has nothing whatever to do with the communications problems revealed by the exercise. Moreover, this appears to be so even under the view of those problems adopted by my colleagues. Consequently, Contention EX-41E does not present a dispute that warrants a conclusion.

TRAINING

In their discussion of Contention EX-50, my colleagues correctly note that the issue of the adequacy of LILCO's training program was a question left open by the prior Licensing Board. In the PID, the Licensing Board tentatively concluded that LILCO's training program met the regulatory standards, but that conclusion was expressly:

> made subject to confirmation by a finding, to be made by FEMA after a graded exercise, that the Plan can be satisfactorily implemented with the training program submitted and that LILCO possesses an adequate number of trained LERO workers.

PID, 21 NRC at 756. No such finding was made by FEMA. Tr. 8296-97 (Kowieski); FEMA Exh. 1; Suffolk Exh. 95 at 35 n.16. Intervenors maintain that we must decide whether LILCO's Plan can be satisfactorily implemented with the training program that is part of that Plan. Intervenors' Proposed Findings at 494-95. LILCO and Staff believe that this position amounts to a relitigation of planning issues resolved in the PID. LILCO Reply Findings, Vol. II, at 153 (Reply to Intervenors' Proposed Finding 678); Staff Proposed Findings at 147.

In my opinion, this proceeding is not concerned with whether the LILCO training program meets each aspect of the regulatory standard. That issue was addressed in the PID, where that program was found to be adequate subject to

confirmation by FEMA. The condition imposed in the PID that FEMA verify that the plan can be satisfactorily implemented with the existing training program remains in full force and effect; FEMA's failure to make such a finding does not dictate that we take that responsibility on ourselves.

Rather, in this proceeding, the inquiry is whether there are systemic or pervasive problems in performance, amenable to correction by training, that raise legitimate doubt as to whether there is reasonable assurance that in the event of an emergency, LERO could implement adequate protective measures to protect the public. Existence of such doubt would indicate that the training program was fundamentally flawed.

In their discussion of Contention EX-50, my colleagues appear to have accepted Intervenors' position and reviewed the training program for adequacy. In addition, they have concluded that the exercise demonstrated that LILCO's training program is fundamentally flawed. Their ultimate conclusion is stated as follows:

> Overall Conclusion on Contention 50. Deficiencies in the following areas, which are significant to the ability of LERO to implement the LILCO Plan, were found during the Exercise and were not demonstrated to have been compensated for or corrected:
>
> (1) training for, and execution of internal communications within the LERO command structure and between that structure and field personnel in response to unexpected events;
>
> (2) basic knowledge of Traffic Guides and Bus Drivers of their assigned functions; and
>
> (3) training for timely and prompt response of Traffic Guides, Bus Drivers, Route Spotters, and Road Crews in the performance of their emergency tasks.
>
> These deficiencies in LILCO's training program preclude a finding of reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at SNPS and therefore constitute a fundamental flaw in the Plan. A finding of reasonable assurance must await further demonstration in a FEMA-graded exercise of those portions of the Plan where deficiencies were found that corrective measures have been adequate.

While I do not concur in all of the conclusions reached with respect to Subcontentions EX-50A through I, I do concur with the ultimate conclusion stated above. I view this conclusion as the definitive statement of the ways in which the training program is fundamentally flawed, and offer the following additional views in its support.[57]

In my view, the failures that are not encompassed by the above statement are not significant enough to demonstrate fundamental flaws in the training

[57] My colleagues concur with these additional supporting views.

program. Indeed, many of them have been reviewed in connection with the performance contentions and found not to constitute fundamental flaws.

In their approach to Contention EX-50, Intervenors have viewed virtually every failure that occurred during the Exercise as illustrating the need for improved training. They have addressed these failures under the subcontentions, each of which alleges that the training program is flawed in a particular manner. There is, as a result, a considerable amount of redundancy in that particular failures are cited as supporting more than one subcontention. The failures which, in my opinion, rise to the level of indicating a flaw in the training program are summarized by my colleagues' statement quoted above. I do not believe it significant that Intervenors may have cited these failures as support for more than one subcontention.

LILCO's communications problems were highlighted by the exercise. Indeed, all of the fundamental performance flaws revealed by the exercise save one were directly related to communications problems.[58] Accurate communication is essential to an effective emergency response. Clearly LILCO has much to do to remedy its communications problems. Whether it can do so will depend upon whether its training program can be significantly improved.

LILCO believes that the flaws found with respect to the basic knowledge of Traffic Guides and Bus Drivers and the promptness of the former as well as Road Crews and Route Spotters in the performance of their tasks are based on matters not explored on the record. It views the flaw related to the delayed dispatch of Traffic Guides, Bus Drivers, Road Crews, and Route Spotters to be based on an inappropriate aggregation of mobilization and response tasks, which, when properly viewed, do not reveal a pattern of failures. It believes that the delays in mobilizing Traffic Guides and Bus Drivers were *ad hoc* and not a part of a pattern. LILCO Reply Findings, Vol. 1, at 63-65.

LILCO may be correct that the promptness of Route Spotters was not extensively discussed in the record. The delay in staffing Traffic Control Points by the Traffic Guides resulted in our finding a fundamental flaw. We considered Road Crew performance under Contention EX-41A and found their response tardy, although we did not conclude that a fundamental flaw was demonstrated. There is evidence in the record concerning the promptness of Bus Drivers. *See* FEMA Exh. 1 at 62-63. In these circumstances, LILCO's objection is not well taken. While it may be true that these matters were not discussed under the rubric of a particular subcontention to which LILCO believes they relate, they were discussed. It would be inappropriate to ignore them on the ground that they were mislabeled.

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[58] The fundamental flaw not related to communications concerned the staffing of Traffic Control Posts raised by Contention EX-40B.

While the evidence with regard to the Road Crews, Bus Drivers, and Route Spotters considered separately is not, in my opinion, sufficient to fault the training program for any particular category of emergency worker, the evidence must be considered as a part of a whole. To consider evidence with regard to each emergency worker category in isolation would create an artificial distinction. There is ample evidence that emergency field workers did not respond promptly to support the finding of a fundamental flaw; improvements in the training program in this regard should not be limited to particular categories of workers.

Similarly in my opinion, LILCO's arguments regarding the inappropriate mixing of mobilization and response tasks also would create an artificial distinction. LILCO may well be correct that such distinctions need to be made in considering specific improvements to the training program. However, they are not appropriate in considering whether that program is flawed. The record demonstrates that the training program needs to be improved; distinctions between mobilization and response tasks can be considered in addressing the details of the improvements.

LILCO concedes that problems were revealed with respect to the Bus Drivers' knowledge of their jobs but argues that these failures do not fall into a pattern and, in any event, because of the plan's redundant and diverse response mechanisms, do not impact the public health and safety. LILCO Reply Findings, Vol. 1, at 66. While redundancy and diversity are useful concepts to mitigate the consequences of such failures, they do not excuse faulty training. A substantial number of the drivers observed failed to adequately perform their tasks; a flaw in their training was demonstrated.

Although it concedes that the Traffic Guides were largely unable to direct evacuees to the Nassau Coliseum, LILCO does not think it appropriate to charge the Traffic Guides with this responsibility. It states that the Guides' procedures have never covered the provision of information to evacuees and that these procedures have never been criticized on this score. LILCO points out that, at most, the Guides are a backup to the EBS system in this respect. *Id.* at 66.

LILCO may well be correct that Traffic Guides are not considered a source of information for the evacuating public under the plan. Nonetheless, Staff observes that their inability to provide such basic information as the location of the Nassau Coliseum indicates a failure in their training. *See* Staff Proposed Findings at 175. This observation appears to me to be beyond question.

Subject to the above exceptions, I fully endorse this Initial Decision.

John H Frye, III, Chairman
ADMINISTRATIVE JUDGE

Bethesda, Maryland
February 1, 1988

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judge:

Charles Bechhoefer

In the Matter of

Docket No. 30-12688-MLA
(ASLBP No. 87-556-02-MLA-R)

RADIOLOGY ULTRASOUND NUCLEAR CONSULTANTS, P.A.
(Strontium-90 Applicator)

February 2, 1988

In response to a remand from the Commission to consider whether certain new information warranted reopening the record in an informal byproduct materials license proceeding, the Presiding Officer rules that, technically, the record should be reopened to admit new information submitted by the Applicant and responsive information submitted by the Staff, but that the new information is not sufficient to warrant a change in the result reached by the Presiding Officer in his earlier Decision (LBP-87-4, 25 NRC 79 (1987)). The Presiding Officer also rules that the Applicant failed to provide adequate justification for holding an oral presentation. The Presiding Officer reaffirms his earlier affirmation of the Staff's denial of a proposed license to authorize use of a strontium-90 applicator by a physician for the treatment of malignant skin lesions.

RULES OF PRACTICE: REOPENING OF PROCEEDINGS

In an informal proceeding, it is appropriate to refer to the standards set forth in 10 C.F.R. § 2.734 to determine whether a record should be reopened.

RULES OF PRACTICE: INFORMAL HEARINGS

A hearing based solely upon written submissions is the preferred method for developing the record in an informal proceeding. An oral presentation may be used when necessary or desirable for a full development of the record.

MATERIALS LICENSE UNDER PART 35: STANDARDS

Under the Commission's February 9, 1979 Statement of General Policy, a proposed therapeutic use of strontium-90 must be demonstrated to be "safe and effective."

MEMORANDUM AND ORDER
(Reaffirming Decision)

This proceeding involves an application by Radiology Ultrasound Nuclear Consultants, P.A. (RUNC or Applicant) for a license amendment to its existing byproduct materials license to permit it to use a strontium-90 (Sr^{90}) plaque applicator for the treatment of malignant skin lesions. Pending before me is a motion to reopen the record, filed subsequent to the issuance of my February 9, 1987 Decision, LBP-87-4, 25 NRC 79, which affirmed the NRC Staff's license denial.

For reasons set forth below, I find that there is not enough new substantive information before me to warrant a change in my prior Decision. I am reopening the record for technical reasons, to admit the additional information submitted by both RUNC and the NRC Staff. Based on the enhanced record, I am modifying my previous Decision to make some nonsubstantive changes and, as so modified, am reaffirming my earlier Decision.

I. PROCEDURAL DEVELOPMENTS

The procedural background of this proceeding is set forth in my previous Decision, 25 NRC at 81-83, and need not be repeated. Suffice it to say that, in issuing my February 9, 1987 Decision, I noted that RUNC had failed to respond to questions that I had previously posed to it and that those answers were necessary for me to reach an informed decision on RUNC's application. Thereafter, on February 24, 1987, RUNC belatedly responded to my questions. Because I had lost jurisdiction to consider those answers, I forwarded the information to the Commission, which still retained jurisdiction. *See* my Memorandum to the NRC Docketing and Service Branch, dated March 3, 1987.

By Order dated September 11, 1987, the Commission construed the responses to my questions as a motion to reopen the record and remanded the proceeding to me to consider whether the record should be reopened. The Commission Order cited the standards in 10 C.F.R. § 2.734 as those to be utilized by me in making that determination. In my Memorandum and Order (Information Relative to Motion to Reopen Record), dated September 29, 1987 (unpublished), I treated RUNC's responses to my questions as a motion to reopen the record,[1] and I invited the Staff's response. I also posed several questions to the Staff.

The Staff filed its response on October 20, 1987. That response, which was supported by the affidavit of Dr. John E. Glenn, Chief, Nuclear Materials Safety Section B, Region I, U.S. Nuclear Regulatory Commission,[2] recommended against reopening the record. It also responded to my questions and advanced a suggestion for a technical change in one footnote of my February 9, 1987 Decision.

By Order dated October 22, 1987, I invited RUNC to file a reply to the Staff's filing. Additionally, I specified three particular matters in the Staff's response that RUNC should address. RUNC's reply was to be filed by November 6, 1987. By letter dated October 29, 1987, RUNC sought a 1-month extension of time to file its reply. It also reiterated a request (earlier filed on October 5, 1987) for an oral presentation. By Order dated November 4, 1987 (unpublished), I granted RUNC's request for an extension of time to reply to the Staff, until December 7, 1987. I also requested RUNC to amplify its reasons for seeking an oral presentation and to spell out in detail the substantive information that it could "develop more effectively at an oral presentation than it could otherwise present in writing."

By letter dated November 23, 1987, RUNC set forth additional reasons, largely procedural in nature, why it wished an oral presentation. RUNC did not identify any substantive information that it would attempt to develop at an oral presentation. Moreover, RUNC has not filed a reply to the Staff's response — notwithstanding its having obtained an extension of time to do so — and also has not addressed in any of its filings the three particular matters about which I inquired in my October 22, 1987 Order.

II. ADDITIONAL REGULATORY REQUIREMENTS

The regulatory requirements set forth in Part II of my earlier Decision, 25 NRC at 83-86, remain applicable to this proceeding. The standards governing

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[1] Hereinafter "RUNC Motion."

[2] Hereinafter "Staff Aff. III." The first two Staff affidavits (also by Dr. Glenn) were filed earlier in the proceeding. *See* Decision, LBP-87-4, *supra*, 25 NRC at 81 n.1.

motions to reopen the record which I am to apply to this proceeding (by virtue of the Commission's September 11, 1987 Order) are set forth at 10 C.F.R. § 2.734. The substantive criteria for reopening a record (which are set forth in that section and which I previously quoted in my September 29, 1987 Memorandum and Order) are as follows:

> (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.

Certain other regulatory provisions of § 2.734 relate to the format and certain other technical aspects of motions to reopen, rather than to the substantive criteria for reopening. As the Staff observes (October 20, 1987 Response at 3 n.2), because RUNC's submission is not in fact a motion but is being considered as such by virtue of the Commission Order, the technical requirements relating to motions are not applicable and need not be addressed.

III. Opinion

A. The first two of the three standards for reopening a record are not difficult to apply to this proceeding. It is clear, with respect to the first criterion, that RUNC's motion to reopen the record was not timely submitted. If RUNC had answered the questions that I posed in a timely fashion, there would have been no need for me even to consider reopening the record. The delay of more than 2 months in answering my questions — indeed, until after I had issued my Decision that denied RUNC's license partially on the basis of a lack of information from RUNC on aspects of its application as to which I had inquired in my questions — was patently excessive.

However, as the Staff points out,[3] by directing that RUNC's responses to my questions be treated as a motion to reopen the record, the Commission appears to have taken the position that the timeliness question should not be controlling. That being so, for the purposes of RUNC's motion, I will consider the first of the reopening criteria to have been satisfied.

It is also clear that RUNC's motion satisfies the second of the reopening criteria. The information provided bears on how lesions to be treated are to be selected and, hence, for the particular lesion, whether the treatment will satisfy the "safe and effective" licensing standard. The failure of RUNC's application

[3] NRC Response to Memorandum and Order, dated October 20, 1987 (NRC Staff Response), at 3 n.2.

to demonstrate that the proposed use of the Sr^{90} applicator met that standard was the primary reason why I affirmed the Staff's license denial.

B. The significant inquiry for determining whether this record should be reopened is whether a materially different result would have been likely had the proffered evidence been considered prior to the rendering of my earlier Decision. On its face, the material submitted by RUNC purports to establish a method or methods for ascertaining which lesions can be treated effectively, and hence would be selected for treatment with the Sr^{90} applicator. If I had before me information suggesting that lesions for which treatment might be effective could be readily differentiated from those for which treatment would not likely be effective, I might well have reached a different result in my earlier Decision. That being so, the record should be reopened to admit this potentially significant information. But the responsive information submitted by the Staff raises substantial questions concerning the efficacy of the methods proposed by RUNC and hence effectively undercuts the information provided by RUNC. The record should similarly be reopened to admit the Staff's responsive information.

The questions posed to RUNC in my Order of October 22, 1987, sought to resolve certain of the matters raised by the Staff. RUNC has not responded to those questions, despite my having granted it an extension of time to do so (until December 7, 1987, the date sought by RUNC). (RUNC never sought a further extension of that filing date.)

For the reasons set forth below, I find that RUNC has not met its obligation to demonstrate that its proposed usage of the Sr^{90} applicator is "safe and effective":

1. In my earlier Decision, I determined that the Sr^{90} therapy proposed by RUNC would be "safe and effective" for thin lesions of up to 1 or 1.5 mm in thickness, but not for lesions of a greater thickness. 25 NRC at 92. I also observed that RUNC had not proposed a satisfactory method of segregating lesions for which the proposed treatments would be effective — noting that certain of my questions that RUNC failed to answer were directed toward ascertaining whether RUNC would rely on an appropriate methodology for segregating the lesions. *Id.* at 93. In its response which forms the basis for the motion to reopen, RUNC sets forth two methods of determining which lesions are to be treated with Sr^{90} applicator.

The first method is by a "biopsy specimen of *one* of the lesions," with review by a pathologist.[4] The Staff indicates that this method is reliable but that no justification had been advanced for assuming the thickness of multiple lesions based on the measurement of a single lesion.[5] In my Order of October 22, 1987, I asked RUNC whether it intended to measure each individual lesion by biopsy. RUNC has provided no response to this inquiry. Given the statement in

[4] RUNC Motion at 2 (emphasis supplied).
[5] Staff Aff. III, ¶ 6.

RUNC's motion, as well as the potentially disfiguring appearance which (in my opinion) might result from multiple biopsies in close proximity to each other, I will assume (as did the Staff) that RUNC does not intend to perform separate biopsies on such multiple lesions. The record, as it stands, can support no other conclusion. Indeed, in my opinion, the multiple biopsies might produce effects similar to those produced by alternate surgical methods for treating cancerous lesions and hence could eliminate the most persuasive reason advanced by RUNC for using the Sr^{90} applicator to treat multiple skin lesions.

The other method advanced by RUNC for segregating lesions suitable for treatment with the Sr^{90} applicator is described as follows:

> An experienced radiotherapist can grossly estimate the thickness of a superficial tumor by plicating the skin and feeling it with the finger.[6]

RUNC adds, however, that "[t]he estimation of the thickness of the lesion by palpation with the finger is approximative."[7]

The Staff views this method as too inaccurate to serve as an appropriate method for identifying those lesions that can be appropriately treated with the Sr^{90} applicator. It asserts that plicating cannot distinguish potentially significant variations of 0.5 mm (approximately 0.02 inch) or less between lesions; absent further explanation, the Staff had an insufficient basis to accept that method of measuring.[8]

To explore whether such a basis might exist, I invited RUNC to provide "additional explanation of how variations in thickness of up to 0.5 mm may be detected" by plicating.[9] As noted earlier, RUNC has not responded to my inquiry.

Based on the record before me, I cannot accept as effective either of the two methods proposed by RUNC. The first, although sufficiently accurate for individual lesions, would appear not to be feasible for use with multiple lesions. Indeed, RUNC indicates that it intends to measure only "one of the lesions." And the record indicates that use on a single or even a few lesions would not be meaningful with respect to the totality of a group of multiple lesions. The second method is simply not accurate enough to establish the likely effectiveness of the Sr^{90} applicator on particular lesions, as required by the Commission's Policy Statement.[10]

C. In reaching my conclusion that RUNC has not demonstrated an effective means for segregating those lesions that may be effectively treated with a

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[6] RUNC Motion at 2.
[7] *Id.*
[8] Staff Aff. III, ¶ 6.
[9] Order (Reply to NRC Staff), dated October 22, 1987 (unpublished).
[10] *See* my earlier Decision, LBP-87-4, *supra*, 25 NRC at 85.

Sr^{90} applicator from those that cannot be effectively treated, I have carefully considered whether the record is developed sufficiently for me to make this determination. In particular, I have considered whether it would be useful for me to grant RUNC's request for an oral hearing. I have concluded that an oral hearing would not be warranted given the reasons set forth by RUNC for seeking such a hearing.

In my earlier Decision, I pointed out that, under the Commission's October 9, 1986 Order authorizing this proceeding, a hearing based solely upon written submissions was the preferred method for developing the record in an informal proceeding of this type. I also observed that I was authorized to entertain "oral presentations" from the parties but that, in response to my inquiry, RUNC had made no request for an oral presentation and the Staff had concluded that an oral presentation would serve "no useful purpose." I found no subject area where further development of the record was called for and accordingly rendered my Decision based on the written submissions of the parties. LBP-87-4, *supra*, 25 NRC at 86.

In its letter of February 24, 1987, which is being treated as a motion to reopen the record, RUNC asked for a hearing (assuming that I did not find the information in the letter sufficient for me to award the requested license). No substantive reasons were advanced for the holding of such a hearing. Thereafter, by letter dated October 5, 1987, RUNC reiterated its request for an oral hearing, stating that "[s]uch a complicated matter cannot be resolved by letters with short deadlines."[11] By letter dated October 29, 1987, RUNC again asked for a hearing. It asserted that it wished to use the hearing to "strongly object" to the allegedly "derogatory" remarks that one of the Staff's consultants had made concerning the capability of RUNC's President, Dr. G. Anthony Doener, as a radiotherapist. RUNC also stated that it had a "legal right" to an oral hearing.

As part of my November 4, 1987 Order, I pointed out that, in an informal proceeding such as this one, there is no "legal right" to an oral presentation but, rather, that any such presentation was discretionary, to be utilized "only where necessary or desirable for a full development of the record." I requested RUNC to spell out in detail the substantive information that it believed it could develop more effectively at an oral presentation than it could otherwise present in writing, and to specify the basis for such belief.

RUNC responded by letter dated November 23, 1987. It cited five reasons for an oral presentation — namely, the length of time the application has been on file, the size of the record of the proceeding, the "numerous misconceptions"

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[11] In my earliest Order in this proceeding, I pointed out that extensions of time could be obtained for "good cause." Memorandum and Order (Requesting Specification of Claims), LBP-86-35, 24 NRC 557, 558 n.2 (1986). RUNC requested one extension of time in this proceeding, and I granted it for the full amount of time requested. Order (Extension of Time), dated November 4, 1987 (unpublished).

appearing in much of the correspondence between RUNC and the Staff, the "tenor" of the letters that RUNC has received from the Staff, and the asserted reluctance of the Nuclear Regulatory Commission to reverse its previous decision denying RUNC's license.

None of the reasons advanced by RUNC for an oral presentation, either in its letter of November 23, 1987, or in its earlier letter of October 29, 1987, warrants the holding of such an oral presentation. An oral presentation would serve a useful purpose if it were to enable me to obtain additional information likely to be helpful to me in rendering my decision in this proceeding. RUNC, however, has identified no substantive information that it intends to produce which would assist me in reaching a decision. To deal specifically with the reasons RUNC has advanced:

1. RUNC on October 29, 1987, indicated that it wished to clear the record of alleged "derogatory remarks" by one of the Staff consultants concerning the "capability as a radiotherapist" of Dr. Doener (the only person who would be authorized to use the Sr^{90} applicator). Although information concerning Dr. Doener's qualifications does appear in this record, I am not basing my decision on any such information. I am declining to grant RUNC's requested license *only* because of RUNC's failure to establish the effectiveness of the treatment proposed, not on the basis of lack of qualifications of Dr. Doener. An oral presentation would thus not be useful for this purpose.
2. RUNC's claims concerning the length of time for processing its application and the size of the record to date may be justified. But those claims reflect only the necessary attributes of the informal hearing process authorized by the Commission. Moreover, the complexities and length of this hearing process would not be reduced and might well be exacerbated if a formal hearing process had been followed. An oral presentation at this stage would not shorten this proceeding. Among other features, I would require prepared written testimony by both parties for any oral presentation or hearing. *Cf.* 10 C.F.R. § 2.743(b); proposed 10 C.F.R. § 2.1233.
3. RUNC's assertion that there are "numerous misconceptions" in the Staff's letters is no more than a naked assertion. RUNC has not identified what those misconceptions are or how they might affect the issues in this proceeding — despite my having asked RUNC to specify with particularity what evidence it wished to present at an oral presentation. Given the paucity of detail advanced by RUNC, its claim about misconceptions cannot serve as a legitimate basis for proceeding with an oral presentation.
4. Similarly, RUNC's reference to the "tenor" of the Staff's letters does not contain enough specificity for me to determine whether

any relevant information currently in the record needs to be supplemented. Without more detail, that claim is insufficient for me to authorize an oral presentation.

5. Finally, RUNC's unsupported assertion that the NRC is reluctant to reverse its earlier decision ignores the circumstance that I, as Presiding Officer, am completely independent of the NRC Staff. If the record indicated that the Staff committed error in its denial of RUNC's requested license, I would have no hesitancy in reversing the Staff's determination. And if the record even suggested that more information were needed to reach an informed decision on matters at issue, I would take the necessary steps to supplement the record, including authorizing an oral presentation if appropriate. As I have stated earlier, the record does not so indicate.

D. Both RUNC and the NRC Staff suggest a clarification of one aspect of my earlier Decision. In that portion of the Decision, I was discussing the lack of published papers on beta radiation therapy in conjunction with my consideration whether the Sr^{90} treatments proposed by RUNC were "safe and effective."[12] I observed that the one reference to literature on beta radiation therapy provided by RUNC (other than promotional literature provided by the distributor of the Sr^{90} applicator) was to portions of a 1952 paper on the clinical application of beta radiation from phosphorus-32 (P^{32}). I noted in particular that the paper on P^{32} contained the same cautions about the use of P^{32} for lesions greater in depth than 1-1.5 mm as had been raised by the Staff's consultants with respect to Sr^{90}. I also noted that the results in the paper were based on lesions assumed to be only 1 mm deep. But I further commented that Sr^{90} therapy would be less effective than P^{32} therapy because the beta energy of P^{32} was higher than that of Sr^{90}.[13]

It is true that the beta energy of P^{32} is greater than that of Sr^{90} standing alone.[14] However, as is suggested by both the Staff and RUNC, Sr^{90} is always found in equilibrium with its decay product, yttrium-90 (Y^{90}).[15] The maximum beta energy of Y^{90} is 2.27 MeV.[16] Moreover, the Sr^{90} applicator will include the higher-energy betas from Y^{90}, resulting in a maximum beta energy from the applicator slightly higher than the maximum beta energy from P^{32}, as described

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[12] LBP-87-4, *supra*, 25 NRC at 91-92.

[13] *Id.* at 92 n.48.

[14] As pointed out in my earlier Decision, the beta energy for P^{32} is 1.72 MeV, whereas that for Sr^{90} is 0.54 MeV. *Id.*

[15] RUNC Motion at 3-4; Staff Aff. III, ¶5.

[16] Staff Aff. III, ¶6, *citing Radiological Health Handbook*, Public Health Service, U.S. Department of Health, Education and Welfare (1970), Table I, at 268.

in the referenced article. In sum, treatment with the Sr^{90} applicator would be slightly more effective than treatment with P^{32}, as described in the article.[17]

Nonetheless, the treatment described in the article was carried out at a depth of 1 mm, and the article cautions against treatment at depths greater than 1-1.5 mm. These conclusions are consistent with my earlier conclusion that the Sr^{90} applicator had not been shown to be effective at depths greater than 1.5 mm. They provide no basis for a change in any of my earlier conclusions concerning the effectiveness of the Sr^{90} applicator.[18]

E. In my Decision, I pointed out that one of the Staff's consultants (Dr. Edward W. Webster), who on his second review recommended against grant of RUNC's application, had also suggested that, if its use were to be authorized, the Sr^{90} applicator should be equipped with a longer handle and a plastic protective shield.[19] RUNC apparently accepts these recommendations.[20] If I were to authorize use of the Sr^{90} applicator, I would require that its handle be longer than 4 inches and that the applicator be equipped with a wide plastic shield, as recommended by Dr. Webster.

These conditions would improve the safety of the Sr^{90} applicator to the personnel who would be administering doses of Sr^{90}, but they would do nothing to improve its effectiveness. Since lack of effectiveness for the uses proposed is the reason I am denying the requested license, these conditions would not change the result that I reached in my earlier Decision.

F. RUNC, in its motion, repeatedly emphasizes its view that use of the Sr^{90} applicator entails a low risk for patients.[21] Whether or not that assessment might have merit, it is one I cannot accept, for it is contrary to the regulatory assumptions that underlie the licensing of the Sr^{90} applicator. As I mentioned in my earlier Decision, the Commission, through its Policy Statement on the Medical Uses of Radioisotopes, has explicitly declared that the risk to patients from the therapeutic use of radioactive drugs (as well as certain diagnostic uses) "is not low," and that the "risk of tissue or organ damage (or even death) is inherent in the use of therapeutic levels of radioactive drugs."[22] Under the Policy Statement, the Commission therefore imposes the "safe and effective" criterion on the internal and external therapeutic use of such drugs, as well as therapeutic medical devices containing byproduct material (such as Sr^{90}). I am bound by these regulatory assumptions in evaluating RUNC's application. In any event,

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[17] RUNC Motion at 4.

[18] Note 48 of my earlier Decision should be modified by deleting everything following the initial citation and first full sentence (as amended, the footnote would conclude with "1 millimeter deep").

[19] LBP-87-4, *supra*, 25 NRC at 89.

[20] RUNC Motion at 4.

[21] *Id.* at 2-3.

[22] LBP-87-4, *supra*, 25 NRC at 85, 94-95. The regulations applicable to the licensing of the human uses of byproduct material indicate that they govern both the internal and external administration of byproduct material, or the radiation therefrom. 10 C.F.R. § 35.3(a) (1987).

the dosages proposed to be administered by RUNC to certain patients, as set forth in my earlier Decision, are significant.[23]

I might add that the regulatory scheme imposed by the Commission for medical uses such as is here proposed — where there is at least a potential for significant radiation exposure — is not unreasonable. That is, where such potential exists, there should be some assurance that the person exposed (the patient) will receive some benefit from the exposure. Otherwise, a needless radiation exposure will result. The "safe and effective" criterion is designed to preclude any such needless exposures.

G. In my Decision I endorsed a suggestion by the Staff that, if RUNC desired to experiment with the Sr^{90} applicator, it become affiliated with an institution that is licensed by NRC to conduct original research with Sr^{90} on humans. I noted that if RUNC (or Dr. Doener) were to receive approval as an authorized user at such an institution, it or he could pursue the mode of radiotherapy requested by RUNC, in accordance with the institution's approved protocol.[24]

In its motion, RUNC appears to equate operation under the auspices of an approved institution with using a linear accelerator to treat lesions.[25] My suggestion, however, does not contemplate any use of a linear accelerator. Rather, it contemplates that RUNC would use the Sr^{90} applicator subject to oversight by an approved institution.

Such oversight is necessary given the experimental nature of the treatment proposed by RUNC, and in particular the lack of any identified feasible and practical means of selecting lesions appropriate for treatment with the Sr^{90} applicator. An approved institution (such as a hospital or an authorized research institution) would have available continuing professional oversight of use of the Sr^{90} applicator (i.e., by pathologists, dermatologists, plastic surgeons, or other specialists),[26] peer review by appropriate Human Use Committees, and a medical physics staff in a research setting — none of which appears to be available in the office/clinic setting in which RUNC has proposed to use the Sr^{90} applicator.

In that connection, I note that I asked the Staff whether it could adequately monitor RUNC's use of the Sr^{90} applicator, assuming that RUNC had been able to identify an appropriate method for selecting lesions to be treated.[27] The Staff responded that it could not adequately monitor the method of patient selection suggested by RUNC, both because it did not have adequate technical expertise to

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[23] LBP-87-4, *supra*, 25 NRC at 94-95; *cf.* RUNC Motion at 2-3.
[24] LBP-87-4, *supra*, 25 NRC at 95-96.
[25] RUNC Motion at 1.
[26] *See* Staff Aff. III, ¶ 7.
[27] Memorandum and Order (Information Relative to Motion to Reopen Record), dated September 29, 1987 (unpublished), at 3.

do so and because the inspection frequency for the type of license sought is one inspection every 3 years. The Staff added that, where medical research is being conducted, it is the responsibility of the licensee to "provide the medical experts who will review the selection and treatment process for adequate safeguards to protect the interest and welfare of the patient."[28]

Such safeguards could be provided by a hospital or other authorized research institution. RUNC has not demonstrated that it has adequate resources to do so. For that reason, I renew my suggestion that, if RUNC wishes to pursue its use of the Sr^{90} applicator, it seek to do so under the aegis of an authorized research institution.

IV. CONCLUSION

To summarize, the information provided by RUNC in its motion is sufficient to warrant reopening the record to include it and the Staff's response. Upon further analysis, however, the information is inadequate to change the result that I previously reached. Specifically, RUNC has failed to prove that its proposed use of the Sr^{90} applicator is "safe and effective" for all of the uses proposed. Further, RUNC has failed to establish an effective and practical means to separate the uses for which the applicator may be effective from those for which it has not been demonstrated effective. That being so, I must conclude that RUNC's application is inconsistent with the Commission's regulatory standards and accordingly must be denied.

V. ORDER

For the reasons set forth above, it is, this 2d day of February 1988, ORDERED:

1. The record is *reopened* to admit RUNC's motion dated February 24, 1987, and the Staff's response dated October 20, 1987.

2. Based on the supplemented record, note 48 of LBP-87-4, 25 NRC at 92, is *modified* as provided herein. In other respects, the result reached in LBP-87-4 is *affirmed* and RUNC's license amendment application is *denied*.

3. RUNC's requests for an oral presentation are hereby *denied*.

4. In accordance with the Commission's Order dated October 9, 1986, supplemented by its Order dated September 11, 1987, the Decision dated February 9, 1987 (LBP-87-4) as modified by this Memorandum and Order (LBP-88-3), will become final agency action thirty (30) days after the date of issuance

[28] Staff Aff. III, ¶ 8.

hereof, unless the Commission, on its own motion, undertakes a review of the Decision or this Memorandum and Order. No petition for review by a party will be entertained by the Commission.

PRESIDING OFFICER

Charles Bechhoefer
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 2d day of February 1988.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judge:

Peter B. Bloch, Presiding Officer

In the Matter of **Docket No. 55-60402**
(ASLBP No. 87-552-03-SP)

DAVID W. HELD
(Senior Operator License for Beaver Valley Power Station, Unit 1)

February 2, 1988

The hearing officer dismissed cross motions to reconsider the decision issued on January 11, 1988 (LBP-88-1B, 27 NRC 29).

MEMORANDUM AND ORDER
(Motions to Reconsider)

After my Decision of January 11, 1988 (LBP-88-1B, 27 NRC 29), both David W. Held (January 24, 1988) and the NRC staff (January 21, 1988) filed motions for reconsideration. The purpose of this Memorandum and Order is to consider their arguments.

Both the Staff and Mr. Held argue that the presiding officer can neither enlarge nor contract his jurisdiction, citing *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-825, 22 NRC 785, 790 (1985), and related cases. The Staff accepted my decision that the case was moot but argued that it would be an enlargement of jurisdiction to provide for a 2-year period in which Mr. Held could file a motion that would reactivate the case. Mr. Held, on the other hand, argued that I have been charged to decide the merits of this case and

that deciding that the case is moot is an improper contraction of my jurisdiction from what the Commission intended.

In my Decision, I declared this case moot but recognized the possibility that the Decision could affect the ability of Mr. Held to obtain a license in the future. I recognize, as Mr. Held points out, that my dismissal of this case is not entirely without effect. Mr. Held's career at Duquesne Power and Light *could* be affected by my decision, in that Duquesne Power and Light bases a portion of its personnel system on whether or not its employees have obtained federal licenses. However, I am not prepared to consider this consequence sufficient reason to hold a hearing concerning the granting of a license that will not be used for the purpose for which it is issued — to permit Mr. Held to be a Senior Reactor Operator of Unit 1.[1]

On the other hand, I have been informed of an eventuality under which Mr. Held could be refused a *federal* license based on the declaration of mootness of this case. That eventuality could occur if senior reactor operators are granted dual licenses, in the future, based on having been granted SRO licenses for both units in the past. There is sufficient possibility here, based on representations of Duquesne Power and Light, that, in declaring this case moot, I consider it necessary to provide for this eventuality.

I have read Mr. Held's arguments carefully, and I acknowledge his point that I have determined this case to be moot despite its effect on private personnel choices. (This effect will occur unless Duquesne Power and Light reinterprets its policy with respect to David Held pursuant to the invitation in my Decision.)

Given my contrasting views about the relationship between mootness and impacts on private personnel decisions or public licensing, I provided in my Decision that the case may be reopened within 2 years if the anticipated problem with public licensing should arise. If I thought it improper for me to "retain jurisdiction" in that fashion, then I would consider the case not to be moot and would hear it immediately. However, this specific situation has not been addressed by past precedent; and I consider my invitation to Mr. Held to reopen the case to be an appropriate way to effect judicial economy by not hearing this case now.

I note that there is no reason for me to determine the truth of Staff's assertion that Mr. Held will not be disadvantaged should there be dual licensing of SROs (*see* Staff Motion at 6 n.2). Should Staff prove to be correct in its belief, then Mr. Held will never have the grounds to reopen this proceeding and my invitation

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[1] Mr. Held states, in his motion, that he has not responded to the Staff's substantive arguments because he expected to do so at oral argument. If, indeed, Mr. Held has persuasive arguments that he passed the simulator test *and he has not previously communicated those arguments to the Staff in previous stages of this litigation* then I would encourage him to communicate with the Staff. This would serve the purpose of alerting the Staff to possible deficiencies in its testing procedures and also of permitting the Staff to decide to inform Duquesne Power and Light if it were to conclude, by itself, that a mistake has been made.

will never have any effect. However, if Staff's belief is incorrect, we could have the embarrassing circumstance of having declared this case moot and then having Mr. Held denied a license based on my decision. It is this contingency against which I find it necessary to provide.

In closing, I note Mr. Held's argument that he be permitted 2 years from the completion of the first refueling of Unit 2 in which to reopen this case; however, he does not state any reason to let the time run from the first refueling, so this suggestion is not adopted.[2] I also note that Mr. Held is correct that he appeared to have a ripe case at the time he filed. The mootness occurred at a subsequent time. While this may seem to be unfair, it is not unusual for cases to become moot at some time after they are filed.

Order

Upon consideration of the filings of the parties and the entire record in this matter, it is, this 2d day of February 1988, ORDERED:

That both motions for reconsideration are denied.

Peter B. Bloch
ADMINISTRATIVE JUDGE

Bethesda, Maryland

[2] He could, of course, always file to reopen the case under the ordinary standards provided for in the rules.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Robert M. Lazo, Chairman
James H. Carpenter
Peter A. Morris

In the Matter of

Docket No. 50-133-OLA
(ASLBP No. 86-536-07-LA)
(Decommissioning)

PACIFIC GAS AND ELECTRIC COMPANY
(Humboldt Bay Power Plant, Unit 3)

February 9, 1988

In this Order, the Licensing Board approves a stipulation providing for the withdrawal of all admitted contentions, dismisses the proceeding, and authorizes the issuance of the requested license amendment.

LICENSING PROCEEDINGS: DISMISSAL

When settlement negotiations among the parties result in a stipulation providing for the withdrawal of all admitted contentions, and the Licensing Board has raised no significant health or safety issues *sua sponte*, no further hearings are required. The proceeding becomes uncontested and may be dismissed.

ORDER
(Dismissing Contentions and Terminating Proceeding)

Pacific Gas and Electric Company (Licensee) is licensed to possess but not operate Humboldt Bay Power Plant, Unit 3, a 65-MWe boiling water reactor located in the city of Eureka, Humboldt County, California. On July 3, 1986, pursuant to 10 C.F.R. § 2.104, the NRC published in the *Federal Register* a notice of consideration of the issuance of an amendment to the facility license and offered the opportunity for hearing on the amendment. 51 Fed. Reg. 24,458. The amendment is related to decommissioning the facility and specifically would: (1) delete license conditions related to seismic investigation, analysis, and modification; (2) approve the Licensee's decommissioning plan for 30 years of onsite storage of residual radioactivity (SAFSTOR); (3) revise the technical specifications to reflect the permanent shutdown and "possess-but-not-operate" status of the facility and to reflect the SAFSTOR status; and (4) extend License No. DPR-7 for an additional 15 years from November 9, 2000, to November 9, 2015, to be consistent with the 30-year safe storage plan.

Pursuant to that notice, the Redwood Alliance,[1] an unincorporated organization; Wesley Chesbro, an elected member of the Humboldt County Board of Supervisors; Douglas H. Bosco, a U.S. Congressman representing California's First Congressional District; Barry Keene, a member of the California Legislature representing California's Second Senate District; Daniel E. Hauser, a California State Assemblyman representing the Second Assembly District; Gaye M. Barr and the League of Women Voters of Humboldt County (Joint Intervenors); petitioned for leave to intervene and requested a hearing. In a Prehearing Conference Order, dated December 3, 1986, the Board granted the requests for intervention, admitted six contentions, and set forth the schedule for discovery as commencing on December 15, 1986, and concluding 30 days after issuance of the Staff's Safety Evaluation Report (SER) and Final Environmental Statement (FES).

On May 1 and May 8, 1987, respectively, the Board was officially furnished copies of the SER and the FES concerning the decommissioning of Humboldt Bay Power Plant, Unit 3, by the NRC Staff. With regard to the proposed amendments, the Staff concluded in its SER that:

> (1) there is reasonable assurance that the health and safety of the public will not be endangered by maintenance of the facility in the proposed manner [SAFSTOR], and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of

[1] The Redwood Alliance sought derivative standing based on the interests of its adequately identified members, Ralph and Nona Kraus.

[the] amendment will not be inimical to the common defense and security or to the health and safety of the public.

SER at 12-1.

In its FES (NUREG-1166, April 1987), the Staff concluded *inter alia* that: (1) a technical basis exists for decommissioning nuclear plants in a safe, efficient manner; (2) no significant environmental impacts will result from the storage of spent fuel in the spent fuel pools; and (3) Humboldt Bay Unit 3 can be placed in SAFSTOR for a 30-year period with minimum environmental impact (NUREG-1166 at 5-1).

Meanwhile, in March 1987, representatives of PG&E and the Joint Intervenors had begun settlement discussions to try to resolve the matter short of litigation. These discussions ultimately led to the execution of a Memorandum of Understanding, dated June 8, 1987, by PG&E and the Joint Intervenors which set forth terms for settlement of the litigation. Pursuant to this agreement, PG&E, Joint Intervenors, and the NRC Staff executed a Stipulation for Withdrawal of Contentions which incorporated the Memorandum of Understanding and implemented its provisions for withdrawal of Joint Intervenors' contentions.

By motion dated August 7, 1987, Licensee requested that the Board (1) enter an order providing for dismissal of all contentions, thereby terminating the adjudicatory proceeding, and (2) authorize the Director of Nuclear Reactor Regulation to issue the requested license amendment. Motion to Dismiss Contentions and Terminate Proceeding at 5-6. As grounds for the motion, Licensee states that (a) the Staff's environmental and safety review of the amendment found the request acceptable, and (b) Licensee and Joint Intervenors executed an agreement that provides terms for settlement of the proceeding, which culminated in the execution of a Stipulation for Withdrawal of the Contentions. *Id.* at 4-6. The stipulation is appended to the motion and has been signed by all the parties to the proceeding.

Because there are no longer any issues in dispute, the Board grants Licensee's motion.

DISCUSSION

Where the Board has raised no significant safety or environmental issue *sua sponte*, the only issues to be decided by a licensing board in an amendment proceeding are those issues contested by the parties. *Portland General Electric Co.* (Trojan Nuclear Plant), ALAB-796, 21 NRC 4, 5 (1985); *see* 10 C.F.R. § 2.760a. Accordingly, where admitted contentions are withdrawn, the matter becomes uncontested since there are no longer any matters that the parties wish to resolve in the proceeding and there is no need for further hearings. *See*,

e.g., Arizona Public Service Co. (Palo Verde Nuclear Generating Station, Units 2 and 3), LBP-85-26, 22 NRC 118 (1985) (intervention petition and contentions withdrawn by settlement agreement); *Public Service Electric and Gas Co.* (Hope Creek Generating Station), LBP-85-6A, 21 NRC 468 (1985) (board approved withdrawal of intervenor and its contentions based upon a settlement agreement); *Rochester Electric & Gas Corp.* (R.E. Ginna Nuclear Plant, Unit 1), LBP-84-34, 20 NRC 769 (1984) (withdrawal of sole intervenor); *Armed Forces Radiobiology Research Institute* (Triga-Type Research Reactor), LBP-84-15A, 19 NRC 852 (1984) (withdrawal of intervenor based upon settlement agreement).

In the instant proceeding, the stipulation, which provides for the withdrawal of all admitted contentions, effectively ends Joint Intervenors' status as a party and removes all matters in controversy in this adjudicatory proceeding. *See* 10 C.F.R. § 2.714a(b). Consequently, the Board has approved the stipulation and herein below enters an order dismissing the adjudicatory proceeding and authorizing the Staff to issue the requested amendment.

ORDER

For all the foregoing reasons and upon consideration of the entire record in this matter, it is, this 9th day of February 1988, ORDERED:

That Licensee's Motion to Dismiss Contentions and Terminate Proceeding is *granted.*

Is Further Ordered that the Director of Nuclear Reactor Regulation is authorized to make appropriate findings in accordance with the findings and conclusion contained in its SER and FES and the Commission's regulations approving PG&E's July 30, 1984 license amendment request for its Humboldt

Bay Power Plant Unit 3 SAFSTOR decommissioning plan. *It Is Further Ordered* that this matter be terminated.

THE ATOMIC SAFETY AND
LICENSING BOARD

Robert M. Lazo, Chairman
ADMINISTRATIVE JUDGE

James H. Carpenter
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 9th day of February 1988.

[Judge Peter A. Morris has resigned from the Atomic Safety and Licensing Board Panel and did not participate in the drafting of this Order.]

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judge:

Charles Bechhoefer

In the Matter of

Docket No. 55-60755
(ASLBP No. 87-551-02-SP)

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

February 10, 1988

In an informal proceeding being conducted pursuant to proposed regulations governing informal proceedings, the Presiding Officer directs the NRC Staff to establish a local public document room, although leaving details such as location and hours of operation to the Staff.

RULES OF PRACTICE: LOCAL PUBLIC DOCUMENT ROOM

In an informal proceeding subject to proposed 10 C.F.R. § 2.1231(a), the NRC Staff must establish a local public document room, at least where requested by a party.

RULES OF PRACTICE: JURISDICTION OF PRESIDING OFFICER

A presiding officer in an informal proceeding has authority to direct the NRC Staff to establish a local public document room but not to require the Staff to perform that function in a specific manner, such as the details of operation of such a room (e.g., location or hours of operation).

MEMORANDUM AND ORDER
(Establishment of Local Public Document Room)

On January 20, 1988, Mr. Alfred J. Morabito filed a motion requesting that the Presiding Officer direct the NRC Staff to place a copy of the entire hearing file for this proceeding, together with several other named documents, in the local public document room (LPDR) for the Beaver Valley facility. By response dated February 3, 1988, the NRC Staff opposed Mr. Morabito's request. For the following reasons, Mr. Morabito's request is granted in part.

1. Mr. Morabito cites proposed 10 C.F.R. §2.1231 in support of his request. He explains that there is much public interest in the proceeding from local news media and special interest groups and that, prior to the oral presentation scheduled for February 22, 1988, these groups should have available to them the background of this proceeding. Finally, he explains why he believes that the named documents are relevant to this proceeding and should be included in the record. In addition, he poses several questions to the NRC Staff bearing on those named documents.

For its part, the Staff points out first that all documents filed in this proceeding have been placed in the Commission's Public Document Room (PDR) in Washington, D.C. The Staff states — correctly — that placement of documents in the PDR or LPDR does not mean that they are in the record of this proceeding. The Staff observes that the circumstance that Mr. Morabito wishes to discuss certain subjects at the oral presentation does not provide a valid reason for placing documents related thereto in the LPDR. The Staff also raises a question about the relevance of the subjects described by Mr. Morabito to this proceeding. The Staff concludes that Mr. Morabito's motion for placement of documents in the Beaver Valley LPDR is baseless and should be denied.

2. Although cited by Mr. Morabito, neither party has discussed the regulatory requirements of proposed 10 C.F.R. §2.1231(a), which are applicable to this proceeding (as guidance) by virtue of the Commission's July 1, 1987 Order instituting this proceeding and my Memorandum and Order of July 15, 1987 (unpublished). In pertinent part, that provision reads:

> The hearing file . . . shall be made available for public inspection and copying during regular business hours at the NRC Public Document Room in Washington, DC, and at any appropriate local public document room. In the event no appropriate local public document room exists, the applicant must make the hearing file available for public inspection and copying during regular business hours at a location in the vicinity of the [subject of the application].

The Statement of Considerations accompanying the issuance of the proposed regulations contains little additional guidance, except to emphasize the Staff's

obligation to provide the hearing file to the LPDR and to note that, where an applicant provides space for an LPDR, it can do so "in a number of different ways, including making the file available at a local public library." 52 Fed. Reg. 20,089, 20,090 (May 29, 1987).

This provision, in my opinion, requires that there be an LPDR in any proceeding to which the proposed rules are deemed applicable. This is particularly so where one party to a proceeding requests an LPDR, and the requirement would apply irrespective of the validity of the reasons underlying the request. An LPDR is part and parcel of the Commission's methodology for ensuring that proceedings of this type are indeed public proceedings. Moreover, it is important that information on proceedings such as this one be made available to those interested in it locally — a trek to Washington, D.C., is neither requisite nor appropriate for persons in the locale of the proceeding who wish to learn of its details.

Finally, there is an additional reason for an LPDR which neither party has addressed but which is extremely important. There must be some local access to the transcript of the oral presentation. *See Duquesne Light Co.* (Beaver Valley Power Station, Unit 2), LBP-84-6, 19 NRC 393, 407-08 (1984); *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), LBP-81-32, 14 NRC 381, 397-98 (1981); *Pennsylvania Power & Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), LBP-79-6, 9 NRC 291, 328 (1979). Indeed, the Licensing Board in the *TMI* case, in the course of denying requested financial assistance to intervenors, established a hearing room library of transcripts (in addition to the LPDR) to enable parties to make complete and accurate references to transcript pages in proposed findings, other pleadings and arguments. LBP-81-32, supra, 14 NRC at 398. For these same reasons, a transcript must be available to Mr. Morabito to prepare adequate proposed findings or statement of position following the oral presentation, and he should not be relegated to the position where he is forced either to purchase the transcript — a not inconsequential expense for an applicant such as Mr. Morabito — or travel to Washington, D.C. That is the whole purpose of an LPDR, and it should be followed in this case.

3. In view of the foregoing considerations, I am directing the NRC Staff to establish an LPDR for this proceeding, as soon as it can do so and in any event prior to the oral presentation. Because the establishment of such an LPDR is a Staff function, I have no authority to establish the details of the LPDR — i.e., its location (other than proximity to Mr. Morabito's home or place of business), or its hours of operation. All I am holding is that, under the proposed regulations which the Commission has indicated I may follow, an

LPDR must be established.[1] I also recognize that the already-existing Beaver Valley LPDR is not, and need not necessarily be, the LPDR for this entirely discreet proceeding. But it also may be the most appropriate LPDR to be utilized and, for that reason, I suggest (although I do not order) that the Staff ascertain its availability for this proceeding.

After the Staff has established an LPDR, it should include therein the hearing file for this proceeding, together with copies of the six exhibits described in my Memorandum (Documents to be Presented at Oral Presentation), dated February 4, 1988 (unpublished). It should also ensure that a copy of the transcript of the oral presentation be placed therein as soon after the oral presentation as is feasible. The Staff need not include therein any other documents, although it clearly may do so if it wishes. In particular, the Staff need not include at this time the two particular documents identified by Mr. Morabito — i.e., a checkoff sheet for Mr. Morabito's examination and the qualification notebook for Mr. Morabito's examiners. If Mr. Morabito wishes to incorporate these documents into the record of this proceeding, he may offer them into evidence at the oral presentation. Admission into evidence will depend, of course, on a demonstration that they are relevant and material to matters at issue in this proceeding.

IT IS SO ORDERED.

PRESIDING OFFICER

Charles Bechhoefer
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 10th day of February 1988.

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[1] I differentiate the establishment of an LPDR — which is required by the standards being used for guidance in this proceeding — from a direction to the Staff concerning the details of a matter committed in the first instance to the Staff, which would be beyond my authority. *See Offshore Power Systems* (Floating Nuclear Power Plants), ALAB-489, 8 NRC 194, 199-208 (1978).

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Sheldon J. Wolfe, Chairman
Emmeth A. Luebke
Jerry Harbour

In the Matter of

Docket Nos. 50-443-OL-1-R
50-444-OL-1-R
(ASLBP No. 88-558-01-OLR)
(Onsite Emergency Planning and Safety Issues)

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

February 17, 1988

Pursuant to the directions of the Commission set forth in CLI-87-13, 26 NRC 400 (1987), the Licensing Board renews its authorization to operate Seabrook, Unit 1, up to 5% of rated power insofar as the two contentions remanded in ALAB-875, 26 NRC 251 (1987), are concerned. This authorization is renewed because the two remanded contentions are not relevant to low-power operations inasmuch as the safety concerns raised therein would not adversely impact upon the public health and safety if Seabrook, Unit 1, were to be authorized to operate only up to 5% of rated power. However, the Licensing Board cannot give effect to this renewed authorization in light of ALAB 883, 27 NRC 43 (1988) and the Appeal Board's Memorandum of February 10, 1988 (unpublished), and thus the Licensing Board does not authorize the Director of NRR, upon making the findings required by 10 C.F.R. § 50.57(a), to issue the low-power license.

The Licensing Board also denies an Intervenor's motion for leave to file a reply brief.

ADMINISTRATIVE TRIBUNALS: AUTHORITY

We are familiar with no legal system — judicial or administrative — that allows a lower tribunal to disregard the directives of a superior one. *Northern Indiana Public Service Co.* (Bailly Generating Station, Nuclear-1), ALAB-303, 2 NRC 858, 870 (1975).

RULES OF PRACTICE: CONTENTIONS

It is well settled that a party is bound by the literal terms of its own contention. *Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant), ALAB-852, 24 NRC 532, 545 (1986).

RULES OF PRACTICE: AMENDED CONTENTIONS

Without leave having been sought from the Licensing Board and granted, it is impermissible for an intervenor to attempt to amend his contentions or to advance new bases for them which could have been submitted earlier. *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-565, 10 NRC 521, 523 n.11 (1979).

MEMORANDUM AND ORDER

(Renewal of Low-Power Authorization; Denying NECNP's Motion for Leave to File a Reply)

Memorandum

I. BACKGROUND

On March 25, 1987, this Board issued a Partial Initial Decision on the onsite emergency planning and safety issues in this proceeding.[1] Therein, having resolved all onsite safety and emergency planning issues in controversy, pursuant to 10 C.F.R. §§ 50.47(d) and 50.57(c), the Licensing Board authorized issuance of a license to operate Seabrook Station, Unit 1, up to 5% of rated power. Upon appeals by the Intervenors, on October 1, 1987, the Appeal Board issued a Decision affirming in part and reversing and remanding in part.[2] On remand, the Appeal Board stated that this Board should admit

[1] LBP-87-10, 25 NRC 177.
[2] ALAB-875, 26 NRC 251.

for litigation two contentions that had been rejected in 1982 as issues in controversy. These were New England Coalition on Nuclear Pollution (NECNP) Contentions I.V (concerned with inservice inspection of steam generator tubes) and IV (addressed to the accumulation of aquatic organisms and other foreign matter in cooling systems). The Appeal Board was aware that the Commission's Order of January 9, 1987 (unpublished) had barred the Director of Nuclear Reactor Regulation from issuing a low-power license for Seabrook in the event issuance of such a license was otherwise authorized in order that the Commission might consider whether, as a matter of law or policy, low-power operations should proceed absent the submittal of an emergency plan for that portion of the plume exposure emergency planning zone that lay within the Commonwealth of Massachusetts. The Appeal Board was also aware that subsequent orders of the Commission continued the stay until the Applicants submitted a bona fide utility plan (CLI-87-2, 25 NRC 267 (1987); CLI-87-3, 25 NRC 875 (1987)). In ALAB-875, it stated that it had no way of knowing whether, and if so when, the Commission would conclude that the reasons undergirding the stay no longer obtained. Therefore, assuming that such a conclusion would be reached prior to the completion of the remand, and further assuming that the Commission might not provide controlling guidance on the subject, the Appeal Board stated that this Board should determine expeditiously the appropriateness of a renewal *pendente lite* of the low-power authorization contained in our Partial Initial Decision of March 25, 1987.

In an Order of October 16, 1987 (unpublished), we admitted for litigation the two NECNP contentions and directed that discovery be completed by December 28, 1987 and that, on or before December 7, 1987, Applicants, the Staff, and NECNP should notify us whether or not each would file a motion for summary disposition. The Board advised that, depending upon the contents of these notifications, it would subsequently set due dates for the filing of motions for summary disposition and answers or would schedule a hearing.

Having been furnished by the Applicants with their utility emergency plan for Massachusetts on September 18, 1987, the Commission issued a Memorandum and Order (CLI-87-13, 26 NRC 400 (1987)). Finding that Applicants' utility emergency plan demonstrated that adequate emergency planning for the Massachusetts portion of the emergency planning zone was within the realm of the possible, that it included measures to compensate for the absence of state and local planning, and that it had been submitted in good faith, the Commission lifted its stay of low-power operations and affirmed that, as directed by the Appeal Board in ALAB-875, "the Licensing Board shall expeditiously determine whether considering the issues that it is hearing on remand, it is appropriate to renew at this time its authorization of low power or whether low power operations must await further decisions."

The Appeal Board's directive having been affirmed by the Commission which directed us to resolve the issue of reauthorization of low power before determining the merits of the two remanded contentions or to determine that low-power operations must await further decisions, we immediately issued an Order on November 27, 1987 (unpublished). Therein, we ordered that, in order to assist us in making the expeditious determination directed by the Commission, responsive briefs by the Applicants and NECNP should be simultaneously filed upon the reauthorization of low-power issue by no later than January 4, 1988, and that the Staff should file its brief by no later than January 11, 1988.

In the meantime, on November 20, 1987, NECNP had filed a motion to extend the Board's October 16 schedule so as to allow NECNP until January 4, 1988, to inform the Board of its intentions regarding the filing of motions for summary disposition and until February 1, 1988, for the completion of discovery. In the Order of December 2, 1987 (unpublished), the Board ruled as follows:

> In light of the Commission's Memorandum and Order (Lifting the Order Staying the Director of Nuclear Reactor Regulation from Authorizing Low-Power Operations Due to the Lack of an Emergency Plan for Massachusetts) dated November 25, 1987, and this Board's Order (Briefing Schedule) dated November 27, 1987 (unpublished), we do not have to reach and decide the arguments advanced in favor of or opposed to the granting of the instant motion. These two intervening circumstances require that we, upon our own motion, rescind our Order of October 16, 1987, to the extent that it directs the completion of discovery by December 28, 1987, and directs that, on or before December 7, 1987, the three parties shall give notification whether or not each will file a motion for summary disposition. It would be burdensome and unfair to require that the notification date and the completion of discovery date be met, since our Order of November 27 directed that all of the parties, other than Staff, should file briefs by January 4, 1988, addressing the issue of whether or not it is appropriate for the Board to renew at this time its authorization of low power prior to the completion of the remand proceeding, and that the Staff should file its brief by January 11, 1988.
>
> In light of our rulings hereafter, the instant motion is denied as having been mooted. Applicants, NECNP, and the Staff shall proceed with discovery upon the two remanded issues and complete discovery by February 19, 1988. As soon as possible, after reviewing the briefs filed in compliance with our Order of November 27, 1987, and making the determination as to whether or not it is appropriate for us to reauthorize low-power operations prior to the completion of the remand proceeding, we will confer with the Applicants, NECNP, and the Staff to find out whether motions for summary disposition will be filed or whether a hearing should be scheduled.

On January 4, 1988, Applicants filed a Memorandum in Support of Low Power Operation and NECNP filed a Brief in Opposition to Renewal of Authorization to Operate at Low Power.[3] Having been granted a one-day extension, on January 12, 1988, the Staff filed its Response to Licensing Board

[3] On January 11, 1988, for some reason, Seacoast Anti-Pollution League filed a one-page document indicating that it joined in NECNP's January 4, 1988 statement of position and arguments.

Order of November 27, 1987. On January 14, 1988, NECNP filed, in effect, a motion for leave to file a reply to the Applicants' Memorandum of January 4 and to the Staff's Response of January 12. On January 29, the Staff responded.

II. DISCUSSION

A. The Issue of Reauthorization of Low Power

1. The Applicants' Memorandum of January 4, 1988, and the Staff's Response of January 12

In substance, both the Applicants and the Staff argue with respect to NECNP IV,[4] that Applicants have now in place and in compliance with regulations a surveillance and maintenance program to detect and prevent the accumulation of mollusks, other aquatic organisms, and debris in the cooling systems, and that thus low-power operation may be safely reauthorized. With respect to NECNP I.V,[5] Applicants argue that they have a program for inservice inspection (to be performed after 6 months of effective full power but within 24 months of initial criticality) and that thus there is nothing associated with low-power operation that would further complicate any subsequent inspection or preclude any augmentation of the current inspection program if deemed necessary by this Board following any litigation of this contention. Further, Applicants argue for various reasons that it is highly unlikely that either a tube rupture occasioned by a foreign object, which had occurred at the Ginna plant, would occur during low-power operation at the Seabrook Station or that an event like the North Anna Unit 1 tube rupture incident, occasioned by denting, would occur during low-power operation at Seabrook. The Staff argues that Applicants' program for inservice inspection of steam generator tubes meets regulatory requirements, and like Applicants, urge that it is unlikely that the Ginna and North Anna-type tube ruptures would occur during low-power operation at Seabrook.

To the extent set forth above, the Applicants' Memorandum and the Staff's Response and the attached affidavits of their experts are directed to the merits of the two remanded issues. This was error because the Commission in CLI-

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[4] NECNP IV reads as follows:

Blockage of Coolant Flow to Safety-Related Systems and Components by Buildup of Biological Organisms

The Applicant must establish a surveillance and maintenance program for the prevention of the accumulation of mollusks, other aquatic organisms, and debris in cooling systems in order to satisfy the requirements of GDC 4, 30, 32, 34, 35, 36, 38, and 39, which require the maintenance and inspection of reactor cooling systems. The design, construction, and proposed operation of Seabrook fail to satisfy these requirements.

[5] NECNP I.V reads as follows:

In-Service Inspection of Steam Generator Tubes

The Applicants have not demonstrated that they have met GDC 14, 15, 31 and 32 insofar and to the extent that those GDC require a program of the in-service inspection of steam generator tubes.

87-13 made it clear that the merits of the remanded contentions were not to be considered. However, the Staff's Response and a supporting affidavit with respect to NECNP IV and the Applicants' Memorandum and supporting affidavits with respect to NECNP I.V did proceed to discuss and to show that these two remanded contentions were not relevant to low-power operations because the safety concerns raised therein would not adversely impact upon the public health and safety if Seabrook, Unit 1, were to be authorized to operate only up to 5% of rated power.

With respect to NECNP IV, the Staff relies upon the affidavit of its expert (Masnik Affid. at 6-9). Dr. Masnik deposed as follows:

> The operation of the Seabrook Station at 5% rated power level would likely result in decreased biofouling activity and in decreased intake of debris depending on the circulating water (CW) and service water (SW) flow rates. The rate of biofouling is dependent on a number of factors. Environmental conditions such as salinity, water temperatures, light, availability of food, and frequency and degree of submergence can significantly influence the growth rate of the organisms. Operation at 5% of rated power would not have a significant effect on salinity, light, availability of food or frequency and degree of submergence but would influence water temperature in many locations. Since growth rate in this geographic area is highly dependent on temperature, the operation of the facility at 5% of rated power would result in much slower growth rates in most of the CW and SW systems than at 100% power for any organisms that might attach despite the program that Applicants are undertaking to discourage attachment. Assuming that the system does not initially contain any life stages of blue mussel,[6] assuming a high growth rate for this organism, and assuming there existed *no* water treatment (i.e., chlorine or backflushing) program, the period of time from the beginning of low power operations to the time of earliest flow blockage from biofouling could range, depending upon the time of year, from 1 to 7 months.

Dr. Masnik also deposed to the following:

> The amount of debris entering the ocean intake structures is dependent primarily on the availability of debris in the water column at the level of the intake, and the flow regime in the vicinity of the intake.[7] This regime is highly dependent on flow rate. If the flow rate is reduced due to the low power operation, the amount of debris taken into the ocean intake structure would be substantially reduced. Since debris buildup is not considered a problem by the Staff at full power operation, operation at low power and possibly a corresponding reduction in cooling water flow, would therefore not present a problem.

The Board concludes that the Staff has shown that NECNP IV is not relevant to low-power operations because the safety concerns raised therein would not adversely impact upon the public health and safety if Seabrook, Unit 1, were to be authorized to operate only up to 5% of rated power.

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[6] The principal biofouling macroorganism in the Seabrook area.

[7] A midwater intake, located well above the sea floor, is used at Seabrook (Masnik Affid. at 2).

With respect to NECNP I.V, we have reviewed the pertinent affidavits of Applicants' experts Peter Littlefield and Kenneth Rubin. Relying in part upon the affidavit of Mr. Rubin, Mr. Littlefield deposed as follows (Affid. at 2-3):

> The thyroid dose from a tube rupture is due to a release of radioiodine. Operation of the plant during low-power testing would result in substantially decreasing the potential consequences of design basis accidents as calculated for operation at full power. Several factors account for this. (1) The reactor core iodine inventory at 0 to 5% power operation is at least a factor of 20 less than at full power operation. (2) There is less fuel gap iodine fraction available for release to the coolant due to low fuel burnup and low fuel temperature. (3) There is a low potential for a fuel cladding failure during early core life, i.e., at the low-power testing phase. A numerical analysis with conservative assumptions for operation at 5% power results in a very low thyroid dose at the exclusion area boundary of about 1.1 rem. The design limit as specified in 10 C.F.R. 100 is 300 rem.

The Board concludes that, even assuming a tube rupture occurred during low-power operation at 5% of rated power, the expected thyroid dose that would be received would be significantly less (1.1 rem) at the exclusion area boundary than the design limits (300 rem) permitted by regulation, and that thus that NECNP I.V is not relevant to low-power operations because the safety concerns raised therein would not adversely impact upon the public health and safety if Seabrook, Unit 1, were to be authorized to operate only up to 5% of rated power.

2. *NECNP's Brief of January 4, 1988*

Most of NECNP's brief challenges the authority of the Commission and its adjudicatory boards to authorize low-power operations prior to the completion of full-power operating license proceedings or at least prior to the resolution of the remanded contentions, and argues that there is no authority in the Commission's regulations for issuance of a low-power license prior to findings on all issues relevant to full-power operation. Brief at 4-27. The short answer is that, as a trial board, we are bound by the Commission's Order of November 25, 1987, CLI-87-13, 26 NRC 400.[8] We are familiar with no legal system — judicial or administrative — which allows a lower tribunal to disregard the directives of a superior one. *Northern Indiana Public Service Co.* (Bailly Generating Station, Nuclear-1), ALAB-303, 2 NRC 858, 870 (1975). NECNP did not attempt to have the Commission reconsider its Order of November 25, 1987, and accordingly it may not complain about it here. Moreover, as recognized by NECNP at 5 n.7 of

[8] To repeat, in CLI-87-13, the Commission lifted its stay of low-power operation, and affirmed that, as directed by the Appeal Board in ALAB-875, "the Licensing Board shall expeditiously determine whether considering the issues that it is hearing on remand, it is appropriate to renew *at this time* its authorization of low power or whether low power operations must await further decision" (emphasis added).

its brief, the Appeal Board, stating that it had no authority under Commission regulations to entertain a challenge to § 50.47(d), has declined in ALAB-875, 26 NRC at 256, to address NECNP's arguments that the Atomic Energy Act prohibits issuance of an operating license at any level of power prior to hearing and resolving contentions as to offsite emergency planning as well as onsite safety matters. *See also* ALAB-865, 25 NRC 430, 439 (1987) wherein the Appeal Board had also ruled that § 50.57(c)[9] was not subject to challenge. We are bound by the rulings of the Appeal Board, which now constitute the law of the case.

NECNP continues its legal argument in urging that the two contentions remanded by the Appeal Board in ALAB-875 are critical to plant safety, that the serious questions raised therein may well block full-power licensure for Seabrook, and thus they must be resolved prior to low-power operations. Brief at 28-32. First, NECNP conclusionally advances in support of its argument that, since both contentions question whether certain General Design Criteria have been satisfied, no operating license can be issued at any level of power until these contested safety issues are litigated and resolved.[10] However, it does not comply with § 50.57(c) in failing to show that these contentions are relevant to the requested license — i.e., NECNP has failed to show that the safety concerns alleged in the two contentions would adversely impact upon public health and safety if the plant were to be reauthorized to operate only up to 5% of rated power. Second, in support of its argument, NECNP cites *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Unit 1), CLI-83-27, 18

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[9] Section 50.57(c) provides:

> An applicant may, in a case where a hearing is held in connection with a pending proceeding under this section make a motion in writing pursuant to this paragraph (c), for an operating license authorizing low-power testing (operation at not more than 1 percent of full power for the purpose of testing the facility), and further operations short of full power operation. Action on such a motion by the presiding officer shall be taken with due regard to the rights of the parties to the proceedings, including the right of any party to be heard to the extent that his contentions are relevant to the activity to be authorized. Prior to taking any action on such a motion which any party opposes, the presiding officer shall make findings on the matters specified in paragraph (a) of this section as to which there is a controversy, in the form of an initial decision with respect to the contested activity sought to be authorized. The Director of Nuclear Reactor Regulation will make findings on all other matters specified in paragraph (a) of this section. If no party opposes the motion, the presiding officer will issue an order pursuant to § 2.730(e) of this chapter, authorizing the Director of Nuclear Reactor Regulation to make appropriate findings on the matters specified in paragraph (a) of this section and to issue a license for the requested operation.

[10] At page 2 of its brief, NECNP stated that, in ALAB-875, the Appeal Board ordered that NECNP Contention IV be admitted which concerned "potential degrading of the plant's heat removal capability *due to build-up* of biological organisms" (emphasis added). Again at page 29 of its brief, NECNP asserted that the contention related "to the adequacy of Applicants' surveillance and maintenance program for preventing the *accumulation* of biological organisms and the degradation of the heat transfer capabilities of safety systems as a result of such *accumulation*, strikes to the very core of plant safety" (emphasis added). However, at page 30, it urges that General Design Criteria 2, 4, 5, 44, 45, and 46 require Applicants to institute monitoring and surveillance programs and take other measures necessary to preclude long-term *corrosion* and organic fouling that would tend to degrade system performance, and also require that agents used for the control of water chemistry, *corrosion* and organic fouling be compatible with system components and piping materials" (emphasis added). As discussed in Part B, *infra*, this attempt to amend this contention was improper.

NRC 1146 (1983), for the proposition that the Commission held that intervenors were entitled to a prior adjudicatory hearing on whether to lift the suspension on and extend the low-power operating license because the hearing record had been reopened by the Appeal Board relating to serious and substantive safety concerns with respect to design quality assurance which would be the subject of adjudicatory hearings before the Appeal Board. The facts in the Diablo Canyon case are clearly distinguishable from those in the instant case. Here the Appeal Board has held only that the two remanded contentions should not have been rejected at the threshold, and both it and the Commission have directed this Board to determine whether or not it is appropriate to renew at this time our authorization of low power.

B. NECNP's Motion for Leave to File a Reply

NECNP advances several arguments in support of its motion for leave to reply to the Applicants' and the Staff's briefs filed respectively on January 4 and January 12, 1988. First, NECNP urges that these briefs and supporting affidavits improperly address the merits of the two remanded issues and that it should be given an opportunity to respond to the alleged merits or lack of merit. Motion at 1-2. However, as discussed in Part A, *supra*, we have ruled that those portions of the briefs and affidavits addressing the merits were in error, and we have ignored those portions. We did, however, consider those portions of the Applicants' and Staff's briefs and affidavits that properly discussed and showed that the safety concerns alleged in the two remanded contentions would not adversely impact upon the public health and safety if Seabrook, Unit 1, were to be operated only up to 5% of rated power.

Second, NECNP argues that it would be improper to authorize low-power operations via summary disposition procedures upon the merits of the two remanded contentions without giving it an opportunity to reply.[11] Section 2.751 summary disposition procedures upon the merits of the remanded contentions were not invoked by the Commission or by the Board with respect to low-power operations. No one, for example, could have misunderstood our Order of December 2, 1987 (unpublished), wherein we stated that

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[11] In passing, we note that at pages 3, 5, and 9 of its motion, NECNP cites the inopposite case of *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-565, 10 NRC 521 (1979). Therein, the Appeal Board held that the Licensing Board must allow intervenors during the course of the special prehearing conference to present arguments supporting the admissibility of their proposed contentions, and that the ultimate merits are not to be debated at that stage of the proceeding. Here, the two remanded contentions had been admitted as issues in controversy as of October 16, 1987, and the ultimate merits thereof are not now being considered. At page 9 of its motion, NECNP relies upon the similarly inopposite case of *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-81-48, 14 NRC 71 (1981).

As soon as possible, after reviewing the briefs filed in compliance with our Order of November 27, 1987, and making the determination as to whether or not it is appropriate for us to reauthorize low-power operations prior to the completion of the remand proceeding, we will confer with the Applicants, NECNP and the Staff to find out whether motions for summary disposition will be filed or whether a hearing should be scheduled.

Finally, as an experienced litigator in NRC proceedings, NECNP was well aware of the provisions of 10 C.F.R. § 50.57(c) and had the opportunity to show that the two remanded contentions were relevant to the activity to be authorized — i.e., low-power operations up to 5% of rated power. It failed to do so. It cannot be heard to excuse its failure by arguing that it had no meaningful opportunity to refute Applicants' and Staff's allegations that the two remanded contentions do not raise a safety issue during low-power operations because it would not have been in a position to do so until the completion of the discovery period. For example, with respect to Contention IV, it argues that it "is now conducting inquiries, through written interrogatories, into several reported instances of actual equipment breakage in critical safety systems, such as the Primary Component Coolant System, to determine the extent that these incidents are attributable to *corrosion* caused by the accumulation of bacterial debris and sedimentation" (emphasis added). From the date Contention IV was submitted as a proposed contention until the present time, it was solely addressed to and was recognized only to be addressed to the *blockage of coolant flow by accumulation* of aquatic organisms and other foreign matter in the cooling systems.[12] It is well settled that a party is bound by the literal terms of its own contention. *Carolina Power and Light Co.* (Shearon Harris Nuclear Power Plant), ALAB-852, 24 NRC 532, 545 (1986). Without leave having been sought from the Board and granted, it is impermissible for an intervenor to attempt to amend his contentions or to advance new bases for them which could have been submitted earlier. *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-565, 10 NRC 521, 523 n.11 (1979). Again, for example, with respect to Contention I.V, NECNP argues that, in light of the fact that the Applicants' and the Staff's briefs argue principally that Seabrook's program for in-service inspection of steam tubing is not a safety issue because the particular circumstances causing the tube ruptures at the Ginna and North Anna plants would not occur at Seabrook, it has filed interrogatories to find out whether specific requirements for steam generator tube problems present similar and/or additional problems in the future. This argument is also to no avail because, as discussed in Part A, *supra*, we have ruled that those portions of the Applicants' and the Staff's briefs and affidavits addressing the merits of this contention were in error, and we proceeded to ignore them.

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[12] *See* LBP-82-76, 16 NRC 1029, 1075 (1982); ALAB-875, 26 NRC at 261-63, 275.

Order

1. NECNP's Motion for Leave to File a Reply Brief (filed on January 14, 1988) is denied.

2. Pursuant to the directions of the Commission set forth in CLI-87-13, 26 NRC 400 (1987), we renew our authorization to operate Seabrook, Unit 1, up to 5% of rated power insofar as the two contentions remanded in ALAB-875 are concerned. We renew our authorization because the two remanded contentions are not relevant to low-power operations inasmuch as the safety concerns raised therein would not adversely impact upon the public health and safety if Seabrook, Unit 1, were to be authorized to operate only up to 5% of rated power. However, we cannot give effect to our renewed authorization in light of ALAB-883, 27 NRC 43 (1988) and the Appeal Board's Memorandum of February 10, 1988 (unpublished), and thus we do not authorize the Director of NRR, upon making the findings required by 10 C.F.R. § 50.57(a), to issue the low-power license.

THE ATOMIC SAFETY AND
LICENSING BOARD

Sheldon J. Wolfe, Chairman
ADMINISTRATIVE JUDGE

Jerry Harbour
ADMINISTRATIVE JUDGE

Emmeth A. Luebke
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 17th day of February 1988.

* U. S. GOVERNMENT PRINTING OFFICE: 1988-202-286:60021