

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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Before the Atomic Safety and Licensing Board

In the Matter of )

LONG ISLAND LIGHTING COMPANY )

(Shoreham Nuclear Power Station,  
Unit 1) )

) Docket No. 50-322 (OL)  
) (Emergency Planning  
) Proceedings)  
)  
)

SUFFOLK COUNTY'S RESPONSE TO  
MOTIONS TO STRIKE  
FILED BY LILCO AND THE NRC STAFF

Suffolk County filed written direct testimony on Phase I emergency planning issues on October 12, 1982. On November 9, 1982, LILCO and the NRC Staff filed motions to strike all or portions of the County's direct testimony on contentions EP 5A (Role Conflict), EP 14 (Dose Assessment Models), and EP 2B/5B (Traffic Congestion). The County herein responds to those motions which, the County respectfully submits, are without basis and should be denied.

EP 5A

The County's review of LILCO's onsite emergency response plan led to its concern that there was no reasonable assurance that LILCO could obtain timely on-site emergency assistance from persons offsite because LILCO's plan failed to address the issue of role conflict among emergency workers. The County consequently submitted contention EP 5A which reads as follows:

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EP5: OFFSITE RESPONSE ORGANIZATION  
AND ONSITE RESPONSE AUGMENTATION  
(SC, joined by NSC and SOC)

Suffolk County contends that LILCO has failed to provide reasonable assurance that onsite assistance from offsite agencies will be forthcoming in the event of a radiological emergency at the Shoreham site (see, e.g., Plan at 5-8 and 6-15). LILCO has therefore not met the requirements of 10 C.F.R. §§50.47(b)(1), (2), (3), (8), (12) and (15), 10 C.F.R. Part 50, Appendix E, Item A, and NUREG 0654. In addition, LILCO has not demonstrated adequately that it will be able to augment its onsite emergency response staff in a timely manner (see Plan, Ch. 5). LILCO has also, therefore, failed to meet the requirements of 10 C.F.R. §50.47(b)(1) and (2). Thus:

- A. It does not appear that LILCO has addressed or analyzed the possibility that offsite personnel and/or onsite augmenting personnel expected to report to the Shoreham site for emergency duty, would fail to report (or report in a timely manner) because of conflicting family (or other) duties that would arise in the event of a radiological emergency.

To support its contention, Suffolk County filed the direct testimony of two experts, Drs. Kai T. Erikson and Stephen Cole, who have done work in the field of role conflict -- particularly with respect to workers who may be expected to perform emergency duties in the event of an accident at the Shoreham plant. In their testimony, both experts referred to recent studies they conducted on behalf of Suffolk County of volunteer firemen and school bus drivers in the Shoreham area. Both studies revealed that substantial numbers of those emergency workers would fail to report for duty in a timely manner during a radiological

emergency because they would first look after the safety of their own families. Those results hold clear implications for adequate emergency preparedness at the Shoreham plant.

LILCO has now moved to strike substantial portions of the County's EP 5A testimony which, if granted, would leave in evidence only a few pages of Dr. Erikson's testimony.<sup>1/</sup> Even more ambitiously, the NRC Staff has moved to strike all of the County's testimony and exhibits. Both parties claim that in discussing the role conflict surveys described above, which focused on workers who would perform emergency duties primarily offsite, the County's testimony is outside the scope of the contention and thus irrelevant (LILCO Motion at 2-3; NRC Staff Motion at 4). These claims, however, are groundless.

The County agrees with LILCO and the NRC Staff that the thrust of EP 5A is whether there will be sufficient onsite assistance from emergency personnel who are offsite at the beginning of an accident. However, a fundamental error underlying LILCO's and the NRC Staff's claims is their overly restrictive view of what constitutes relevant evidence.<sup>2/</sup> LILCO and the NRC Staff would seem by their motions to take the position that any evidence of human behavior offsite is, in all cases, irrelevant to human behavior onsite. The bounds

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<sup>1/</sup> See LILCO's Motion at 9, n. 5.

<sup>2/</sup> "Relevant evidence" means evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence. [Rule 401, Federal Rules of Evidence]

of relevance, they appear to argue, are defined by the fence surrounding the Shoreham plant. That narrow interpretation of relevance, however, is unsupportable.

Of clear relevance to the issue of the need to address role conflict in an emergency plan are the following questions:

- What is role conflict?
- Will role conflict be more pronounced during a radiological emergency?
- What are the implications of role conflict for emergency planning?
- How should an organization charged with planning for an emergency address the issue of role conflict?

The testimony that LILCO seeks to strike responds directly to those pertinent questions. The fact that they are addressed by discussion of radiological emergency workers not necessarily assigned to onsite tasks does not render their testimony irrelevant. In fact, LILCO's experts themselves buttress their testimony with several references having no direct relation to onsite emergency workers at Shoreham. For instance, LILCO's expert, Russell Dynes, supports his testimony by citing 6,000 interviews conducted at Ohio State University of:

"not just police chiefs, but sergeants and patrolmen; not just physicians, but nurses and attendants; not just heads of public works departments, but supervisors and crew members." [Emphasis added]

LILCO EP 5A testimony at 8. Dynes and Dennis S. Miletic explain further that their opinion that emergency workers will perform their responsibilities:

"...is evidenced by the high performance levels exhibited in emergencies by members of police and fire departments, public works departments, highway departments, emergency medical personnel, hospital personnel, and other workers with clear emergency responsibility." [Emphasis added]

LILCO EP 5A testimony at 16.<sup>3/</sup>

The above testimony by LILCO refers to many types of workers not expected to appear onsite at Shoreham for emergency duty and to interviews and studies not dealing with Shoreham. Nevertheless, LILCO has included this testimony as relevant evidence to support its position that role conflict will not impede its emergency response. Suffolk County's similar use of studies pertaining to role conflict among certain workers is no less relevant. In fact, Suffolk County's studies, focused precisely on radiological emergency workers in Suffolk County, is the best evidence available. The fact that the actual workers surveyed would be expected to respond primarily offsite during a radiological emergency goes to the weight of the surveys, not their admissibility.

Furthermore, both LILCO's and the NRC Staff's arguments that the survey of volunteer firemen bears no relation to onsite emergency duties ignore important facts. Suffolk County's survey included five fire departments in the Shoreham vicinity.

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3/ See also LILCO's experts' references to a general article on role conflict by Lewis Killian (LILCO 5A testimony at 6), "stories" about emergency workers who did not fulfill their roles (LILCO 5A testimony at 17), and the "extensive history" of evidence which supports their position (LILCO 5A testimony at 22), none of which refers to onsite emergency personnel. Note also that LILCO itself has brought into issue the efficacy of conducting the very types of surveys Suffolk County has conducted (LILCO testimony at 19-21).

Four of those departments <sup>4/</sup> provide mutual aid to the Wading River Fire Department. Under the mutual aid program, those four departments might have the occasion to perform onsite emergency duties. See LILCO Motion for Summary Disposition of the Traffic Congestion Issues at 7, 9; Affidavit of Nicholas J. Di Mascio on Emergency Vehicles at 5; LILCO plan at 5-8.

The County's survey asked the question whether the volunteer firemen would report for evacuation and firefighting duty in the event of a radiological emergency, or whether they would first look after their own families' safety. The fact that more than one-third of the volunteer firemen surveyed indicated that they would not report promptly to evacuate an area outside the plant during a radiological emergency has unquestionable relevance to whether they would respond onsite (closer to the source of danger) during a similar emergency. It defies logic that firemen would take care of their families if requested to report offsite, but would give their families less attention if requested to report onsite under the same emergency circumstances. Thus, the declared intended behavior of the firemen, as displayed by the survey is relevant to whether they or the Wading River Fire Department could be counted upon by LILCO to perform onsite duties. Clearly, the thrust of the facts revealed by the survey is that LILCO has to address this problem and resolve it. Otherwise, the public safety will be endangered. In light of these facts, the survey of volunteer firemen clearly is relevant and, therefore, admissible as evidence in the Phase I consideration of role conflict.

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<sup>4/</sup> Those departments are: Rocky Point, Ridge, Miller Place, and Riverhead.



EP 14

In testimony submitted by Dr. Fred Finlayson on EP 14,<sup>5/</sup> the County expressed its concerns that LILCO's dose assessment models were inadequate in that they: (1) calculated whole body doses without considering contributions from inhalation or ground contamination; (2) neglected important fission product source terms; and (3) estimated the release rates of noble gases and halogens based upon arbitrary assumptions concerning the ratio of those fission products in the mixture released. LILCO has moved to strike substantial portions of Dr. Finlayson's testimony claiming that it seeks to litigate a probabilistic risk assessment conducted for LILCO by SAI Laboratories (hereinafter "PRA") and thus is in violation of the Board's Prehearing Conference Order of July 27, 1982. LILCO further complains that the Board should strike other portions of Dr. Finlayson's testimony discussing Gaussian plume dispersion models because LILCO purportedly finds no direct mention in Dr. Finlayson's resume (Attachment 1) of his expertise in this area.

LILCO's claim that the County has attempted to litigate the PRA in its testimony on EP 14 is puzzling and without any

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5/ EP 14 reads as follows:

ACCIDENT ASSESSMENT AND DOSE ASSESSMENT MODELS  
(SC, joined by SOC and NSC)

LILCO's plan fails to provide reasonable assurance that adequate methods, systems and equipment for assessing and monitoring actual or potential off-site consequences of a radiological emergency condition are in use, and therefore does not comply with 10 C.F.R. §50.47(b)(9).

support in the record. A review of the many pages that LILCO seeks to strike reveals only Dr. Finlayson's discussion of LILCO's dose assessment models and the defects he perceives to be inherent in those models. Nowhere does Dr. Finlayson question, challenge or take issue with the PRA conducted by SAI.<sup>6/</sup> In fact, one is hard-pressed to find in those pages any references whatsoever to the PRA.

While Dr. Finlayson does refer, at pp. 10-11, to a table (Attachment 3) reproduced directly from the PRA, it is only for the purpose of identifying the fission products that might be released from the Shoreham plant during certain accidents. SAI has determined what those releases might be and Dr. Finlayson has simply accepted and used those data to show that calculations excluding those fission products will lead to lower dose estimates (Finlayson testimony at 11). Surely, the fission products likely to be released during an accident are relevant to assessment of doses that would be received through contact with them. The fact that the source of the evidence is LILCO's own PRA makes it no less relevant. In no way, however, does Dr. Finlayson's testimony place the accuracy of those release values or any other part of LILCO's PRA in issue. Thus, the County is at a loss to understand the basis for LILCO's claim.<sup>7/</sup>

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<sup>6/</sup> This is not to imply that the County finds no fault with LILCO's PRA, but only that the issue has not been raised by Dr. Finlayson's testimony.

<sup>7/</sup> Indeed, it should be noted that LILCO did not move to strike Attachment 3.



The Board's Prehearing Conference Order of July 27 precluded "litigation" of the PRA but did not call for exclusion of evidence relevant to the adequacy of LILCO's dose assessment models. Quite obviously, the County has not attempted in EP 14 to litigate LILCO's PRA in any sense of the word. In fact, the vast majority of the pages LILCO wishes to strike do not even discuss LILCO's PRA in any manner. In light of this fact, the County has remained within the confines of the Board's Order of July 27 and LILCO's motion based on a violation of that Order is groundless.

LILCO's claim that Dr. Finlayson's discussion of Gaussian plume models is outside his scope of expertise is equally without merit. Dr. Finlayson's resume is replete with examples of his expertise in probabilistic risk assessment and consequence analyses for nuclear accidents. Inherent within that area of expertise is knowledge of tracking plumes and associated plume dispersal models. Thus, LILCO's motion merely speculates regarding what LILCO believes should be in a resume, instead of relying upon any detailed factual showing. If LILCO questions Dr. Finlayson's qualifications, it should raise the concerns during voir dire and not in a motion to strike.

EP 2B/5B

In contentions EP 2B and EP 5B, the County is concerned that traffic conditions during an evacuation might hinder LILCO's emergency response at the Shoreham plant. Specifically, the County has

contended that traffic congestion during an emergency might prevent offsite personnel from responding onsite in a timely manner <sup>8/</sup> and cause delays in ambulance travel between the plant and Central Suffolk Hospital.<sup>9/</sup> The County addressed these issues with written direct testimony from four experts: Andrew C. Kanen, Dr. Kai T. Erikson, Dr. James H. Johnson and Dr. Stephen Cole.

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8/ EP 5: Offsite Response Organization and Onsite Response Augmentation

Suffolk County contends that LILCO has failed to provide reasonable assurance that onsite assistance from offsite agencies will be forthcoming in the event of a radiological emergency at the Shoreham site (see, e.g., Plan at 5-8 and 6-15). LILCO has therefore not met the requirements of 10 C.F.R. §§ 50.47(b)(1), (2), (3), (8), (12) and (15), 10 C.F.R. Part 50, Appendix E, Item A, and NUREG-0654. In addition, LILCO has not demonstrated adequately that it will be able to augment its onsite emergency response staff in a timely manner (see Plan, Ch. 5). LILCO has also, therefore, failed to meet the requirements of 10 C.F.R. § 50.47(b)(1) and (2). Thus:

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- B. LILCO has not adequately demonstrated the possible effects of traffic congestion during evacuation of the population upon the ability of offsite personnel and/or onsite augmenting personnel to respond promptly to the Shoreham site.

9/ EP 2: Medical and Public Health Support

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- B. Furthermore, LILCO has failed to adequately demonstrate that ground transportation (Plan at 6-16) is adequate for conveyance of contaminated injured individuals to Central Suffolk Hospital under the congested traffic or radiological conditions that are likely to exist during a radiological emergency. Thus, LILCO has failed to satisfy 10 C.F.R. § 50.47(b)(12), 10 C.F.R. Part 50, Appendix E, Item IV.E.6, and NUREG-0654, Item II.I.4.

Mr. Kanen's testimony discusses the problems of traffic congestion that will occur in the event of an emergency. Drs. Johnson, Erikson and Cole discuss the "evacuation shadow phenomenon"<sup>10/</sup> which Mr. Kanen specifically identified as a potential contributor to traffic congestion during an emergency at the Shoreham plant that could impede LILCO's emergency response (see Kanen testimony 8, 10-13).

The NRC Staff has moved the Board to strike several pages of Mr. Kanen's testimony and all of the testimony given by Drs. Johnson, Erikson and Cole. It argues that portions of Mr. Kanen's testimony should be struck because they deal "with traffic congestion generally in Suffolk County in the event of an emergency." NRC Staff Motion at 2. The NRC Staff complains further that the testimony of Drs. Johnson, Cole and Erikson is inadmissible because the "nexus between [the evacuation shadow] 'phenomenon' and the problems set out in Contentions EP 2B and 5B is so attenuated as not to be probative of the issues therein." NRC Staff Motion at 2-3. Contrary to the NRC Staff's claims, however, the testimony it seeks to strike is directly related to the issue of the impact of traffic congestion on LILCO's emergency response capability.

The pages of Mr. Kanen's testimony that the NRC Staff wishes to strike (page 6 through page 13, line 9) discuss

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<sup>10/</sup> Drs. Johnson and Erikson discuss the nature of the evacuation shadow phenomenon, its importance to rational emergency planning and the Long Island study on which they collaborated. Dr. Cole's testimony primarily addresses the manner in which the study was conducted.

four factors that could lead to traffic congestion if there was an emergency at the Shoreham plant. These four factors are: (1) work to home travel; (2) perimeter control; (3) evacuation; and (4) the evacuation shadow phenomenon. After discussing these four factors, Mr. Kanen then applies them to the ability of ambulances to travel to Central Suffolk Hospital and the ability of offsite personnel to reach the Shoreham site (Kanen testimony at 13-18). Mr. Kanen's discussion of the four factors contributing to traffic congestion explain and provide the basis for his conclusions at pp. 13-18 of his testimony. Thus, it is not only highly relevant, but almost essential to a clear understanding of the problems raised in EP 2B and EP 5B.

Furthermore, as stated above, one of the key factors having an impact on traffic congestion that could impede travel to the Shoreham site or Central Suffolk Hospital is the evacuation shadow phenomenon (or voluntary evacuation) (Kanen testimony at 8, 10-13). That phenomenon could put many thousands of additional cars on the road, with an obvious impact on congestion (see Johnson testimony at 15-16). Drs. Johnson, Cole and Erikson have studied that phenomenon not only generally, but in Suffolk County in particular. Their testimony explains not only the nature of the evacuation shadow phenomenon as it exists in Long Island, but also provides relevant insight into the methodology of the study they conducted. Thus, it provides the underlying basis for a significant part of Mr. Kanen's testimony


which, as discussed earlier, identified the evacuation shadow phenomenon as a factor which could have an impact on the emergency responses at issue in EPs 2B and 5B. It is precisely this sort of detailed, site-specific testimony that raises the County's evidence above the simplistic generalizations offered by the NRC Staff on these issues (See NRC Staff Supplemental Testimony of John A. Sears Regarding Onsite Emergency Planning (Phase I) at 13-14, 19-20). Far from being "attenuated" from the issues raised, the testimony of Drs. Johnson, Cole and Erikson is highly relevant. Indeed, it is the best available evidence. The NRC Staff's motion to strike should, therefore, be denied.

Conclusion

The motions filed by LILCO and the NRC Staff to strike all or portions of the County's testimony on EP 5A, EP 14 and EP 2B/5B are without merit and should be denied.

Respectfully submitted,

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Dated: November 16, 1982  
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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

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In the Matter of )  
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LONG ISLAND LIGHTING COMPANY )

(Shoreham Nuclear Power Station, )  
Unit 1) )  
\_\_\_\_\_ )

Docket No. 50-322 (OL)  
(Emergency Planning  
Proceedings)

CERTIFICATE OF SERVICE

I hereby certify that copies of "Suffolk County's Response To Motions To Strike Filed By LILCO And The NRC Staff" were sent on November 16, 1982 by first class mail, except where otherwise noted, to the following:

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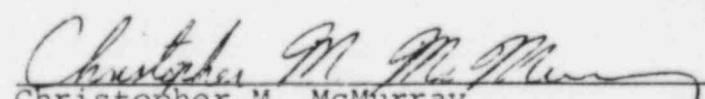
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