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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of)	
)	
LONG ISLAND LIGHTING COMPANY)	Docket No. 50-322-OL-3
)	(Emergency Planning
(Shoreham Nuclear Power Station,)	Proceeding)
Unit 1))	

APPENDIX TO LILCO'S FINDINGS OF FACT
AND CONCLUSIONS OF LAW ON OFFSITE
EMERGENCY PLANNING (CONTENTIONS)

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List of Contentions

Contentions 1-10: LILCO's Lack of Legal Authority

Preamble to Contentions 1-10. The LILCO Transition Plan specifies that in an emergency, the actions described in Contentions 1 through 10 below may be ordered to be taken by LILCO personnel. Contentions 1 through 10 allege that LILCO personnel do not have the authority to order or to perform those actions.^{1/} Accordingly, as alleged in these contentions LILCO cannot, as a matter of law, exercise the responsibilities identified in Contentions 1-10, and therefore, contrary to 10 CFR Section 50.47(a)(1) its Plan could not and would not be implemented. LILCO's lack of legal authority to perform actions assigned to LILCO under the Transition Plan also results in noncompliance with 10 CFR Section 50.47(b)(3) and NUREG 0654, Section A.2.6, in addition to other regulatory requirements as set forth in the contentions which follow.

Contention 1. LILCO is prohibited by law from directing traffic. N.Y. Veh. & Traf. Law §§1102, 1602 (McKinney); N.Y. Penal Law §§190.25(3), 195.05, 240.20(5) (McKinney); N.Y. Transp. Corp. Law §30 (McKinney). Under the LILCO Plan, LILCO employees designated "traffic guides" are expected to direct or "guide" traffic to ensure that evacuees follow the evacuation routes identified and prescribed by LILCO in the Plan and to "discourage" non-compliance with those routes. (See OPIP 3.6.3, at 6a-7 and Attachments 1 and 4 thereto; Appendix A "Traffic Control," at IV-5 et seq.). These portions of the Plan, therefore, are incapable of implementation.

^{1/} See also pages 2-3 of the June 23, 1983 FEMA review of the Transition Plan ("FEMA Report") which also questions LILCO's legal authority.

Further, LILCO's lack of authority to direct traffic renders its evacuation time estimates, required under 10 CFR Part 50 Appendix E, Section IV, and NUREG 0654, Section II.J.8 and Appendix 4, inaccurate. LILCO's evacuation time estimates (Appendix A at V-3, V-8; OPIP 3.6.1, Attachment 4 2 [sic]) and the computer model from which they are derived, assume that all persons will use only the prescribed evacuation routes. (See Appendix A, at !V-19, V-2). In fact, however, since LILCO's traffic guides are prohibited by law from directing traffic, LILCO will not be able to ensure that motorists will use only the prescribed routes, rendering the LILCO evacuation time estimates inaccurate. Thus, LILCO does not comply with 10 CFR Section 50.47(b)(10), Part 50 Appendix E Section IV, and NUREG 0654 Sections II.J.8, J.9.5., J.10, and Appendix 4. Without LILCO's assumption that evacuees will follow prescribed evacuation routes, the LILCO evacuation time estimates would increase substantially.

Contention 2. LILCO is prohibited by law from blocking roadways, setting up barriers in roadways, and channeling traffic. N.Y. Veh. & Traf. Law §1114 (McKinney); N.Y. Penal Law §§190.25(3), 195.05, 240.20(5) (McKinney); N.Y. Transp. Corp. §30 (McKinney). Under the LILCO Plan, LILCO employees are expected to implement various traffic control measures, including those listed above, to ensure that evacuees follow the evacuation routes prescribed by LILCO. (Appendix A at Section IV). LILCO's evacuation time estimates assume that traffic control devices such as roadblocks, prescribed turn movements, channelization treatment, one-way roads and blocking lanes on the Long Island Expressway will be implemented and effective in directing and controlling evacuation traffic. (See Appendix A at

Section IV) Because LILCO and its "traffic guides" lack legal authority to implement such traffic controls (see also FEMA Report at 2-3, 10-11), LILCO cannot rely on the use of traffic control devices to ensure the use of prescribed evacuation routes. As a result, LILCO's evacuation time estimates are unrealistically low and the Plan fails to comply with 10 CFR Section 50.47(b)(10), Part 50 Appendix E Section IV, and NUREG 0654 Sections II.J.8, J.9, J.10, and Appendix 4.

Contention 3. LILCO is prohibited by law from posting traffic signs on roadways. N.Y. Veh. & Traf. Law §1114 (McKinney); N.Y. Penal Law §§190.25(3), 195.05, 240.20(5) (McKinney). In addition to its proposed use of signs as traffic control or channelling devices (see Contention 2), the LILCO Plan also assumes that "trail blazer" signs will be installed as permanent roadway hardware to direct the public in the use of prescribed evacuation routes in the event of an evacuation. LILCO's evacuation time estimates assume that such signs are installed. (Appendix A, at IV 70). In fact, however, such signs will not be installed by Suffolk County and it is unlawful for LILCO to install such signs. Therefore, LILCO cannot rely on such signs to ensure the use of prescribed evacuation routes, and its evacuation time estimates are, as a result, unrealistically low. Thus, LILCO fails to comply with 10 CFR Section 50.47(b)(10), Part 50 Appendix E Section IV, and NUREG 0654 Sections II.J.8, J.9, J.10, and Appendix 4.

Contention 4. LILCO is prohibited by law from removing obstructions from public roadways, including the towing of private vehicles. N.Y. Penal Law § 165.05 (McKinney). The LILCO Plan provides that "road crews" made up of LILCO employees will remove obstacles from roadways by using LILCO

tow trucks and line trucks. (Plan, at 4.4-3; OPIP 3.6.3, at 2 and Attachment 2 thereto). Because LILCO is prohibited by law from towing private vehicles and removing obstacles from public roadways, this aspect of LILCO's Plan cannot and will not be implemented. As a result, the Plan fails to comply with NUREG 0654, Section II.J.10.k.

Contention 5. LILCO is prohibited by law from activating sirens and directing the broadcast and contents of emergency broadcast system ("EBS") messages to the public. N.Y. Penal Law §§190.25(3), 195.05 (McKinney); N.Y. Exec. Law § 20 et seq. (McKinney). Under the LILCO Plan, LILCO employees are expected to order that sirens be activated. They are also expected to determine the contents of EBS messages, to determine that an EBS broadcast should be made, and to direct that such broadcast occurs. (See OPIPs 3.3.4 and 3.8.2) Because LILCO employees are prohibited by law from performing such actions, the LILCO Plan cannot and will not be implemented, and the Plan fails to comply with 10 CFR Section 50.47(b)(5) and NUREG 0654 Section II.E.5 and E.6. Moreover, in assigning such functions to LILCO employees, the Plan fails to comply with 10 CFR Part 50, Appendix E, Section IV.D.3.

Contention 6. LILCO is prohibited by law from making decisions and official recommendations to the public as to the appropriate actions necessary to protect the public health and safety, including deciding upon protective actions which will be communicated to the public. N.Y. Penal Law §§190.25(3), 195.05 (McKinney); N.Y. Exec. Law § 20 et seq. (McKinney). Under the LILCO Plan, all command and control functions, as well as all management and coordination of the entire emergency response, are to be

performed by various LILCO employees or, in the case of the "Radiation Health Coordinator," by an unidentified LILCO "Contractor." (See Plan at 3.1-1; OPIPs 2.1.1, 3.1.1, 3.6.1). Thus, contrary to 10 CFR Part 50, Appendix E, Section IV.A, LILCO employees and contractors rather than "State and/or local officials" are identified as responsible for planning, ordering, controlling and implementing the offsite response including appropriate protective actions. Because LILCO is prohibited by law from performing such functions, its Plan cannot and will not be implemented, and it fails to comply with 10 CFR Sections 50.47(b)(5), 50.47(b)(6), 50.47(b)(10), and NUREG 0654 Sections II.E.5, E.6, E.7, G, J.9 and J.10.

Contention 7. LILCO is prohibited by law from making decisions and official recommendations to the public concerning protective actions for the ingestion exposure pathway. N.Y. Exec. Law §20 et seq. (McKinney); N.Y. Penal Law §190.25(3), 195.05 (McKinney). The LILCO Plan provides that various LILCO employees and an unidentified LILCO "Contractor" will be responsible for determining, making to the public, and implementing protective action recommendations for the 50-mile ingestion exposure pathway EPZ. (See Plan Section 3.6; OPIP 3.6.6) Because LILCO employees and contractors are prohibited by law from performing these actions, the proposed ingestion pathway EPZ protective actions cannot and will not be implemented. Therefore, the Plan fails to comply with 10 CFR Section 50.47(b)(10), 50.47(c)(2), Appendix E Section IV.A.8, and NUREG 0654, Section II.J.II.

Contention 8. LILCO is prohibited by law from making decisions and official recommendations to the public concerning recovery and reentry. N.Y. Exec. Law §20 et seq. (McKinney); N.Y. Penal Law §190.25(3), 195.05

(McKinney). The LILCO Plan proposes that short-term and long-term recovery and reentry operations will be performed by LILCO personnel and contractors following a radiological emergency at Shoreham (Plan, at 3.10-1 and 3.10-2; OPIP 3.10.1). LILCO identifies no non-utility entity, with necessary authority, which has agreed to undertake the initiation or implementation of the recovery and reentry processes. Since, under the LILCO Plan, command and control functions are assumed by LILCO, and under New York law, LILCO does not have the authority to perform recovery and reentry functions, recovery and reentry cannot be initiated or implemented. The Plan thus fails to comply with 10 CFR Sections 50.47(b)(1), 50.47(b)(13), and NUREG 0654 Section II.M.

Contention 9. LILCO is prohibited by law from dispensing fuel from tank trucks to automobiles along roadsides. Suffolk County Sanitary Code, Article 12; Code of the Town of Brookhaven, Chapter 30, Article X. The LILCO Plan provides that LILCO fuel tank trucks will be stationed along evacuation routes to assist motorists who run out of fuel. These trucks will dispense up to three gallons of fuel per vehicle to vehicles that have run out of fuel. (Appendix A at IV-176.) However, LILCO is prohibited by law from distributing fuel to motorists on the roadsides, this aspect of the LILCO Plan cannot and will not be implemented. It is likely that many evacuees will not begin an evacuation with a full tank of gas. Many cars may run out of gas, both inside and outside the EPZ, as a result of extended operation times due to congestion, stop-and-go conditions and time spent sitting in queues. Cars running out of gas, and the probable abandonment of vehicles which will follow, will result in obstructions and blockages on roadways in use during the

evacuation. LILCO's evacuation time estimates do not take cars running out of gas and the resulting road obstructions into account. If LILCO cannot effectively prevent or remove such obstacles, its evacuation time estimates will increase. The LILCO Plan thus fails to comply with 10 CFR Section 50.47(b)(10), Part 50 Appendix E Section IV, NUREG 0654 Sections II.J.8, J.9, J.10, and Appendix 4.

Contention 10. LILCO is prohibited by law from performing law enforcement functions at the EOC, at relocation centers, and at the EPZ perimeter. N.Y. Penal Law §§190.25(3), 195.05, 240.20(5) (McKinney); N.Y. Transp. Corp. §30 (McKinney); N.Y. Veh. & Traf. Law §§1102, 1602 (McKinney); N.Y. Exec. Law § 20 et seq. (McKinney). The LILCO Plan identifies LILCO employees as being responsible, during an emergency, for establishing and maintaining security and access control for the EOC, directing traffic into the relocation centers, establishing and maintaining security at the relocation centers, and establishing and maintaining perimeter/access control to evacuated areas. (OPIP 2.1.1, at 60-61; Appendix A at IV-8; OPIP 3.6.3, Attachment 4). 10 CFR Section 50.47(b)(1) requires LILCO to demonstrate that it "has staff to respond and to augment its initial response on a continuous basis." LILCO must also "specify the functions and responsibilities for major elements ... of emergency response," including law enforcement response. NUREG 0654, Section II.A.2.a. Without the ability to provide security at the EOC and relocation centers, and provide perimeter control, the LILCO Plan and the protective actions contemplated therein could not and would not be implemented. The Plan thus fails to comply with 10 CFR Sections 50.47(b)(1) and 50.47(b)(10), and NUREG 0654, Sections II.A.2.a, J.9 and J.10.

Contentions 11-14: Command and Control

Preamble to Contentions 11-14. 10 CFR Part 50, Appendix E, Section IV.A requires emergency plans to describe the organization for coping with radiological emergencies, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's emergency organization and identification of the State and/or local officials responsible for planning for, ordering, and controlling appropriate protective actions, including evacuations. In the LILCO Transition Plan, in place of "State and/or local officials," LILCO employees (including in the case of the "Radiation Health Coordinator," an unidentified LILCO "Contractor" which, for purposes of these contentions is included in the term "LILCO employees") are identified as being responsible for planning for, ordering, and controlling the entire offsite emergency response. Thus, all the command and control functions, as well as all management and coordination of the entire emergency response, are to be performed by various LILCO employees. (Plan, at 3.1-1; OIPs 2.1.1, 3.1.1, 3.6.1). Accordingly, the "offsite authorities responsible for coordinating and implementing offsite emergency measures," with whom the LILCO onsite emergency coordinator must exchange information (see 10 CFR Part 50, Appendix E, Section IV.A.2.c), are fellow LILCO employees.

In Contentions 11-14 below, the Intervenors contend that there cannot and will not be offsite emergency preparedness that provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at Shoreham because LILCO employees are not able to exercise effectively the command and control responsibilities necessary to plan for, order, manage, coordinate and control appropriate protective

actions. Each of the deficiencies identified in Contentions 11-14 results in noncompliance with 10 CFR Sections 50.47(a)(1), 50.47(b)(1), 50.47(b)(3), Part 50 Appendix E, Section IV, and NUREG 0654 Section II.A.

Contention 11. The LILCO employees in command and control positions under the LILCO Plan may experience a conflict between LILCO's financial and institutional interest and the public's interest, which may substantially hamper their ability to perform the functions assigned to them in a manner that will result in adequate protection of the public. The Intervenor contend that LILCO employees will have a strong incentive to minimize the public's perception of the potential or actual danger involved in a radiological emergency in order to avoid engendering public or LILCO shareholder disapproval of LILCO, or anti-Shoreham sentiment. Thus, for example, they may not recommend an appropriate protective action in a prompt manner because to do so would be contrary to LILCO's financial interest in maintaining a public perception that Shoreham is not a source of danger. LILCO has failed to institute appropriate measures to ensure the independence of LERO personnel. Accordingly, there is no assurance that correct and appropriate command and control decisions will be made by LILCO employees.

Contention 15: LILCO's Lack of Credibility

Preamble to Contention 15. The LILCO Plan is dependent upon LILCO/LERO personnel providing essentially all necessary information and recommendations which are required during an emergency. Contention 15 addresses the question whether LILCO/LERO recommendations for protective actions (and other information provided by LILCO/LERO) will be believed and followed or whether LILCO will be distrusted as a source of information with

the result that its protective action recommendations (and other information provided) will not be believed or followed by the public.

Contention 15. Intervenors contend that LILCO is not considered by the public to be a credible source of information. More than 60 percent of the people in Suffolk County would not trust LILCO officials at all to tell the truth about an accident. See Social Data Analysts Survey. Persons are more likely to question, refuse to believe, disobey or ignore orders, recommendations, or information that come from persons whom they do not believe than that from authorities they trust and consider credible.

Because the public does not perceive LILCO as a credible source of information, protective action recommendations and other information disseminated by LILCO in an emergency will not be followed or believed by the public. Further, LILCO may be viewed hostilely as the source of the problem in the first place, or skeptically because the public will perceive that it is not in LILCO's financial interest to disclose all pertinent information. (Members of the public will perceive that LILCO will not disclose the seriousness of an accident due to fears of lower ratings in the financial markets, NRC sanctions, or a lower public image than already exists.) Therefore, people will be likely to disregard or disobey protective action recommendations or other emergency instructions disseminated by LILCO during an emergency. Intervenors thus contend that the LILCO Plan cannot and will not be implemented, and accordingly, there can be no finding of compliance with 10 CFR Section 50.47. The paragraphs which follow set forth the particular aspects of, or operations contemplated by, the LILCO Plan which cannot be implemented as a result of LILCO's lack of credibility, and the resulting lack of regulatory compliance.

[Note that 15.A through 15.G are not separately admitted as contentions, but are "subsumed within the main contention and may be treated as reasons in support thereof." (Bd. Order 8/19/83.)

Contention 15.A. LILCO employees are assigned the responsibility of command and control over the personnel in the support organizations relied upon in the Plan for emergency response services (ARC, DOE-RAP, ambulance, fire, rescue organizations, local law enforcement agencies, and the U.S. Coast Guard). (OPIP 2.1.1; Plan at 2.2-1, 2.2-2, 2.2-4, 4.2-1.). Intervenors allege that such individuals will share the public perception that LILCO is not a credible source of information. Therefore, it is likely that orders from the LILCO employees in command and control will not be obeyed by the non-LILCO emergency workers relied upon in the Plan. Accordingly, there is no assurance that the portions of the LILCO Plan involving participation of non-LILCO personnel can or will be implemented, and there can be no finding of compliance with 10 CFR Section 50.47(a)(1). The likelihood that non-LILCO workers will not obey LILCO command and control orders means that the following aspects of the LILCO Plan cannot and will not be implemented:

(1) Offsite accident and dose assessment and projection, and recommendations to the LILCO Director of LERO as to what particular protective actions should be recommended to the public, resulting in noncompliance with 10 CFR Sections 50.47(b)(9), 50.47(b)(10), 50.47(c)(2) and NUREG 0654 Sections II.1, J.9 and J.10.

(2) The protective action of evacuation resulting in noncompliance with 10 CFR Sections 50.47 (b)(10) and NUREG 0654 Sections II.J.9 and J.10.

(3) Staffing of relocation centers, and the provision of necessary services for evacuees, resulting in noncompliance with 10 CFR Sections 50.47(b)(8), 50.47 (b)(10), and NUREG 0654 Sections II.J.10 and II.J.12.

Contention 15.B. A protective action recommendation of sheltering could not or would not be implemented. Based on a survey of Long Island residents, a substantial number of the people advised to shelter will choose to evacuate instead as a result of their lack of trust in LILCO's interest or ability to properly and objectively determine and recommend actions that are in the best interests of the public. Thus, the protective action of sheltering could not and would not be implemented in violation of 10 CFR Sections 50.47(a)(1), 50.47(b)(10) [sic] and NUREG 0654 Sections II.J.9. and J.10.

Contention 15.C. The LILCO Plan provides for early dismissal, sheltering or evacuation/relocation of students in schools within or near the EPZ, depending on the nature and circumstances of an accident at Shoreham. If protective actions are recommended for the public in the EPZ, schools outside the EPZ having children who reside in the EPZ are expected to retain such children at the schools after the end of the school day. (See Appendix A, at II-19 through 20). However, under the LILCO Plan, the decision to implement an early dismissal or to shelter, evacuate, relocate or retain students rests with the schools. (See Appendix A, at II-19). The recommendation to dismiss early or to implement any other protective actions will be made, by LILCO, over the EBS radio (Plan at 3.3-4 through 3.6-6; Appendix A at II-19). The school authorities, being members of the public, are likely to share the perception that LILCO is not a credible source of information. Therefore, they may not believe, or follow, the information or

recommendations provided to them by LILCO. As a result, there is no assurance that any protective actions for school children (including sheltering, evacuation, relocation, retaining children after school hours, or early dismissal to permit sheltering or evacuation with parents) can or will be implemented, and there can be no finding of compliance with 10 CFR Sections 50.47(a)(1) or 50.47(b)(10) and NUREG 0654 Sections II.J.9 and J.10.

Contention 15.D. Assuming that the traffic control measures specified in the LILCO Plan are not prohibited by law (see Contentions 1-4), LILCO's traffic guides will be disobeyed by motorists, as a result of LILCO's lack of credibility. Similarly, LILCO personnel assigned to perform security functions under the LILCO Plan (i.e., performing law enforcement functions at the EOC, relocation centers, and at the EPZ perimeter), again assuming they are not prohibited from performing such functions, are unlikely to be trusted or obeyed by the public result of LILCO's lack of credibility. In addition, since the emergency will emanate from an incident at LILCO's own facility, the public will be likely to hold LILCO and its personnel responsible for the emergency, which will cause LILCO's employees to be viewed with hostility and suspicion, and will increase the likelihood that orders from LILCO employees will be ignored or disobeyed. As a result, there can be no finding of compliance with 10 CFR Part 50, Appendix E Section IV.A. and NUREG 0654 Section II.J.8 and Appendix 4, because LILCO's evacuation time estimates are unrealistically low (being based on the assumption that all evacuees will follow the evacuation routes and instructions prescribed by LILCO). The Plan also fails to comply with 10 CFR Sections 50.47(a)(1) and 50.47(b)(10) and NUREG 0654 Sections II.J.9 and J.10 because there is no assurance that the protective

action of evacuation can or will be implemented or that there will be adequate security during an emergency. In addition, the lack of effective perimeter control will result in persons' entering the EPZ, and being exposed to radiation, and impeding evacuation from the EPZ.

Contention 15.E. The sample messages for EBS broadcasting which are contained in the Plan (Attachment 3.8.1) identify a LILCO employee (Director of LERO) as the source of the information and the protective action recommendation. Since the public does not consider LILCO to be a credible source of information or advice, instructions from a LILCO employee will not be obeyed. Therefore, these messages will not accomplish their intended purpose of providing clear instruction to the public and there is no compliance with 10 CFR Section 50.47(b)(5) and NUREG 0654 Sections E.5, E.6 and E.7.

Contention 15.F. LILCO's proposed rumor control point is to be manned by LILCO employees. (Plan, at 3.8-5). This rumor control effort will be ineffective and will fail to comply with NUREG 0654, Section II.G.4.c, because it relies on LILCO -- a non-credible source of information -- as the authoritative source for squelching, explaining or otherwise controlling rumors. Rumors cannot be effectively controlled if the source of control is itself not credible. Thus, the LILCO Plan does not comply with NUREG 0654, Section II.G.4.c and 10 CFR Sections 50.47(b)(5) and 50.47(b)(7).

Contention 15.G. LILCO proposes to conduct all public education activities designed to inform the public about Shoreham and about actions to be taken in the event of a Shoreham emergency. (See Plan at 3.8-1 through 3.8.4) LILCO's lack of credibility renders LILCO incapable of effectively educating the public on these matters. The public will likely disbelieve,

disregard or discount purported educational materials regarding preparations for a radiological emergency at Shoreham, if such materials are received from and/or prepared by LILCO. Thus, the LILCO Plan cannot and does not comply with 10 CFR Section 50.47(b)(7) or NUREG 0654, Sections II.G.1 and 2.

Contentions 16-21: Public Education and Information

Preamble to Contentions 16 - 21. The NRC's emergency planning regulations require that the public receive information on a periodic basis on the nature and effects of radiation, protective measures which should be taken in the event of a radiological emergency, methods of public notification and other such information. 10 CFR Section 50.47(b)(7) and 10 CFR Part 50, Appendix E, Section IV.D.2. Public education materials should include written material that is likely to be available in a residence during an emergency, and in addition, measures must be taken to inform transients of the proper action to be taken during a radiological emergency. NUREG 0654, Sections II.G.1 and G.2. 10 CFR Section 50.47(b)(5) requires that there be means to provide notification and clear instruction to the populace within the plume exposure pathway EPZ and that the content of effective messages to the public must be established. See also NUREG 0654, Sections II.E.5 and 7. It is crucial to any radiological emergency response effort that the public have accurate and truthful knowledge of the nature of the threat, the protective actions available and the effectiveness of such protective actions. Otherwise, public confusion and ignorance will hamper the emergency response and the public will be unable to take protective actions. If information is not provided clearly or is not understood or believed, the public will fail to take appropriate protective actions, resulting in increased exposure, and noncompliance

with 10 CFR Sections 50.47(a)(1), 50.47(b)(10) and NUREG 0654 Sections II.J.9 and J.10.

Contention 16. LILCO has drafted a public education brochure entitled "Emergency Procedures: Shoreham Nuclear Power Station." The content of LILCO's public information brochure is misleading and incomplete and thus this aspect of the public information program fails to comply with 10 CFR Section 50.47(b)(7), 10 CFR Part 50, Appendix E, Section IV.D.2, and NUREG 0654, Sections II.G.1 and 2. In particular:

E. The LILCO brochure's discussion of radiation effects is limited to natural sources and very low levels of radiation. It does not adequately address the magnitude of doses that the public might receive during a severe accident, such as one requiring EPZ evacuation, nor the health-threatening consequences related to such releases. Such inadequate disclosure of essential facts renders the brochure incredible.

J. The brochure does not describe what radio stations are participants in the EBS system. See FEMA Report at 6, citing non-compliance with NUREG-0654, Section II.G.2.

K. The brochure states (at page 9) that "[y]ou will find it easy to get to your relocation center if you travel along the recommended route." This is a mischaracterization of the facts. The suggestion that evacuation will be "easy" makes LILCO's brochure inaccurate, misleading and not credible.

L. The brochure states (at pge 9) that the routes recommended to the evacuees will be the "safest and fastest way out of the emergency planning area." This statement is inaccurate, misleading, and renders the

brochure not credible. Residents of the EPZ will know that the routes prescribed by LILCO are not the "fastest" way out of the zone. [Subcontentions 16.K and 16.L were admitted with the stipulation that "[n]o traffic issues are to be relitigated hereunder; these subcontentions are limited to whether statements made about traffic render the brochure 'inaccurate' misleading and not credible.'" (Bd. Order 3/9/84.)]

M. The brochure states (at page 9) that evacuees should "Follow the blue and white pathfinder signs which are located on every major road in the 10-mile emergency planning area. They will direct you out of the area." An almost identical statement is on page 8 of the Brochure. These statements are false. No such pathfinder signs exist or have been installed. Moreover, residents of the EPZ will know that such signs are not "located on every major road" in the EPZ. The statements render the brochure not credible.

Contention 18. The proposed LILCO posters, telephone book inserts, and EBS messages do not tell the reader what zone he is in nor do they describe the zones in which protective actions must be taken or the prescribed routes to take from those zones. (See FEMA Report at 5, citing non-compliance with NUREG 0654, Section II.E.7.) Therefore, someone who does not have access to a brochure in the event of an emergency will be unable to identify his or her zone or to follow the prescribed evacuation route out of the zone of danger. Thus, these items are not effective and do not comply with 10 CFR Sections 50.47(b)(5) and 50.47(b)(7) and NUREG 0654 Sections II.E.5, E.6, E.7, G.1 and G.2. Further, even if people know the prescribed evacuation routes for the zone in which they live, the LILCO plan does not assure that if such people are visiting other zones (such as to pick up their

children at a school which is in another zone), they will be able to determine quickly and reliably the prescribed routes by which to evacuate from that zone. Thus, the Plan fails to comply with 10 CFR Sections 50.47(a)(1) and 50.47(b)(10), and NUREG 0654 Sections II.J.9 and J.10, because protective actions cannot and will not be implemented.

Contention 20. LILCO intends that EBS messages will be broadcast simultaneously by WALK AM and FM. (Plan at 3.3-6). However, WALK AM does not operate at night. Therefore, those persons without FM radios (especially people in cars) will be unable to receive adequate information in the event a radiological accident occurs at night, contrary to the requirements of 10 CFR Section 50.47(b)(5).

Contention 21. The brochure and other printed educational materials which accompany the LILCO Plan will not be read and/or understood by several segments of the population, and the Plan therefore fails to comply with 10 CFR Sections 50.47(b)(5), 50.47(b)(7) and NUREG 0654, Section II.B.1, E.5 and II.J.10(c).

C. LILCO's materials are written exclusively in English. Similarly, the EBS messages to be transmitted by WALK in the event of an emergency will be delivered exclusively in English. However, data from the 1980 census show that there are more than 1,300 Hispanic residents of the towns of Brookhaven and Riverhead who speak English either poorly or not at all. These people will not understand either LILCO's educational materials or its EBS messages.

Contention 22: Inadequacy of LILCO's Proposed 10-Mile Plume Exposure Pathway Emergency Planning Zone ("EPZ")

Preamble to Contention 22. 10 CFR Section 50.47(a)(1) prohibits the NRC from issuing an operating license absent a finding that emergency preparedness exists for the offsite area surrounding a nuclear power plant. The Commission must find that the state of emergency preparedness provides "reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency." Id.

A major source of radiation exposure in the event of a radiological emergency is that received as a result of direct contact with a radioactive plume and/or from inhalation of radioactive gases and particles within the plume. Thus, the NRC requires the development of a plume exposure EPZ around each plant as the basis for planning for a radiological emergency. 10 CFR Sections 50.47(b)(10), 50.47(c)(2) and Appendix E, Sections II.N.2 and IV.

"EPZs are defined as the areas for which planning is needed to assure that prompt and effective actions can be taken to protect the public in the event of an accident." NUREG 0654, Section I.D.2. The "overall objective" is to provide planning and a state of preparedness that will permit implementation of protective actions if exposure to the public is projected to be above the EPA's Protective Action Guides ("PAGs"). 10 CFR Section 50.47(b)(10) requires that planning for protective actions must be consistent with Federal guidance such as the PAGS. Under the PAGs, protective actions should be commenced in the event of potential exposure of members of the public in the range of one to five rems. NUREG 0654, Section I.D.1.

Under the NRC's rules, plume exposure EPZs are generally 10 miles in radius. However, the 10-mile size is not an absolute: "[t]he exact size and configuration of the EPZs surrounding a particular nuclear power reactor shall be determined in relation to local emergency response needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries." 10 CFR Section 50.47(c)(2). See also NUREG 0654, Section I.D.2.

Contention 22.D. 10 CFR Section 50.47(c)(2) provides that two elements essential to defining the configuration of an EPZ are the location of local jurisdictional boundaries and demographic conditions. Thus, it is good emergency planning practice to include, if possible, the entire area of a local municipality within the boundaries of an EPZ. At a minimum, an EPZ should avoid dividing major population centers within a local municipality. See NUREG 0654, Section I.D.a.

LILCO's EPZ fails to meet the criteria of 10 CFR Section 50.47(c)(2) and NUREG 0654 because the proposed LILCO EPZ runs through and divides the villages of Port Jefferson and Terryville and the town of Riverhead. The EPZ should be extended to include all of Port Jefferson and Terryville and additional portions of Riverhead (those portions in the area 1-2 miles to the immediate east of the proposed EPZ which contain dense population and Riverhead's business district).

Contention 23: The Evacuation Shadow Phenomenon

Contention 23. Intervenors contend that in the event of an accident at Shoreham, there would be large numbers of persons who would evacuate voluntarily (the "evacuation shadow" phenomenon), even if not ordered to do

so. LILCO has failed to take into account adequately the evacuation shadow phenomenon, thus resulting in a failure to comply with 10 CFR Sections 50.47(a)(1), 50.47(b)(10), 50.47(c)(2), and NUREG 0654, Section II.D. The specific deficiencies in the LILCO Plan which result from its failure to take into account the evacuation shadow phenomenon are set forth in detail in paragraphs A-J, below.

Contention 23.A. A protective action recommendation of sheltering under the LILCO Plan would not and could not be implemented because a substantial number of the people in the 10 mile EPZ who are advised to shelter will choose to evacuate instead. Vehicles provide little if any protection from a passing plume. Thus, even if a sheltering recommendation were made because plume passage were imminent, a substantial number of people would receive little if any protection from the plume. Therefore, a protective action recommendation of sheltering will not constitute an adequate protective measure and the Plan thus fails to comply with 10 CFR Sections 50.47(a)(1) and 50.47(b)(10), and NUREG 0654 Sections J.9 and J.10.

Contention 23.B. Even if an initial announcement regarding a Shoreham emergency indicates that persons in certain portions of the EPZ need not take any protective action, a substantial portion of the population, upon learning of the existence of an emergency at Shoreham, will decide to evacuate. If the event then were to escalate and a sheltering recommendation were then to be made, the voluntary evacuees would be unable to shelter because they would be in transit in their vehicles and sheltering would not be an available protective action. Thus, they would be subject to exposure to the passing radioactive plume. The LILCO Plan thus fails to provide

reasonable assurance that adequate protective measures can and will be taken, in violation of 10 CFR Sections 50.47(a)(1) and 50.47(b)(10), and NUREG 0654 Sections J.9 and J.10.

Contention 23.C. The LILCO Plan proposes an EPZ consisting of 19 separate zones. In a radiological emergency requiring evacuation of the EPZ, it is LILCO's strategy to conduct "a systematic area-by-area evacuation downwind of the reactor." (Plan, Appendix, A at I-5). The Plan is unrealistic in expecting to evacuate only certain zones within LILCO's 10-mile EPZ without expecting residents of the bordering zone(s) and probably other zones as well, also to evacuate. People not located in a zone recommended to be evacuated will not wait while their immediate neighbors evacuate in response to a protective action recommendation. This is particularly so for people who live close to the plant. Accordingly, LILCO's plan for staged evacuation of the inner EPZ zones is unworkable and thus not in compliance with 10 CFR Sections 50.47(a)(1) and 50.47(b)(10), and NUREG 0654 Sections II.J.9 and J.10.

Contention 23.D. Voluntary evacuation will result in a much larger number of people attempting to evacuate (and thus using the limited capacity of the existing road network) than is assumed by LILCO in its evacuation time estimates.^{2/} The additional vehicles will create congestion within the EPZ and in the regions just outside the EPZ, which will cause queuing and will impede

^{2/} The numbers of people expected to evacuate voluntarily, the locations from which they will evacuate, and the circumstances under which they will evacuate are set forth in a survey and studies which the County has provided to all parties. (See "Basis" section of this contention.)

traffic evacuating from the EPZ. The additional congestion caused by voluntary evacuation will cause adverse health consequences to the public because (a) evacuees from beyond the 10 mile EPZ will impede the evacuation of those within the 10 mile EPZ who are ordered to evacuate, resulting in evacuees' receiving health-threatening radiation doses; and (b) those who choose to evacuate will be unable to do so safely and efficiently.

Moreover, while LILCO acknowledges that persons not specifically instructed to evacuate will, in fact, attempt to evacuate (Appendix A, at I-5), the LILCO evacuation time estimates ignore the number of vehicles which will be on the roads due to such voluntary evacuation.^{3/} The LILCO evacuation time estimates thus are inaccurate for failing to take into account the numbers and locations of people who will evacuate voluntarily contrary to instructions. If voluntary evacuation were properly taken into account, the LILCO estimates would increase substantially, rendering evacuation an inadequate protective action for many accident scenarios. Thus, the LILCO Plan fails to comply with 10 CFR Sections 50.47(a)(1), 50.47(b)(10), Part 50 Appendix E Section IV, NUREG 0654 Sections J.8, J.9, J.10, and Appendix 4.

Contention 23.H. The LILCO plan fails to provide adequate measures at the EPZ perimeter to control access to evacuated areas, contrary to the requirement of NUREG 0654 Section II.J.10.j. As a result, voluntary evacuees

^{3/} LILCO has recently provided the County with a new KLD study which attempts to take into account voluntary evacuations from outside the EPZ. The study is not part of the Plan and the County has not had sufficient time to evaluate it completely. As appropriate at a later time, this portion of this contention may be revised to include this KLD study if LILCO's Plan takes it into account.

from the East End whose chosen evacuation routes may cross the EPZ perimeter, may travel into contaminated areas and receive health-threatening radiation doses and add to congestion within the EPZ. Thus, the Plan fails to comply with 10 CFR Sections 50.47(a)(1), 50.47(b)(10), and NUREG 0654 Sections II.J.9 and J.10.

Basis for Contention 23.

There is demonstrated reason to be concerned about the evacuation shadow phenomenon, which is the propensity for people to evacuate from areas perceived to be dangerous, even though such evacuation may not be ordered or recommended. During the TMI accident, large numbers of people evacuated voluntarily. Whereas the TMI evacuation order recommended that 2500 pregnant women and preschool children within 5 miles of the plant leave as a precaution, in fact over 144,000 people left and traveled long distances. The TMI accident thus documented the existence of the evacuation shadow phenomenon. The reasons for voluntary evacuation are several, including the public's fear of a radiological emergency, heightened by its perception that such emergencies are unlike other disasters.

A survey of Long Island residents conducted by Social Data Analysts and reviewed by Drs. James Johnson and Donald Zeigler, Suffolk County consultants, has indicated that in the event of a radiological emergency at Shoreham, the evacuation shadow would be quite large. In fact, voluntary evacuees will outnumber, by many times, the number of persons who will evacuate because they are ordered to do so. For instance, 31,000 families live within 10 miles of the Shoreham plant. If there were a recommendation to evacuate only the 10-mile EPZ around Shoreham, approximately 432,000

families (about half the population of Long Island) would attempt to evacuate. Even if a sheltering recommendation were made only for the population within five miles of the plant, approximately 217,000 families would attempt to evacuate.

Contention 24: LILCO's Lack of Agreements With Organizations and Personnel Relied Upon in the Plan

Contention 24.

LILCO has failed to obtain agreements from several of the organizations, entities and individuals for performance of services required as part of the offsite response to an emergency pursuant to NUREG-0654, as follows:

Contention 24.B. The Plan does not include any agreements with (1) U.S. Department of Energy-Radiological Assistance Program ("DOE-RAP") employees or (2) any outside consultant that has agreed to fill the LERO position of "Radiation Health Coordinator," which identify the services to be provided, the criteria for their implementation or the arrangements for exchange of information, or which obligate them to perform the functions for which they are relied upon by LILCO. In the absence of such agreements, there can be no assurance that the following functions can or will be implemented: accident or dose assessment or projection, recommendation of protective actions to the LERO Director, radiological monitoring, decontamination, protection and exposure control for the public and LERO workers, ingestion pathway protective action recommendations or implementation, or recovery and reentry functions. Thus there is no compliance with 10 CFR Sections 50.47(b)(9), (b)(10) and (b)(11).

Contention 24.E. Under the LILCO Plan, individual schools and school districts are relied upon for implementation of early dismissals, sheltering in schools, evacuation/relocation of school children, and retaining of school children in schools beyond the end of the school day. (See Appendix A at II-19, 20). However, LILCO has no agreements, with the schools or school districts, to implement any of these proposed protective measures for school children. In addition, LILCO has no agreements with nursery schools or parents of children in nursery schools to permit LILCO employees to drive buses transporting their children. (See Appendix A at II-21). In the absence of such agreements, there is no assurance that any protective actions for school children can or will be taken.

Contention 24.F. LILCO proposes that all people who do not have access to an automobile at the time of an evacuation order, most invalid and disabled persons residing at home, all school children, and large numbers of the residents of nursing and adult homes, hospitals and other special facilities will be evacuated by buses. According to LILCO's estimates, 333 forty-passenger buses are required to transport those able-bodied persons without access to cars who would need transportation out of the EPZ (see Appendix A, at IV-74b; OPIP 3.6.4). An additional 26 forty passenger buses will be necessary, according to LILCO, to evacuate most of the homebound residents in the EPZ and a portion of the residents of nursing and adult homes (see Appendix A at IV-175). And, LILCO estimates that 14 sixty passenger buses will be necessary to evacuate nursery schools. (Appendix A at IV-171.) These estimates do not include the number of buses that will be needed to enable all other schools to evacuate their students or the additional unspecified

number of buses necessary to evacuate and relocate certain of the approximately 630 patients in hospitals should such evacuation be necessary (see Appendix A, at II-28; IV-172). However, not even the number of buses estimated by LILCO to be necessary will be available for use by LILCO because:

1. LILCO has no agreements under which such vehicles will be available other than letters of intent to enter into such agreements. (see Appendix B). See FEMA Report at 9-10, noting this as a violation of NUREG 0654, Section II.J.10.g.

2. Most buses within a reasonable distance of the EPZ are under contract to school districts or other entities and the letters of intent signed by bus companies indicate that any eventual agreements with LILCO would be subject to such pre-existing commitments. Therefore, most buses in the area could not be relied upon by LILCO for use in an evacuation, even if LILCO were to enter into agreements concerning such buses.

3. The LILCO Plan assumes that all schools will implement an early dismissal in the event of any emergency in which no protective actions were recommended for the general public. The LILCO Plan also assumes that schools will evacuate and relocate their students to locations outside the EPZ if evacuation is recommended for the general public. If such dismissals or evacuations were to occur, most buses in the vicinity of the EPZ would be required by schools to transport children to their houses.

4. Many buses within a reasonable distance of the EPZ have capacities substantially less than 40 passengers.

5. LILCO itself does not possess the number of forty-passenger buses will [sic] be necessary to implement the LILCO Plan.

In the absence of such agreements, LILCO's proposed evacuation of persons without access to cars, the homebound, school children, and residents of nursing and adult homes and hospitals cannot and will not be implemented.

Contention 24.G. According to LILCO's estimates (see Appendix A, at IV-175), it will require sufficient ambulances to make 113 ambulance trips and enough ambulettes to make 209 trips in order to evacuate the nursing and adult homes located in the EPZ and the homebound who reside in the EPZ. An additional number of ambulances and ambulettes will be required to evacuate the approximately 630 patients likely to be in the hospitals within (and just outside) the EPZ. (See Appendix A, at IV-172; OPIP 3.6.5). However, LILCO has no agreements with ambulance companies to provide such equipment in such quantities. (See FEMA Report at 10). Even the letters of intent to enter into such agreements which are contained in Appendix B do not relate to numbers of ambulances and ambulettes necessary to meet LILCO's own estimates. In the absence of such agreements, LILCO's proposed evacuation of persons in special facilities, hospitals, and the handicapped cannot and will not be implemented.

Contention 24.I. The provisions of the LILCO Plan for evacuating persons without access to automobiles are premised on a system in which some buses pick up evacuees throughout evacuation zones and carry the evacuees to "transfer points." Other buses are expected to take the evacuees from these transfer points to relocation centers. According to the LILCO Plan, a total of 333 buses will be required to carry out this process. LILCO's estimated route times begin and end with the assumed transfer points. (See Appendix A, at IV-73 to IV-165; OPIP 3.6.4).

However, the LILCO Plan does not include agreements with the owners of those designated transfer points not owned by LILCO permitting LILCO to use the facilities relied upon in the Plan as transfer points. In fact, such transfer points are likely to be unavailable for use by LILCO. Moreover, without such transfer points, each bus route would have to terminate at a relocation center rather than at a transfer point, resulting in a substantial increase in the estimated route times. In the absence of such agreements, LILCO's proposed evacuation of people without access to cars cannot and will not be implemented.

Contention 24.J. The LILCO Plan relies upon special facilities, nursery schools, and their employees to perform several functions necessary to a successful evacuation of such facilities according to the LILCO Plan. (See Appendix A II-28 to II-29, IV-166 to IV-178.) (The facilities involved are the nursing and adult homes and the nursery schools in and near the EPZ, Association for the Help of Retarded Children (AHRC) facilities, United Cerebral Palsy facilities, John T. Mather Memorial Hospital, St. Charles Hospital, Central Suffolk Hospital, Maryhaven Center of Hope facilities, and the BOCES Learning Center.) However, the Plan does not include agreements with the special facilities in the EPZ to implement the evacuation procedures set forth in the Plan, and thus the proposed evacuation of such facilities cannot and will not be implemented.

Contention 24.K. The LILCO Plan relies upon non-LILCO personnel to drive ambulances and ambulettes and to provide the necessary medical and paramedical support services in the buses, ambulances, and ambulettes to be used in evacuating special facilities and the handicapped. (See Appendix A,

at IV-166 to IV-168, IV-172 to IV-178.) The LILCO Plan includes no agreements from any such individuals or related entities to perform such services, under LILCO's direction, in the event of an emergency at Shoreham. In the absence of such agreements, LILCO's proposed evacuation of special facilities and the handicapped cannot and will not be implemented. There is also no assurance that contaminated injured persons, or persons injured during the evacuation, will be transported to hospitals for treatment as required by 10 CFR Section 50.47(b)(12).

Contention 24.L. The LILCO Plan relies upon unidentified "dispatch locations" to relay communications between LILCO command and control personnel in the EOC, and those emergency response personnel who are affiliated with hospitals or expected to drive ambulances and ambulettes during an emergency. (See Plan at 3.4-3). The "dispatch locations" are facilities operated by non-LILCO organizations in the course of their day-to-day operations. (Id.) Agreements with such organizations and personnel are necessary to ensure their availability to LILCO during an emergency. However, the Plan contains no such agreements. In their absence, there can be no finding of compliance with 10 CFR Sections 50.47(b)(5), 50.47(b)(6), and NUREG 0654 Section II.F.

Contention 24.M. The LILCO Plan relies upon school bus drivers for implementation of early school dismissals and evacuation/relocation of school children. However, LILCO has no agreements with school bus drivers to perform such functions in the event of a radiological emergency at Shoreham. In the absence of such agreements, the protective actions for school children cannot and will not be implemented. [Admitted "with the clarification that the

agreements alleged to be missing hereunder are agreements with companies or institutions, not with individual school bus drivers." (Bd. Order 8/19/83.)]

Contention 24.N. The LILCO Plan relies on the availability of non-LILCO facilities and medical institutions as relocation and reception centers for evacuees. (See Plan at 4.2-1; OPIP 4.2.1; Appendix A at IV-166 to IV-174). However, LILCO has no agreements with the owners of the proposed identified facilities which provide that the facilities will be available as relocation centers in the event of a radiological emergency at Shoreham. See FEMA Report at 10 (noncompliance with NUREG 0654 Section II.J.10.h). In addition, the Plan does not even identify, much less include agreements with, the facilities to be used as relocation or reception centers for school children, patients in hospitals, handicapped individuals, or residents of any special facilities other than United Cerebral Palsy of Greater Suffolk, Inc. (Appendix A at IV-166-IV-174). In the absence of such agreements, the protective action of evacuation cannot and will not be implemented.

Contention 24.O. The Plan designates Suffolk County Community College as the relocation center to be used by evacuees from eight of the 19 zones in the EPZ (zones A-E, H-J). LILCO estimates the population of these zones to be 18,599 (26,574 in the summer). (See Plan, Appendix A, at IV-75 to 162). Suffolk County Community College is an entity of the Suffolk County government. LILCO has no agreement with Suffolk County to use Suffolk County Community College as a relocation center. Furthermore, pursuant to Suffolk County Resolution No. 456-1982 and Resolution No. 111-1983, the Suffolk County Community College will not be available for use in implementing the LILCO Plan. Therefore, there is no relocation center designated

for a significant portion of the anticipated evacuees. Thus, the proposed evacuation of zones A-E, H-J cannot and will not be implemented.

Contention 24.P. LILCO relies upon the ARC to provide services, including medical and counselling services, at relocation centers. (Plan 2.2-1, 2.2-2, 3.6-7 and at 4.2-1). However, LILCO has no agreement with the ARC to provide such services. In the absence of such agreements, LILCO's proposed protective action of evacuation cannot and will not be implemented.

Contention 24.R. The ingestion exposure pathway EPZ includes portions of the State of Connecticut. LILCO has no agreement with the State of Connecticut under which the State agrees to plan for, recommend or implement protective actions for the portions of the ingestion exposure pathway EPZ that are in Connecticut. In the absence of such an agreement, protective actions for the entire ingestion exposure pathway EPZ cannot and will not be implemented. Thus, there can be no finding of compliance with 10 CFR Section 50.47(c)(2).

Contention 24.S. LILCO is required to provide site specific emergency response training and periodic retraining for those offsite emergency organizations who may be called upon to provide assistance in the event of an emergency, including personnel responsible for accident assessment, police, security and fire fighting personnel, first aid and rescue personnel, local support services personnel, and medical support personnel. 10 CFR Section 50.47(b)(15); NUREG 0654, Sections II.O.1.a, 4.b, d, f, g and h. In addition, 10 CFR Section 50.47(b)(14) and NUREG 0654 Section II.N. require that there be periodic drills and exercises of emergency response capabilities.

LILCO has no agreements with offsite response organizations, or individual workers, to attend LILCO training sessions or to participate in drills or exercises. Such agreements are necessary because unlike its own personnel, LILCO cannot require non-LILCO personnel to receive training, or to participate in drills or exercises. In the absence of such agreements, there is no assurance that an adequate number of properly trained emergency workers will be available to respond effectively to an emergency at Shoreham, in violation of 10 CFR Sections 50.47(b)(14) and 50.47(b)(15), Part 50, Appendix E, Section IV.F, and NUREG 0654, Sections II.O.1.a, O.1.b. and N. In the absence of trained non-LILCO emergency workers, no aspect of the LILCO Plan can or will be implemented.

Contention 24.T. Under the LILCO Plan, the U.S. Coast Guard is relied upon to provide public notification services for the general public on the waters within the 10-mile EPZ and to restrict access to the EPZ during a radiological emergency at Shoreham. (Plan, at 2.2-2). Since much of the EPZ covers Long Island Sound, prompt notification of boaters and swimmers is important, particularly since the wind often blows offshore. However, LILCO has no agreement with the U.S. Coast Guard to perform the notification functions required under the Plan. In the absence of such an agreement, a portion of the population in the EPZ will not receive notice of an emergency, and persons inside and outside the EPZ may receive substantial doses of harmful radiation. Thus, there can be no finding of compliance with 10 CFR Section 50.47(b)(5), 50.47(b)(10) and NUREG 0654 Sections II.E.5 and E.6.

Contention 25: Role Conflict of Emergency Workers

Preamble to Contention 25. Emergency workers relied upon by LILCO

will have conflicting duties in the event of an emergency. On the one hand, they will be obligated or expected to perform some emergency function under the LILCO Plan; on the other hand, they will be obligated by preexisting family or occupational relationships, to attend to other matters such as the safety of their spouses, children, or other family members. Role conflict for emergency workers was a documented problem at TMI, especially concerning medical personnel; behavior surveys conducted by Suffolk County demonstrate that this will be a problem in a Shoreham emergency as well. Role conflict thus creates the possibility that significant numbers of emergency personnel will look to the needs of their families or others for which they have responsibility (including themselves) before they report (if at all) to their designated emergency response positions or otherwise respond to a request by LILCO for assistance. This factor will be exacerbated by the fact that many emergency personnel will be asked to respond from a relatively safe area outside the EPZ to a more dangerous area within the EPZ.

Contention 25. Intervenors contend that the LILCO Plan fails to comply with 10 CFR Sections 50.47(a)(1), 50.47 (b)(1) and 50.47(b)(3), because the Plan fails to address the problem of emergency worker role conflict. Intervenors contend that a substantial number of the emergency workers relied upon under the LILCO Plan will resolve such conflicts by attending to their other obligations prior to, or in lieu of performing the emergency functions assigned to them by LILCO. In the absence of such workers, the LILCO Plan cannot and will not be implemented, and there can be no finding of compliance with 10 CFR Sections 50.47(a)(1), 50.47(b), and NUREG 0654 Section II. The emergency workers likely to experience role conflict, the type of conflict, and

the effect of such conflict upon the implementability of the LILCO Plan are set forth in paragraphs A-F below.

Contention 25.A. The LILCO Plan is premised on the belief that LILCO personnel in command and control positions, as well as those assigned to perform other emergency response functions, will be willing to report promptly for duty in the event of a radiological emergency. Intervenors contend that LILCO employees located outside the EPZ at the time of an emergency will be reluctant to leave a relatively safe area outside the EPZ to enter a more dangerous area within the EPZ to exercise command and control, supervisory, or other emergency responsibilities. Other LILCO employees, including those located in the EPZ, or whose families are located in the EPZ, will also be reluctant to report for emergency duty without first having attended to the safety of their own families. The "Emergency Worker Tracker System," which LILCO asserts will "ensure that LILCO-employed the immediate families of all emergency workers are provided for throughout the incident" (Plan, at 2.1-7 and 2.1-8), has not even been developed yet, and therefore cannot be relied upon by LILCO to eliminate role conflict of LILCO personnel. Thus, Intervenors contend that LILCO has failed to ensure that LILCO-employed emergency workers will in fact report promptly to perform emergency responsibilities and thus the LILCO Plan is not capable of implementation.

Contention 25.B. The LILCO Plan fails to take into account the role conflict that is likely to be experienced by BNL personnel upon whom LILCO exclusively relies for all offsite accident and dose assessment and projection functions, and for all command, control and coordination functions related to offsite accident assessment and the decision to recommend particular

protective actions to the LILCO Director of LERO. Such BNL personnel are likely to have families located in or near the EPZ and therefore are likely to attend to the safety of their families prior to, or in lieu of, reporting for emergency duty. Without BNL personnel, neither offsite accident and dose assessment and projection, nor recommendation of protective actions will be performed.

Contention 25.C. The LILCO Plan fails to take into account the role conflict that will be experienced by school bus drivers. In fact, a substantial number of school bus drivers are likely to attend to the safety of their own families before they report (if they report at all) to perform the bus driving duties which LILCO assumes will be performed. Role conflict of school bus drivers will mean that neither school buses nor school bus drivers will be available to implement the LILCO Plan. Without an adequate number of buses or bus drivers, LILCO will be incapable of implementing the following protective actions:

1. early dismissal of schools (necessary under the LILCO Plan to permit school children to be sheltered or to evacuate with their parents);
2. evacuation of schools;
3. evacuation of persons without access to cars; and,
4. evacuation of persons in special facilities.

Contention 25.D. The LILCO Plan fails to take into account the role conflict that is likely to be experienced by teachers, other school employees, and crossing guards. In fact, a substantial number of such personnel are likely to attend to the safety of their own families rather than remaining at the schools or at their posts in the event of an emergency. Accordingly,

there is no assurance that under the LILCO Plan adequate personnel will be available to supervise children, including those required to walk home, during the early dismissal process, during school evacuations, or in the event that children are sheltered in the schools. As a result, the following protective actions could not and would not be implemented:

1. early dismissal of schools;
2. sheltering of school children in schools; and
3. evacuation of schools.

Contention 25.E. The LILCO Plan fails to take into account the role conflict that is likely to be experienced by (a) the non-LILCO personnel who, under the LILCO Plan, are expected to drive ambulances or rescue vehicles and to provide the necessary medical and paramedical support services in the buses, ambulances, railroad cars and airplanes to be used in evacuating special facilities and handicapped persons at home; or (b) Long Island Railroad (LIRR) personnel, private airplane crews and employees of an unnamed lumber company who, under the LILCO Plan, are expected to perform substantial and essential roles in the proposed evacuation of special facilities and the handicapped. (See Appendix A, at IV-185 to 192). A substantial number of such individuals will attend to the safety of their own families prior to, or in lieu of reporting to perform emergency services. Without such personnel, the following actions could not and would not be implemented:

1. evacuation of special facilities;
2. evacuation of handicapped persons at home; and,
3. transport of contaminated injured persons, or persons injured during an evacuation, to hospitals for treatment.

Contention 25.F. The LILCO Plan fails to take into account the role conflict that is likely to be experienced by the non-LILCO volunteers who are expected, under the LILCO Plan, to staff the relocation centers. LILCO identifies the ARC as the lead agency responsible for the total operation of the relocation centers. (Plan, at 2.2-1, 3.6-7 and 4.2-1). LILCO also relies on the ARC for other specific actions in the relocation centers, such as medical and counseling support. (Plan, at 4.2-1). The Salvation Army also is designated as assisting the ARC. (Plan, at 2.2-1). The LILCO Plan also asserts that LILCO will rely on groups such as churches, industries, and select volunteers, to provide additional services. (Plan, at 4.2-1). The relocation centers will not be adequately staffed, however, because the ARC personnel and other volunteers relied upon by LILCO are likely to attend to the safety of their own families prior to or in lieu of reporting to perform emergency duties. Without such personnel, the relocation centers will not be available or functioning when needed.

Contention 26: Notification of Emergency Response Personnel

Preamble to Contention 26. 10 CFR Section 50.47(b)(5) requires that an offsite emergency plan include procedures for notification of State and local response organizations and of emergency personnel. See also 10 CFR Part 50, Appendix E Section IV.C. Procedures must be established regarding the bases for notification of response organizations, including means for verification of messages, and for alerting, notifying, and mobilizing emergency response personnel. NUREG 0654, Section II.E.1 and E.2. Moreover, there must be the capability of notifying these emergency personnel "within 15 minutes after declaring an emergency." 10 CFR Part 50, Appendix E, Section

IV.D.3. LILCO is required to establish primary and backup means of communications with local response organizations, to ensure that these communication systems are compatible with one another, and to ensure that there will be 24-hour per day notification to, and activation of, the local emergency response network. NUREG 0654, Section II.F.1.

Without prompt and reliable notification of emergency personnel, there will be delays in mobilizing them and in implementing command and control decisions regarding protective actions for the public. See NUREG 0654, Section II.F.1.e. Prompt and reliable notification of emergency personnel depends upon an adequate, dependable and workable communications system.

Contention 26. Intervenors contend that the LILCO communications system and procedures for notifying emergency response personnel fail to provide assurance that there will be prompt and reliable notification to such personnel. As a result, the Plan fails to comply with 10 CFR Sections 50.47(b)(5), 50.47(b)(6) and NUREG 0654, Sections II.E and F. Without prompt and reliable notification of emergency response personnel, necessary workers cannot and will not be promptly mobilized, and no aspect of the LILCO Plan, or the protective actions contemplated thereunder can or will be implemented, in violation of 10 CFR Sections 50.47(a)(1), 50.47(b)(8), 50.47(b)(9), and 50.47(b)(10), and NUREG 0654, Sections II.H.4, I., J.9 and J.10. The specific deficiencies in LILCO's system for notifying emergency workers are set forth in paragraphs A-E below.

Contention 26.A. The LILCO Plan designates the LILCO Customer Service Office (Hicksville) as the primary notification point of the LERO, responsible for receiving initial and followup notifications of an emergency from the

plant, verifying authenticity and content of information contained in the notification messages, and notifying key emergency response personnel. (See Plan, at 3.3-1). In addition, Customer Service personnel may be responsible for manually verifying emergency worker pager notifications and compiling staffing lists (see, e.g., OPIP 3.3.2, at 13) and for attempting to contact by telephone all emergency response personnel who do not acknowledge receipt of pager notification (see, e.g., OPIP 3.3.2, at 6). The number of emergency personnel to be contacted increases with the severity of the emergency. (See Plan, at 3.3-1 through 3.3-4; Figures 3.3.2, 3.3.3 and 3.3.4). However, LILCO's Customer Service Office is not capable of serving as the primary notification point of the LERO for the following reasons:

1. Although the LILCO Plan does not indicate the number of personnel assigned to the Customer Service Office, or the training and equipment available to those personnel, LILCO has informally advised Suffolk County that there will only be two operators on duty during the eight-hour midnight shift. In addition, the Plan makes no provision for backup for the on-duty dispatcher(s) in the LILCO Customer Service Office (see Plan, at 3.3-1), other than to instruct the on-duty operator(s) to call out additional Customer Service personnel "in accordance with established restoration procedures" on an "as needed" basis (see, e.g., OPIP 3.3.2, at 2), and to advise the Hicksville Customer Service operator(s) that, in the event of failure of the LILCO paging system, assistance in executing manual call outs of emergency response personnel may be requested from the LILCO Customer Service staffs in the Hewlett and Brentwood offices (see OPIP 3.3.2, at 16-17). However, there is no indication in the Plan of the number of personnel who could

or would respond "in accordance with established restoration procedures." Nor is there any indication of how quickly such personnel could respond. Indeed, the Plan does not even describe LILCO's restoration procedures or what is meant by calling out personnel on an "as needed" basis. Similarly, with respect to seeking assistance from the Hewlett and Brentwood offices, the LILCO Plan does not indicate the number of personnel assigned to those offices, whether the offices are staffed on a 24-hour basis, or the training and equipment available to those personnel. Thus, there is no assurance that staffing of the Hicksville Customer Service Office will be sufficient to ensure that the necessary notification functions can be performed.

2. The Plan does not indicate that there will be adequate equipment available to Customer Service personnel to permit the necessary notification in a timely manner, i.e., within 15 minutes after an emergency is declared. See 10 CFR Part 50, Appendix E, Section IV.D.3.

As a result, LILCO's provisions for receiving initial notification of an emergency, verifying the information received, and notifying emergency response personnel are deficient and provide no assurance that emergency personnel will be alerted, notified and/or mobilized.

Contention 26.C. The LILCO Plan provides for notification of "key" emergency response personnel by pager. (Plan, at 3.3-2 through 3.3-4 and 3.4-5). According to LILCO, these key personnel "will not leave the LILCO service territory or New York City while on call," and they are to arrange for coverage by alternates during times when they cannot be on call. (See OPIP 3.3.2, at 14-15). Notwithstanding LILCO's assertion, however, there is no assurance that key emergency response personnel can reliably be contacted

through the LILCO paging system due to distance limitations on transmission, the fact that batteries for the pagers may run down and not be charged or replaced or tested on a regular basis, and unavailability of the individuals equipped with pagers (for example, because of illness or travel out of the paging area). In addition, although the LILCO Plan provides that emergency personnel equipped with pagers are to call in to LILCO's "automated verification system" upon receipt of notification (see Plan, at 3.4-5), the Plan does not adequately describe this system or how it works. (See OPIP 3.3.2, at 12-13). The limited information provided by LILCO about the system and how it works does not permit a determination that there will be adequate means for LILCO to determine whether emergency personnel in fact receive paged messages/notifications. Nor is there any requirement in the Plan for confirmation of messages by contacted personnel. The Plan only provides that emergency personnel are to respond according to the code displayed on their pagers, regardless of whether verification can or cannot [sic] be made. (See OPIP 3.3.2, at 14). Since verification under the Plan is only verification that emergency personnel have received some paged message, the response to the message may not be the response intended and appropriate (e.g., due to pager malfunction, emergency personnel may be notified to go to standby status, rather than to report). As a result, there is no assurance under the LILCO Plan that key emergency response personnel will be promptly alerted, notified and mobilized.

Contention 26.D. The LILCO Plan provides for key emergency response personnel, after having been contacted through the LILCO paging system, to notify, in turn, other emergency response personnel by

telephone. The number of personnel to be contacted increases with the severity of the emergency. (See OPIP 3.3.2). However, some emergency response personnel will not be near telephones (such as meter readers and other LILCO employees who may be in the process of performing their normal job functions, or persons who are not at home), will be using their telephones or, for other reasons, will not be able to be contacted. In addition, it will take a substantial amount of time to place the number of telephone calls necessary to reach the required number of emergency response personnel. (See, e.g., OPIP 3.3.2, Attachment 5). Thus, under the LILCO Plan there is no assurance that there will be prompt notification and mobilization of emergency response personnel.

Contention 26.E. The LILCO Plan has no procedures that assure prompt notification of non-LILCO emergency support organizations and personnel, namely, hospitals, reception and relocation centers, bus companies, and ambulance companies. Presumably, commercial telephones will be used to attempt to contact these organizations and personnel. While there are procedures for notifying other non-LILCO emergency support organizations, namely, the Brookhaven Area Office (which will, in turn, notify DOE-RAP personnel), the U.S. Coast Guard, the Federal Aviation Administration, and the New York Telephone Company (see OPIP 3.3.2, Attachment 4), notification of these entities is to be by way of commercial telephones, which under the LILCO Plan are assumed to be available. There is, however, no assurance that the necessary personnel will be capable of being contacted by telephone since they may not be near telephones or may be using their telephones. Further, these same problems make ineffective LILCO's reliance on the

Federal Telephone System as a backup means for contacting the Brookhaven Area Office, the U.S. Coast Guard, and the Federal Aviation Administration (see OPIP 3.2.2, Attachment 4). Moreover, under the LILCO Plan there is no provision for verification of messages to non-LILCO emergency support organizations, as required by NUREG 0654, Section II.E.1. Further, with the exception of the Brookhaven Area Office, the New York Telephone Company, the U.S. Coast Guard, and the Federal Aviation Administration (which are notified if an Alert is declared by LILCO), the LILCO Plan apparently contemplates notification of non-LILCO emergency support organizations only if a Site Area or General Emergency has been declared by LILCO. (See Plan, Figure 3.3.4). Thus, there is no assurance that there will be timely notification to the support organizations relied upon by LILCO (see Plan, at 2.2-1 and Figure 2.2.1), and there can be no finding that the LILCO Plan can or will be implemented.

Contention 27: Mobilization of Emergency Response Personnel

Preamble to Contention 27. Once offsite emergency response personnel are notified of an emergency and instructed as to their assigned functions,^{4/} necessary emergency actions cannot be taken by those workers, (and therefore many recommended protective actions cannot be taken by the public) until the response personnel report to their assigned locations, obtain the equipment or vehicles they will require to perform their assigned roles, and report to their emergency posts or dispatch locations. The activities that

^{4/} See Contention 26 which sets forth the reasons prompt notification will not occur under the LILCO Plan.

take place between the determination that particular offsite emergency response personnel should be notified and the reporting of such personnel, with necessary equipment, to the locations where emergency functions will be performed, are referred to herein as "mobilization" activities.

Contention 27. LILCO assumes that LILCO and non-LILCO employees will be available to implement command and control directives. However, the emergency response work force upon which the Plan relies will not be promptly available to perform the duties and emergency response functions assigned to them under the LILCO Plan due to extended mobilization times. Although the LILCO Plan fails to provide estimated notification or mobilization times for emergency response personnel (see e.g., NUREG 0654 Section II.C.1.), Intervenors contend, based on surveys of emergency mobilization of the Suffolk County Police Department, that LERO mobilization will take at least several hours. In some cases, detailed in paragraphs A through F below, mobilization will take even longer because after having been notified of an emergency, workers will have to travel substantial distances, in congested traffic, and will have to obtain necessary equipment, before they report to their assigned posts to perform emergency functions. As a result of the extended mobilization times, the LILCO Plan, and the protective actions contemplated therein, cannot and will not be implemented in a timely manner necessary to provide adequate protection to the public. The Plan thus fails to comply with 10 CFR Sections 50.47(a)(1), 50.47(b)(1), 50.47(b)(3), 50.47(b)(8), 50.47(b)(9), and 50.47(b)(10) and NUREG 0654 Sections II.E.2, F.1.e, H.4, and I. The reasons for extended mobilization times are stated in paragraphs A through F below.

A. Many emergency response personnel, particularly those employed by LILCO, live and/or work substantial distances from the EPZ or other emergency services locations.

B. Emergency response personnel will have to travel through congested traffic resulting from public mobilization and evacuation travel, in order to get from their locations upon notification to their initial reporting locations.

C. Many emergency response personnel must report first to a "staging area" or "dispatch location" and then to an assigned post (see OPIP 3.3.3), which will require additional travel through congested traffic. Furthermore, once at the staging areas LERO workers with field assignments will have to pick up personnel dosimetry and receive briefings before they leave for their posts, and many LERO workers, such as traffic guides and route alert drivers, will also have to obtain and install in their vehicles equipment such as mobile radios and public address systems. (OPIP 3.3.4; OPIP 3.6.3; OPIP 3.6.4.) [Only the impact, if any, of these activities on mobilization time at staging areas will be considered (Bd. Order 2/3/84).]

D. Many emergency response personnel must travel from their notification locations to other locations to obtain equipment or vehicles after reporting to staging or dispatch locations. Thus, road crews must obtain tow trucks and other equipment from LILCO storage locations which are spread throughout Suffolk and Nassau Counties (OPIP 3.6.3); fuel truck drivers must obtain fuel trucks, go to storage tanks, and fill the trucks with fuel (OPIP 3.6.3); route alert drivers must obtain vehicles and mount loudspeakers on them (Plan 3.3-4; OPIP 3.3.4); bus drivers must be transported from

staging areas to bus garages, gain access to the buses, and prepare the buses for use (e.g., by obtaining gasoline and checking oil (see OPIP 3.6.4, at 10)). In addition, procedures for locating necessary equipment, such as buses and trucks, will require time and will further delay the efforts of response personnel to obtain such equipment. (See OPIP 3.6.4).

E. Emergency response personnel must travel from staging or dispatch locations, through congested traffic, to reach the posts where they are to begin to perform their emergency functions.

F. Many emergency response personnel (e.g. traffic guides, bus drivers, and ambulance companies) are not contacted or expected to report to field locations until the Site or General Emergency Level, as suggested in the Plan (see Plan, Figures 3.3.2, 3.3.3, 3.3.4). Mobilization times for such workers will be even more extended because the level of traffic congestion encountered by them will be substantially greater.

Contentions 28-34: Communications Among Emergency Response Personnel

Preamble to Contentions 28-34. 10 CFR Section 50.47(b)(6) requires that an offsite plan must provide for "prompt communications among principal response organizations to emergency personnel and to the public." Without prompt and reliable means of communications among emergency personnel once they begin to respond to the emergency, there can be no assurance that necessary and appropriate emergency measures, including those necessary to implement protective action recommendations, can and will be taken as required by 10 CFR Section 50.47(a)(1).

Intervenors contend that LILCO does not provide for adequate, dependable and workable communications among emergency personnel following notification, and therefore there can be no finding of compliance with 10 CFR Sections 50.47(a)(1), 50.47(b)(6), 50.47(b)(8), and 50.47(b)(10), and NUREG 0654, Sections II.E.2, F., H.4, J.9 and J.10. The specific deficiencies, each of which leads to this conclusion, are set forth in Contentions 28-34.

Contention 28. No radio or dedicated telephone links to any Federal agencies are described in the LILCO Plan. Thus, the Plan fails to provide adequate and reliable means of communications with the Federal emergency response organizations relied upon in the Plan (i.e., FEMA, the U.S. Coast Guard, and the Federal Aviation Administration), as required by NUREG 0654, Section II.F.1.c. (See FEMA Report, at 5).

Contention 29. The LILCO Plan does not specify the number of emergency personnel that will be assigned responsibility for manning communications equipment at the EOC, staging areas, transfer points, ambulance dispatch stations, or other communication posts. Further, the Plan does not provide for trained repair technicians capable of keeping communications equipment operational. As a result, there is no assurance that LILCO's communications system can or will be operated in the event of an emergency.

Contention 30. The LILCO Plan fails to demonstrate that there will be sufficient and adequate communications equipment to ensure effective communications among LILCO field emergency personnel, including those expected to perform security functions. The Plan provides that all field personnel, or a member of each crew, and each staging area, bus transfer point, and

ambulance dispatch station will be provided with mobile radios. (See Plan, at 3.4-3). With mobile radios, communication will only be possible if the field personnel are in their vehicles. Moreover, mobile radios operate on battery power, and the vehicles must be running, or the ignition switched on, for the radios to operate. Batteries are effective for only a limited time, but the Plan makes no provision for assuring that vehicle batteries are not rundown and remain charged. Thus, there is no assurance that transmission and reception of radio messages will be possible. In addition, the LILCO Plan fails to take into account the fact that persons other than emergency response personnel (i.e., the public) will have access to the radio frequencies to be used by such personnel. Further, the LILCO Plan relies in part, upon simplex radio frequencies, which limit the range of the field radios. As a result, many emergency field personnel will be unable to hear other field personnel who attempt to communicate on the same frequency. It is essential that field workers be able to communicate with co-workers having similar or related functions. For example, LILCO's traffic guides must be able to communicate information to other traffic guides in order to coordinate traffic control strategy and to be aware of what traffic conditions may be coming. LILCO's traffic guides, however, will not have that capability because they will not have adequate radio equipment or frequencies. The result of such attempted traffic control without adequate means for coordination will result in increased rather than decreased traffic congestion, and extended evacuation times. Other field workers who are unable to communicate information to co-workers performing similar or related functions will be similarly unable to perform their assigned roles effectively or properly.

Contention 31. With the exception of dedicated telephone lines between the staging area coordinators and the EOC emergency response coordinators, there is no backup communications system for the LILCO Emergency Radio System, which is intended to provide communications between emergency response coordinators at the EOC and field emergency response personnel, including field survey teams, traffic guides, road crew and evacuation route spotters, staging area coordinators transfer point coordinators, and ambulance dispatch locations. (See Plan, at 3.4-3). Although the LILCO Plan does not indicate the number of frequencies which comprise LILCO's Emergency Radio System, LILCO has advised Suffolk County that there are six frequencies and four radio channels available to LILCO. The amount of radio traffic anticipated for an emergency at Shoreham could not be adequately handled by these six frequencies. However, the Plan has no provision for any backup frequencies to those six which comprise the Emergency Radio System, in violation of 10 CFR Part 50, Appendix E, Section IV.E.9 and NUREG 0654, Section II.F.1. Moreover, each category of field workers will be able to use only a single frequency or channel (two sets of frequencies are paired). Accordingly, if problems develop on that one frequency or channel, communications will be impossible for all workers in that category. In the absence of backup systems, there is no assurance that recommended and appropriate emergency actions can or will be implemented, since command and control instructions may not be communicated to personnel in the field, and the status of the emergency response may not be communicated to those in command and control.

Contention 32. Under the LILCO Plan, communications between traffic guides and bus transfer points and the EOC response coordinators will be relayed through the LILCO staging areas; thus these field personnel will be unable to communicate directly with their respective response coordinators at the EOC. (Plan, at 3.4-3). This lack of direct communications will result in the delay of implementation of emergency actions.

Contention 33. The LILCO Plan fails to demonstrate that there are any direct communications between DOE-RAP monitoring teams and the EOC.

Contention 34. The LILCO Plan relies on existing radios in hospitals and in private ambulance dispatch locations and vehicles for communications between LILCO command and control personnel and other LILCO emergency workers and these response organizations and their personnel. (Plan, at 3.4-3.) This proposal fails to ensure adequate communications among response personnel because:

A. The LILCO Emergency Radio System will not be compatible with the radio communications equipment used in day-to-day operations by hospitals and by ambulance vehicles.

B. The LILCO system will not have direct access to the radio frequencies used by hospitals and by ambulance vehicles.

C. LILCO has advised Suffolk County that the EOC will not be equipped with private ambulance vehicle, Emergency Medical Services, or hospital frequencies. Therefore, LILCO proposes to relay communications between the EOC and ambulance vehicles and hospitals through private ambulance dispatch locations. In this regard, the LILCO Plan provides that one of the LILCO Emergency Radio System frequencies is dedicated for radio

communications between the EOC and private ambulance dispatch locations, road crews, and evacuation route spotters. (See Plan, at 3.4-3). Assuming dispatch locations are in fact available to LILCO, LILCO's proposal precludes direct communications between LILCO personnel and non-LILCO emergency response personnel in the field, which will delay the implementation of emergency actions. In addition, LILCO has advised Suffolk County that fire/rescue organizations (i.e., fire departments and fire/rescue vehicles) are not part of LERO, even though they are relied upon for "their normal response functions during an emergency." (Plan at 2.2.-4). Thus, there is no assurance that "a coordinated communication link for fixed and mobile medical support facilities exists," as required by NUREG 0654, Section II.F.2.

Contentions 35-44: Training of Emergency Workers

Preamble to Contentions 35-44. 10 CFR Section 50.47(b)(15) requires that radiological emergency response training be provided to those who may be called on to assist in an emergency. In addition, 10 CFR Section 50.47(b)(14) requires that periodic exercises be conducted to evaluate major portions of emergency response capabilities, periodic drills be conducted to develop and maintain key skills, and that deficiencies identified as a result of exercises or drills be corrected. See also, 10 CFR Part 50, Appendix E, Section IV.F.

Under the LILCO Plan, in order to provide training "to those who may be called on to assist in an emergency," LILCO must ensure that both its own personnel and the personnel of non-LILCO emergency response organizations are adequately trained, and that they participate in drills and exercises that meet the requirements of the regulations. See NUREG 0654, Sections

II.N. and O. Intervenors allege in Contentions 35 - 44 that LILCO's Plan fails to demonstrate that adequate training can and will be provided to emergency response personnel.^{5/}

Contention 39. LILCO's Plan fails to deal effectively with the problem of attrition. As a result, LILCO cannot demonstrate that adequate numbers of trained support organization personnel will be available to respond to an emergency at Shoreham and thus cannot demonstrate compliance with 10 CFR Sections 50.47(a)(1) and 50.47(b)(15), 10 CFR Part 50, Appendix E, Section IV.F and NUREG 0654, Section II.O.1.

A. With respect to LILCO personnel, the Plan relies on quarterly general training and semi-annual job-specific training to qualify new LERO members for positions opened through attrition. (Plan at 5.1-7, 5.1-8; OPIP 5.1.1 at 6-7.) Such training for new members is insufficient, because it does not assure that trained LILCO employees will be available to fill positions in LERO as the need arises. As a result, there is no assurance that LERO will be fully staffed with trained personnel on a continuous basis. To ensure compliance with 10 CFR Section 50.47(b)(15), 10 CFR Part 50, Appendix E, Section IV.F and NUREG 0654, Section II.O.1, LILCO must demonstrate that all personnel are trained in their designated emergency response organization positions. Thus, LILCO should make satisfactory completion of its emergency response training program a prerequisite to the hiring of personnel who will be assigned emergency response duties.

^{5/} LILCO has advised Suffolk County that training materials are still under development. When those materials are developed and produced for the County's review, the County may revise these contentions. More specific contentions cannot be formulated at this time, given the lack of the LILCO training materials.

61-64). There is no assurance that LILCO training will compensate for this lack of job-related experience, especially when the tasks to be performed may be accompanied by high levels of stress and fatigue involving life-threatening situations. Training alone cannot prepare people for the actual stress and trauma that accompany emergency conditions. Experience is also essential.^{6/} Moreover, training that is not regularly applied or used will be ineffective. Thus, even if their initial training were adequate, LILCO personnel will forget what was learned during that training. Following their training, LILCO personnel will be expected to perform their regular job functions, which have no relation to their emergency roles, rather than applying or using their emergency training. This will minimize any benefits gained through the emergency training, especially since general classroom training, exercises, and almost all drills are only repeated on an annual basis, job-specific classroom training is only repeated on a semi-annual basis, and there are no incentives for LILCO personnel to learn or to retain the emergency training provided to them. Accordingly, LILCO cannot demonstrate compliance with 10 CFR Section 50.47(b)(15), or that the emergency functions and duties assigned to LILCO personnel under the Plan can or will be implemented, as required by 10 CFR Section 50.47(a)(1).

Contention 41. All necessary emergency personnel must be trained adequately in the proper use of the communications equipment relied upon in the LILCO Plan. Such training must include instruction in the proper use of

^{6/} For example, doctors and police officers are required to intern as residents and to serve as rookie police officers before their training is completed.

radio frequencies, the range of coverage available for each frequency, and proper radio discipline. The LILCO Plan, however, does not provide such training. The Plan provides for a "communications drill" that is designed primarily to test equipment. (Plan at 5.2-1; OPIP 3.4.1.) Only persons in those selected LERO positions designated as "communicators" will participate in this drill. (Plan at 5.2-2, 5.2-2a). In addition, it is clear from the Plan and drill scenarios that other than the workers assigned to remain at the EOC, ENC, and staging areas, LERO workers will receive essentially no practical communications training, and that even the workers assigned to the EOC, ENC, and staging areas will not receive enough. Thus, there is no assurance that LILCO's Plan satisfies the requirements of 10 CFR Section 50.47(b)(15) or that emergency response personnel will be prepared and adequately trained to initiate and receive communications, as required by 10 CFR Section 50.47(b)(6) and NUREG 0654, Section II.F.

Contention 44. The LILCO Plan fails to demonstrate that drills and exercises will adequately test the training of emergency response personnel so as to ensure that personnel are familiar with, and capable of performing, their duties under the Plan as required by 10 CFR Section 50.47(b)(14), 10 CFR Part 50, Appendix E, Section IV.F, and NUREG 0654, Section II.N. Specifically:

D. The provisions of the Plan for quarterly testing of communications with Federal emergency response organizations and States within the ingestion pathway do not provide for testing whether the content of messages is understood by emergency response personnel. NUREG 0654, Section II.N.2.a. (See FEMA Report, at 13.)

E. The Plan fails to describe how exercises and drills are to be carried out to allow "free play for decisionmaking." NUREG 0654, Section II.N.3. (See FEMA Report, at 14.)

F. Although the LILCO Plan asserts that "official observers from Federal, State or local governments will be on hand to evaluate and critique [an] annual exercise," (Plan at 5.2-4), there is no indication in the Plan that any such entities have agreed to send observers as required by NUREG 0654, Section II.N.4. (See FEMA Report, at 14). In addition, although the Plan describes a proposed procedure for evaluating observer and participant comments, post-exercise/drill critiques will be performed primarily by LILCO, and evaluation of critiques and decisions as to necessary actions will be made by LILCO personnel. (Plan, at 5.2-4; OPIP 5.1.1, at 10c-10h). NUREG 0654, Section II.N.5. (See FEMA Report, at 14.) LILCO, however, will not be able to critique adequately its own Plan, including the exercises or drills conducted under the Plan, or to evaluate and/or act upon such critiques due to its lack of expertise and objectivity. Thus, deficiencies in the LILCO Plan and implementing procedures may not be identified or corrected.

Contentions 45-51: Accident and Dose Assessment and Projection

Preamble to Contentions 45-51. 10 CFR Section 50.47(b)(9) requires offsite plans to provide that:

Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

See also 10 CFR Part 50, Appendix E, at Section IV.B. Similarly, NUREG 0654, Section II.I.8 requires the identification of an appropriate organization which:

shall provide methods, equipment and expertise to make rapid assessments of the actual or potential magnitude and locations of any radiological hazards through liquid or gaseous release pathways. This shall include activation, notification means, field team composition, transportation, communication, monitoring equipment and estimated deployment times.

Intervenors contend that the LILCO Plan fails to comply with these requirements for the reasons set forth in Contentions 45-51.

Contention 45. The LILCO Plan appears to rely exclusively on (a) DOE-RAP personnel, and (b) personnel from an unidentified "outside consultant," for offsite accident and dose assessment and projection, as well as for all command, control and coordination functions related to offsite accident assessment and projection and the decision to recommend particular plume exposure and ingestion pathway protective actions to the LILCO Director of LERO (i.e., the Radiation Health Coordinator, RAP Team Captain, Dose Assessment Function, Environmental Survey Function, and Offsite Survey Teams). (Plan, Section 3.5.B; Figure 3.5.2; OIPs 2.1.1, 3.5.1, 3.5.2, 3.5.3 and 3.6.6) The Plan does not identify by name, title or qualification the DOE-RAP or other outside consultant personnel who are expected to perform offsite accident and dose assessment functions and thus fails to comply with NUREG 0654, Section II.A.2.a.

Contention 46. The Plan does not identify an individual from DOE-RAP or from an "outside consultant" who will be responsible for assuring continuity of technical, administrative and material resources. In addition, there is no assurance that DOE-RAP or the unidentified outside consultant who is to provide personnel to fill the position of "Radiation Health Coordinator" is

capable of providing prompt or continuous services (24-hour) for a protracted period. Thus the Plan fails to comply with NUREG 0654, Sections II.A.4, and C.I.b. Indeed, the Plan states that "approximately eight persons" will perform the duties assigned in the Plan to DOE-RAP (Plan at 2 2-3); there is no indication of how many individuals are available to act as "Radiation Health Coordinator." Even if the initial staffing for offsite monitoring and dose assessment were assumed to be adequate, there is no provision for augmentation of initial staffing on a continuous basis as required under 10 CFR Section 50.47(b)(1) and NUREG 0654, Sections II.A.1.e and A.4.

Contention 49. The nomogram which relates iodine to total fission products for the calculation of thyroid dose (OPIP 3.5.2 Attachment 11) is not realistic. Thus, there is no assurance that this procedure will provide reliable data for use in making protective action decisions. Accordingly, there is no compliance with 10 CFR Section 50.47(b)(9).

Contentions 55-59: Notification to the Public

Preamble to Contentions 55-59. 10 CFR Section 50.47(b)(5) requires that means be established to provide early notification and clear instruction to the populace within the plume exposure pathway EPZ. The public notification system should be capable of essentially completing the initial notification of the public in the plume exposure pathway EPZ "within about 15 minutes." 10 CFR Part 50, Appendix E, Section IV.D.3. (See also NUREG 0654, Section II.E.6 and Appendix 3 thereto).

Intervenors contend that under LILCO's Plan, there is no assurance that the public will receive notification of an emergency within 15 minutes,

and as a result, there is no assurance that adequate protective actions can or will be implemented, as required by 10 CFR Section 50.47(a)(1) and NUREG 0654, Sections II.J.9 and J.10. The specific deficiencies in the LILCO Plan are set forth in Contentions 55-59.

Contention 55. Under the LILCO Plan, a system of 89 fixed sirens will be used to alert the public to an emergency at the Shoreham plant. (Plan, at 3.4-6). However, as a result of the deficiencies noted in Contention 26, LILCO will be unable to contact its key command and control personnel in a timely manner, thus potentially delaying the decision to activate the siren system, in violation of 10 CFR Section 50.47(b)(5), Part 50, Appendix E, Section IV.D.3, and NUREG 0654, Sections II.E.6 and Appendix 3.

Contention 56. The LILCO Plan does not provide adequate backup in the event of failure of the LILCO siren system. LILCO relies upon public address systems or loudspeakers, mounted on LILCO vehicles driven by "Route Alert Drivers," to provide backup to the sirens. (Plan, at 3.3-4 and 3.4-6; OPIP 3.3.4, at 4). However, the proposal to drive vehicles equipped with loudspeakers through the non-activated siren areas to alert the public is impractical, unworkable, and will not provide notification within 15 minutes as required by NUREG, [sic] 0654 Appendix 3. (See Contention 27.) In addition, some persons will not hear the broadcast message (such as persons with impaired hearing, persons outside the EPZ), and other persons will not understand the broadcast message (such as children, and non-English speaking persons). Route alert drivers are also required to abandon a route if dosimetry readings exceed specified levels. (OPIP 3.3.4, Attachment 1). Accordingly, there is no assurance that persons in the EPZ will be promptly

notified of an emergency, and entire segments of the population may never be alerted at all, in violation of 10 CFR Sections 50.47(a)(1), 50.47(b)(5), Part 50, Appendix E, Section IV.D.3, and NUREG 0654, Sections II.E.6 and Appendix 3.

Contention 57. The LILCO Plan provides that special facilities and organizations with a large number of personnel (such as schools, hospitals, nursing homes, handicapped facilities, and major employers) will be equipped with a tone alert radio which, upon activation by the EBS signal from WALK radio, is to broadcast automatically the emergency message. (Plan, at 3.3-4 and 3.4-6 and OPIP 3.4.1, Attachment 1). However, since notification would coincide with notification to the general public, these special facilities and organizations would not have any additional alerting or preparation time (for evacuation, sheltering, or implementation of other protective actions). Moreover, the tone alert radios depend upon the EBS signal broadcasting from WALK radio station. Should the EBS signal originate from other stations, the radios would not activate and there would not be automatic transmission of the EBS message. Further, WALK radio does not broadcast on its AM frequency 24 hours per day. Thus, there is no assurance that tone alert radios will provide adequate notification of an emergency to special facilities and other organizations within the EPZ, in violation of 10 CFR Sections 50.47(a)(1) and 50.47(b)(5), Part 50, Appendix E, Section IV.D and NUREG 0654, Sections II.E.5, E.6, and Appendix 3.

Contention 58. Under the LILCO Plan, the proposed evacuation of special facilities (such as schools, handicapped facilities, nursing/adult homes, and hospitals) and the handicapped at home requires the Public Schools

Coordinator, Private Schools Coordinator, Health Facilities Coordinator and the Home Coordinator, working under the direction of the Special Facilities Evacuation Coordinator, to verify by telephone that the special facilities and individuals are aware of the need to evacuate and to determine their specific needs for assistance. (OPIP 3.6.5). This does not provide an adequate, workable or dependable means of timely notification of or communication with these people, because the process of contacting them will take too long, persons to be contacted may not be near telephones, and handicapped persons may be unable to communicate by telephone. Thus, the Plan fails to comply with 10 CFR Sections 50.47(b)(5) and 50.47(b)(6), Part 50, Appendix E, Section IV.D.3, and NUREG 0654, Sections II.E.1, E.2, E.5, E.6, and Appendix 3.

Contention 59. Under the LILCO Plan, the U.S. Coast Guard is relied upon to provide public notification to the general public on the waters within the 10-mile EPZ. (Plan at 2.2-2). However, the Coast Guard does not have the capability of notifying the public within 15 minutes and thus the LILCO Plan fails to comply with 10 CFR Sections 50.47(b)(5), 50.47(b)(6), Part 50, Appendix E, Section IV.D and NUREG 0654, Sections II.E.5, E.6 and Appendix 3.

Contentions 60-83: Protective Actions

Preamble to Contentions 60-83. 10 CFR Section 50.47(a)(1) requires a finding of reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. In addition, 10 CFR Section 50.47(b)(10) requires the development of a range of protective actions for the public; guidelines for the choice of protective actions must be

consistent with Federal guidance. Such guidance includes the Manual of Protective Action Guides ("PAGs") (EPA-520/I-75-001), which sets forth the threshold projected dose levels at which protective actions are to be commenced. The PAGs are embraced in NUREG 0654, Sections II.J.7 and J.9, and are referenced in the LILCO Plan, at Section 3.6, and OPIP 3.6.1. NUREG 0654, in Sections II.J.9 and J.10, requires that there be established "a capability for implementing protective measures based upon protective action guides and other criteria." (Emphasis added).

In Contentions 60-83, Intervenor contend that LILCO's Plan does not provide reasonable assurance that adequate protective measures can and will be implemented to protect the population from the potential health hazards of an accident at Shoreham. Thus, (a) there is no reasonable assurance that the measures proposed in the LILCO Plan would, if taken, provide adequate protection from the potential consequences of an emergency at Shoreham; and (b) there is no reasonable assurance that the proposed measures could or would in fact be taken in the event of an emergency.

Contentions 60-62: Sheltering

Further Preamble to Contentions 60-62. The LILCO Plan provides that the protective action of sheltering may be recommended (Plan, at 3.6-5), and that it is "the preferred protective action if sufficient protection is offered by sheltering, or if no additional benefit is gained by evacuation." (OPIP 3.6.1, Section 3.2). Intervenor contend that as to the proposed protective action of sheltering, the LILCO Plan fails to comply with 10 CFR Section 50.47(a)(1) and NUREG 0654, Section II.J.9, because there is no assurance that sheltering, as a protective action, could or would be effectively implemented in

the event of an emergency in a manner which would protect the public. Indeed, the facts indicate that many people will refuse to shelter and will, instead, choose to evacuate,^{7/} and that many other persons, as a practical matter, will be unable to shelter. Thus, sheltering cannot be viewed as an adequate protective action, as LILCO appears to believe, for the reasons set forth in SC Contentions 60-62.

Contention 60. At page 3.6-5 of the LILCO Plan, LILCO states:

Th[e] protective action [of selective sheltering] may be ordered at projected doses below the accepted PAGs to minimize radioactive exposure, particularly to pregnant women and children

The Sheltering option may be recommended as an effective option for individuals who could not be safely evacuated. This would include individuals who have been designated medically unable to withstand the physical stress of an evacuation, as well as those individuals who require constant, sophisticated medical attention.

The Plan fails to set forth guidelines to be used by command and control personnel: (a) in choosing to recommend the protective action of selective sheltering; or (b) in determining the individuals who should or would be subject to such a recommendation. Rather, as quoted above, the Plan contains only generalized statements which, in fact, provide no guidance at all. In addition, there are no procedures which indicate the means by which such a recommendation would or could be implemented. The Plan thus fails to comply with 10 CFR Sections 50.47(a)(1), 50.47(b)(10) and 10CFR 654, Sections 11.J.9 and J.10.

^{7/} See Contention 23: The Evacuation Shadow Phenomenon, for further discussion of this matter.

Contention 61. Intervenors contend that a protective action recommendation of sheltering would not or could not be implemented. Specifically, a substantial number of the people who might be advised to shelter, as a practical matter, will be unable to do so because:

A. A large number of the homes and other structures in the EPZ are constructed of wood and have no basements. According to LILCO's shielding factors (Plan, Table 3.6.5), the protection offered by such shelter is limited, at most, to a reduction in dose of only 10 percent from that received with no shelter. As a practical matter, persons with access to such structures have little "shelter" available, and thus sheltering should not be considered as a protective action for these persons.

B. Persons who are traveling in their cars or other vehicles at the time of a sheltering recommendation may not be able to reach shelter fast enough to obtain any protection from a release of radioactive fission products. Vehicles offer essentially no protection from radioactive doses.

C. 1. According to the Plan, if sheltering is recommended for the general public, schools in the EPZ are expected to shelter children in schools. (Appendix A at II-20; See also OPIP 3.8.2 at 19, 21). However, the Plan fails to indicate how, if at all, such an order could or would be implemented by the schools. Contrary to the assumption in the LILCO Plan (see OPIP 3.6.5 at 10a), most school officials have not performed "preplanning" that makes them capable of implementing a sheltering recommendation. Therefore, the Plan provides no assurance that sheltering could or would be implemented for children in schools.

Many schools in the EPZ have no basements or other areas suitable for sheltering large numbers of children. Moreover, the Plan contains no information concerning sheltering capacities or shielding factors for schools, in violation of NUREG 0654 Section II, J.10.m. Therefore the Plan provides no information upon which those in command and control could determine whether sheltering is an appropriate protective action for children in schools, in violation of 10 C.F.R. Section 50.47(b)(10).

In addition, the Plan states that if schools have initiated early dismissals, LILCO will not recommend to the schools that any other protective actions, including sheltering, be taken, even if such a recommendation is made for the general public. (See OPIP 3.8.2 at 5). Thus, if LILCO were to recommend that schools institute an early dismissal, and school authorities were to follow that recommendation, school children would not have access to shelter for hours (see SC Contention 69), even though a sheltering recommendation could be in effect for the rest of the EPZ population.

D. Transients who are on beaches, in parks or in other outdoor recreation areas will have no access to shelter. Contrary to the requirement of NUREG 0654 Section J.10.a, the Plan fails to identify public sheltering areas. (See FEMA Report, at 8).

E. Persons who are in boats in the EPZ will have no access to shelter.

Moreover, even if people were willing and able to follow a sheltering recommendation, there is no assurance that taking such action would provide any significant dose savings and thus prevent persons in the EPZ from receiving health-threatening radiation doses for the following reasons:

G. Many other homes in the EPZ, even if they provide more shielding than a wood house, will only reduce doses about 50 percent. In a severe accident, a 50-percent dose reduction will still result in health-threatening doses.

H. According to LILCO, the average shielding factor available in the EPZ is 0.7, which means that, on the average, those who follow a sheltering recommendation will nonetheless receive 70 percent of the dose they would receive from the plume if they were outside the shelter.

I. The cloud doses resulting from a release of radioactive fission products from the Shoreham plant could be so substantial that even taking into account the 30 percent average dose reduction provided by shelter in the EPZ, persons who follow a sheltering recommendation could still receive doses that would cause adverse health effects.^{8/}

Thus, sheltering is not an adequate protective action in the event of an emergency at Shoreham, and the Plan, therefore, fails to comply with 10 CFR Sections 50.47(a)(1) and 50.47(b)(10), and NUREG 0654 Section II.J.9.

Contentions 63-77: Evacuation

Contention 63. The LILCO Plan states at page 3.6-6:

Selective Evacuation may be implemented to evacuate from the affected area of the plume exposure EPZ members of the general public who might have a low tolerance to radiation exposure. Specifically, this would include pregnant women and children 12 years and under.

The Plan fails to set forth guidelines to be used by command and control

^{8/} See Contention 22 discussion of the site specific consequences of an accident at Shoreham.

personnel: (a) in choosing to recommend the protective action of selective evacuation; or (b) in determining, identifying and locating the individuals who should be subject to such a recommendation. In addition, there are no procedures which indicate the means by which such a recommendation could or would be implemented. The Plan thus fails to comply with 10 CFR Sections 50.47(a)(1), 50.47(b)(10), and NUREG 0654 Sections II.J.9 and J.10.

Contention 64. The LILCO Plan proposes an EPZ consisting of 19 separate zones. In the event of a radiological emergency at Shoreham requiring evacuation of the EPZ, it is LILCO's intended strategy to evacuate all zones within two miles of the Shoreham plant, but only a portion of those zones outside of the two-mile radius. (See OPIP 3.6.1, Attachment 2). LILCO's Plan, however, fails to account for the fact that the wind shifts quickly on Long Island, with average wind speeds of approximately 10 miles per hour. Under such conditions, a shift in wind direction could quickly direct the plume over an area that was not in the original plume pathway, and thus not included in the initial evacuation order, before that area could be evacuated.

Intervenors contend that given wind conditions on Long Island, in the event any evacuation due to a radiological emergency is required, LILCO must evacuate at least a radius of five to seven miles around the plant. Any partial evacuation of only certain zones within a five to seven mile radius would expose the population of the nearby unevacuated zones to the risk of a sudden wind shift and consequent health-threatening exposure to radiation. Under these conditions, the LILCO evacuation plan fails to constitute an adequate protective action, as required by 10 CFR Sections 50.47(a)(1) and 50.47(b)(10).

Contention 65: Evacuation Time Estimates

Further Preamble to Contention 65. Section IV of Appendix E to 10 CFR Part 50 requires that license applicants "provide an analysis of the time required to evacuate and for taking other protective actions for various sectors and distances within the plume exposure pathway EPZ for transient and permanent populations." (See also, NUREG 0654, Section II.J.8 and Appendix 4). Accurate estimates of the time necessary to evacuate the Shoreham EPZ (or portions thereof) are essential to evaluating the evacuation route system. In particular, such estimates must be accurate and reliable so that command and control personnel who are considering what protective actions might be ordered for particular persons can estimate whether, given projected release and dispersion of health-threatening fission products from the Shoreham plant, evacuation can be accomplished before such dispersion takes place. (See 10 CFR Section 50.47(b)(10); NUREG 0654 Section II.J.10.m). A decision to order evacuation, if based on inaccurate evacuation time estimates, could result in evacuees' being trapped in queues or slow moving traffic inside or outside the EPZ, thus exposing them to a release of fission products from the Shoreham plant.

LILCO has submitted evacuation time estimates for the 10-mile EPZ, which estimates are contained in Appendix A, at V-3, and OPIP 3.6.1, Attachment 4.9/ LILCO estimates that the time for evacuation will vary from about two to two-and-one-half hours for only the inner EPZ sectors, to a

9/ The FEMA Report at 11-12 notes that the time estimates are inadequate in part because the estimates in OPIP 3.6.1 are incomparable to those in Appendix A.

maximum of approximately six hours for evacuation of the entire EPZ under adverse weather conditions.

Contention 65: Intervenors contend that LILCO's evacuation time estimates are inaccurate, unreliable and, in fact, should be far longer. LILCO's evacuation time estimates are so underestimated that under the LILCO Plan an evacuation may be ordered which realistically cannot be completed prior to release and dispersion of fission products from the Shoreham plant. Evacuees will be caught in queues or delayed in heavily congested traffic within the EPZ. Under many accident conditions, there will be a dispersal of radioactive materials while such traffic conditions still exist, resulting in unacceptable health-threatening exposure to the evacuees. The automobiles of the evacuees will offer essentially no protection from the plume.

The specific deficiencies in LILCO's estimates and further bases for this contention are set forth in paragraphs A-H below. [Admitted with the clarification that the deficiencies to be considered under Contention 65 are limited to those contained in the subparts. (Bd. Order 8/19/83.)]

Contention 65.A. The LILCO evacuation time estimates ignore or underestimate the time required for people to mobilize and ready themselves for evacuation. The LILCO estimates in Appendix A include only the time involved in the actual evacuation trip out of the EPZ. (Appendix A, Table XIV) LILCO assumes in OPIP 3.6.1 that complete mobilization of the public will take about 20 minutes after receiving notification, which grossly underestimates the time it will take for mobilization, especially during working hours. In fact, it will likely take at least from one to more than three hours for people to mobilize before they can begin to evacuate. This mobilization time will be required because:

1. Following activation of the prompt notification system, it will take time for people to become aware of the emergency, to become informed of the recommended protective actions and to determine their own course of action.

2. Where possible, most families will seek to evacuate as a unit. Specifically, working parents will leave work and drive to schools and/or home to pick up their children prior to evacuating. There will also be travel to and from various locations as family groups are assembled from work locations, relatives' homes, day care centers, and the like. Mobilization time must include time for the travel necessary to assemble family groups. In addition, families with school children who do not pick up their children themselves, will delay the start of their evacuation until all their children have returned home. Given the length of time necessary to implement early dismissals (see Contention 69), mobilization times could be increased significantly by this fact.

3. It will take time for the evacuees to gather necessary provisions before evacuating. (See "Emergency Procedures: Shoreham Nuclear Power Station," at 8). In addition, some persons will seek to go to banks, stores and other such facilities for money and provisions.

4. Travel within the EPZ during the mobilization period (work/home, home/school, to banks and stores, etc.) prior to commencing evacuation will result in heavy traffic congestion which will lengthen the time necessary to complete mobilization travel.

Contention 65.B. Heavy traffic congestion from mobilization traffic, due to both high demand and conflicting traffic flow (i.e., some traffic flow

in directions different than prescribed evacuation directions), will lengthen evacuation times. LILCO's evacuation time estimates do not appear to take this cause of congestion and resulting evacuation delay into consideration. Thus, the LILCO estimates are inaccurate for this additional reason.

Contention 65.C. The LILCO traffic control plan, as described in Appendix A, even if assumed to be lawful and capable of being implemented, will, in fact, constitute an additional source of congestion which has been ignored in LILCO's evacuation time estimates. If such congestion were taken into account, the LILCO estimates would increase substantially. The Plan will cause additional congestion for the following reasons:

1. LILCO's estimates assume that its traffic guides will screen all motorists moving in a direction contrary to its prescribed traffic flow to determine whether each person has "good reason" for going in that direction. (Appendix A, at IV-83; see also, IV-8). Thus, a traffic guide presumably would stop or otherwise delay all such motorists, question them, and attempt to persuade or order them not to go in their intended directions if their reasons for doing so were judged not to be sufficient. This screening process will impede traffic flow, resulting in congestion and further increasing the evacuation time estimates. It will also require more traffic guides than LILCO has designated for each traffic post.

2. LILCO's attempted use of traffic controls may cause aggressive behavior on the part of those attempting to take protective actions. This aggressive behavior will stem in part from fear of a radiological emergency (which is perceived by the population to be different from other emergencies) and in part from confrontations that will result when motorists wish to travel

contrary to the directions of the LILCO traffic guide, or are stopped by guides for screening. Conflicts between motorists and traffic guides will result in traffic blockages, confusion, accidents and possibly injuries, all of which will increase congestion.

3. Because under the LILCO Plan neither LILCO's traffic guides nor any other LERO personnel will alter traffic signal lights, traffic guides may attempt to implement a control strategy counter to the direction given by the signals. (See FEMA Report at 10 citing non-compliance with NUREG 0654, Section II.J.10.j). Such simultaneous and potentially contradictory instructions to motorists will cause confusion and congestion, thus further delaying traffic movement. (Id.)

4. In some cases, LILCO's prescribed routes direct motorists to travel contrary to their perceptions of the most expeditious way out of the EPZ. (See, e.g., Post described in Appendix A, at IV-56). This will cause confusion and anxiety on the part of the motorists and confrontations with traffic guides.

Contention 65.D. The LILCO time estimates assume that "[n]o major vehicle breakdown or other types of incidents [will] occur which block major routes for an extended time." (Appendix A, at V-2). This assumption is unrealistic and leads to an underestimation of the time required for evacuation. Examples of factors which increase congestion and thus increase time estimates, and which should have been included in LILCO's estimates, include:

1. Anticipated traffic accidents and automobile breakdowns, including running out of gas (for example, the Suffolk County police

responded in 1982 to 10,000 incidents such as accidents and breakdowns on the Suffolk County portion of the Long Island Expressway, thus indicating the potential for this factor to influence severely evacuation times);

2. The absence of shoulders on some primary or secondary routes which will be used during an evacuation;

3. Road construction/repair work which can be assumed to be ongoing at any time; and

4. Abandonment of vehicles under emergency conditions.

Contention 65.E The LILCO evacuation time estimates do not take into account the additional congestion to be encountered by evacuating motorists that will result from the evacuation and early dismissals of schools and the evacuation of those in special facilities and the handicapped. Such evacuations and dismissals will involve the use of large numbers of buses, ambulances and trains which will be traveling in all directions through the EPZ, on prescribed evacuation routes and other roads, making frequent stops. If the impact of special evacuations were taken into account, the LILCO time estimates for evacuating motorists would increase substantially.

Contention 65.F. Behavior research demonstrates that stress and anxiety induced by a radiological emergency at Shoreham will diminish driving skills and awareness, and impede the processing of information necessary for a driver to make decisions and drive properly. The geography of Long Island, with its narrow, limited land area, may create a feeling of being "closed-in," which may increase the likelihood of poor driver behavior. Decreased driving skills and driver awareness will cause confusion, congestion and accidents and, if properly taken into account, would increase LILCO's

evacuation times. LILCO, however, has failed to take these factors into account in its evacuation time estimates.

Contention 65.G. The LILCO Plan does not include evacuation time estimates for evacuation of those with special needs who cannot rely on private transportation, such as school children, persons without access to cars, persons in health care or other special facilities, and the handicapped. (See FEMA Report at 11, citing noncompliance with NUREG 0654, Section II.J.10.1 and Appendix 4, at 4-9 to 4-10). The individuals in charge of making protective action recommendations must know how long it will take to evacuate these portions of the population. The Plan thus fails to comply with 10 CFR Appendix E, Section IV, and NUREG 0654, Section II.J.8 and Appendix 4.

Contention 65.H. The LILCO Plan (OPIP 3.6.3) provides for two evacuation route spotters to report information to the EOC regarding traffic congestion on evacuation routes. (Contrary to the requirement of NUREG 0654 Section II.A.2.a., the LILCO employees expected to fill these positions are not identified by job title in the Plan. See OPIP 2.1.1, at 32.) Without the ability to spot congested areas effectively, LILCO will be unable to implement appropriate measures for evacuees to avoid such congestion, resulting in increased evacuation times. LILCO's route spotters will be ineffective because:

1. LILCO has not provided enough route spotters to cover the evacuation routes. (See FEMA Report at 11).

2. The LILCO route spotters will be unable to move expeditiously through heavily congested traffic, especially since the evacuating motorists will not defer to LERO vehicles operating without police sirens or flashers. (Id.)

Contention 66: Removal of Obstacles from the Roadway
and Provisions for Fuel

Contention 66. NUREG 0654 Section II.J.10.k requires that an offsite plan provide "[i]dentification of and means for dealing with potential impediments . . . to use of evacuation routes, and contingency measures."

In the event of a radiological emergency at Shoreham and subsequent evacuation (recommended and/or voluntary), it is likely that there will be many instances of automobile accidents and vehicle breakdowns caused by the large number of vehicles on the road, stop-and-go conditions, overheating while idling in queues, driver inattention, failure to obey the rules of the road and other such conditions. In addition, it is likely that many evacuees will not begin the evacuation with a full tank of gas. Many cars may run out of gas, both inside and outside the EPZ, as a result of extended operation times due to congestion, stop-and-go conditions and time spent sitting in queues. Such occurrences, along with abandonment of vehicles and construction which may be in progress at the time an evacuation is ordered, will result in obstructions and blockages on roadways in use during the evacuation. Taking such occurrences into account would cause evacuation time estimates to increase. (See Contention 65). In addition, it is essential that such obstacles be removed in a timely manner so that evacuation times will not increase even more due to substantial periods of reduced roadway capacity. Under the LILCO Plan, removal of obstacles will be performed by LILCO road crews using 12 LILCO tow trucks and line trucks. Gasoline will be provided by LILCO fuel trucks which are to be dispatched to seven specific locations. (See Plan at 4.4-3; Appendix A at IV-176; OPIP 3.6.3 at 46a-46b).

Intervenors contend that the LILCO Plan fails to comply with 10 CFR Sections 50.47(a)(1), 50.47(b)(10) and NUREG 0654, Section II.J, because LILCO will be unable to provide for obstacles to be removed from the roads, or to provide adequate fuel supplies for evacuees for the following reasons:

A. LILCO does not have an adequate number of tow trucks to enable LILCO personnel to remove all potential road obstructions. (See FEMA Report at 11, citing non-compliance with NUREG 0654, Section II.J.10.k).

B. The tow truck deployment points proposed by LILCO are not located so as to allow rapid dispatch of the tow trucks to the aid of disabled vehicles. In addition, once they have been dispatched to an obstruction location, the tow trucks and other LILCO equipment will only be able to move as fast as the traffic flow, which will be extremely slow. Therefore, they will be unable to respond to the site of an obstruction in an expeditious manner.

C. LILCO's Plan makes no provision for the evacuation of persons whose cars break down or are in accidents.

D. The LILCO Plan does not provide for snow removal. (See FEMA Report at 11, citing non-compliance with NUREG 0654, Section II.J.10.k). Rather, the Plan assumes that "snow removal will be provided by local organizations in their normal fashion during an emergency." (Plan at 2.2-5). This assumption is unwarranted. LILCO has no agreements with local jurisdictions or other entities within and around the EPZ to provide snow removal services during an emergency, nor can it assure that local personnel assigned to snow removal duties will perform those functions during an emergency, for the reasons cited in Contentions 15, 25 and 27.

F. The seven fixed sites chosen for fuel distribution will be able to service only a small portion of the evacuating population. Therefore, the fuel needs of many evacuees will be unmet. Furthermore, no provisions have been made to handle queues at fuel allocation sites which may back up into evacuating traffic, thus causing further congestion and delays.

Contention 67: Evacuation of Persons Without Access to Automobiles

Contention 67. LILCO assumes that in the event an evacuation is ordered, most members of the population will attempt to leave using their personal vehicles. However, a substantial portion of the population in the EPZ does not own or have access to an automobile. LILCO proposes that people who do not have access to an automobile at the time of an evacuation order will be evacuated by buses running special evacuation routes, with bus stops purportedly no more than one-half mile from each such person's home. (Plan at 3.6-6; Appendix A, at III-35 and III-36, IV-76 to IV-163; OPIP 3.6.4). However, LILCO's proposal cannot be implemented, and LILCO's proposed evacuation of people without access to cars would not provide adequate protection for such people, because the evacuation would take too long. As a result of the time necessary to complete the evacuation, persons may be exposed to health-threatening radiation doses. Thus, the LILCO Plan fails to comply with 10 CFR Sections 50.47(a)(1), 50.47(b)(10) and NUREG 0654 Sections II.J.9 and J.10. Specifically:

Contention 67.A. According to LILCO's estimates, approximately 333 forty-passenger buses are required to transport those able-bodied persons who would need transportation out of the EPZ (see Appendix A, at IV-74b;

OPIP 3.6.4). In fact, however, LILCO will either need more than 333 buses or those buses will have to make many more runs than anticipated by LILCO because LILCO has substantially underestimated the number of people who will need such transportation:

1. LILCO underestimate [sic] the significant number of people who belong to households with automobiles, but who may not have access to such vehicles because at the time of an evacuation order, the vehicles are in use by another member of the household. LILCO's proposal for evacuating persons without access to transportation must include adequate methods of evacuating the members of vehicle-owning households who may not have access to a car. LILCO's estimates of the number of buses required do not adequately take such people into account.

2. LILCO's estimates also fail to take into account those persons who rely on public transportation to get into the EPZ but who, in the event of an emergency, may not be able to rely on such means to evacuate.

3. LILCO assumes that its route buses will be filled to 75% capacity; however, there is no basis for this assumption. In fact, the route bus capacity factors are likely to be significantly lower than 75%, which will result in a need for many more buses to evacuate people without access to cars. Contention 67.C. The staggered departures and multiple bus runs necessary under LILCO's plan to evacuate the people in each zone (Appendix A, at IV-76 to IV-163; OPIP 3.6.4, at II-32), even using LILCO's estimates of the number of people likely to need such evacuation, will result in evacuation travel times far longer than those set forth in Appendix A at 8a. Specifically, the LILCO Plan provides that the bus routes will terminate at designated

"transfer points" with each bus in many cases required to make more than one run. As noted in Contention 67.D, several transfer points are in the EPZ. Transfer buses will transport the evacuees from the transfer points to relocation centers. LILCO's estimated route times begin and end with the assumed transfer points. (See Appendix A, at IV-78 to IV-163, V-8a; OPIP 3.6.4). LILCO's estimated evacuation times, however, assume that route buses will be dispatched from transfer points and return to the transfer points at specific intervals (or "headways") and that there will be little or no waiting at the transfer points for buses to the relocation centers. Furthermore, the last transfer buses are assumed to clear the EPZ 15 minutes after leaving the transfer points. (Appendix A at V-7) These assumptions are erroneous, however, since they do not consider the severe traffic congestion that will exist, for reasons set forth in Contention 65 at the same time that the route and transfer buses are attempting to make their trips. Thus, the route times for each route bus will be longer than estimated by LILCO. In addition, it is likely to take far longer than 15 minutes for the last transfer buses to clear the EPZ after leaving the transfer points.

Contention 67.D. The eleven new transfer points designated by LILCO do not appear to have adequate structures which could provide shelter from adverse radiological or weather conditions for evacuees while they are waiting to be transferred to relocation centers. Furthermore, four of the eleven transfer points are inside the EPZ and one is on the EPZ boundary. In addition, of the remaining six transfer points, three are located approximately one-half mile or less beyond the EPZ boundary, one is approximately one mile from the EPZ boundary and two are approximately two and a half miles beyond

the boundary. Under the LILCO Plan, people are likely to be kept waiting for substantial time periods, because of delays, congestion, etc., before they are transported from transfer points to relocation centers. Leaving people at the eight transfer points within or very close to the EPZ will not provide protection for them. Leaving them at the other three transfer points, all less than five miles beyond the EPZ boundary, conflicts with the intent of NUREG 0654, Section II.J.10.h, and could result in these people also receiving health-threatening radiation doses.

Contentions 68-71: Evacuation of School Children

Further Preamble to Contentions 68-71. The LILCO Plan proposes that if schools are in session upon the declaration of an Alert or Site Area emergency in which no protective actions are recommended for the general public, schools are expected to implement their early dismissal plans. (Appendix A at II-20). If an evacuation, or a combination of sheltering and evacuation were recommended for the general public while schools were in session, the schools in the EPZ are expected to evacuate children to "predesignated reception centers." If any protective actions are recommended for the general public, schools outside the EPZ which have students living in the EPZ, according to LILCO, "will retain those students at the school when the school day ends." (Id.) For the reasons set forth in Contentions 68-71, the LILCO Plan does not provide an adequate and implementable means of evacuating school children, and thus fails to comply with 10 CFR Sections 50.47(a)(1), 50.47(b)(10), and NUREG 0654, Sections II.J.9 and J.10.

Contention 68. The LILCO Plan fails to specify the bases upon which LILCO would continue to make a protective action recommendation of early

dismissal (as opposed to sheltering or evacuation) to schools if they had initiated an early dismissal, even if other protective actions were being recommended for the general public (OPIP 3.8.2. at 5), and thus does not comply with 10 CFR Section 50.47(b)(10), and NUREG 0654, Section II.J.10.m.

Contention 69. LILCO appears to assume that its recommendation, at the time no protective actions are recommended for the general public, that schools implement an early dismissal, will result in children being protected in the event of a subsequent protective action recommendation of sheltering or evacuation because children could thereby shelter or evacuate with their parents. (See Appendix A, at II-20, OPIP 3.8.2 at 5.). In fact, there is no assurance that early dismissal will provide children with adequate protection from health-threatening radiation doses, and therefore the Plan fails to comply with 10 CFR Sections 50.47(a)(1), 50.47(b)(10), and NUREG 0654 Sections II.J.9 and J.10, for the following reasons:

Contention 69.B. The LILCO Plan does not incorporate or provide any essential details of early dismissal plans for the schools or school districts in or near the EPZ. It is thus impossible to tell whether such plans for a Shoreham emergency actually exist or, if they do, the extent to which they are compatible with the LILCO Plan.

Contention 69.C. Early dismissal will not result in the timely arrival of children at their homes so they can be protected by their parents because:

1. Even under non-emergency conditions it takes hours to implement early dismissals due to the time required to make the necessary decision, to mobilize the necessary personnel and vehicles, and to perform the necessary number of bus runs. Under emergency conditions, the time

required to accomplish an early dismissal is likely to be substantially greater, due particularly to congested road conditions and role conflict experienced by bus drivers and other personnel in authority. In addition, early dismissal policies rely upon large numbers of children walking home, distances of up to two to three miles, which can take a substantial amount of time.

2. Under the LILCO Plan, schools will receive notification of an emergency at the same time as the rest of the public (by means of tone alert radios activated by the EBS announcement (see Plan, at 3.3-4; Appendix A at 11-19)). Therefore early dismissal traffic, including those children expected to walk home, will encounter early evacuation and mobilization traffic.

Contention 69.D. The Plan does not provide for prior notification of parents if early dismissal is going to occur. According to surveys, between 30 and 40 percent of the school children within the plume EPZ return from school to an empty home because both parents hold daytime jobs (or, in the case of single-parent families, the sole parent holds a daytime job). As a result, many children will be sent home to empty houses, and may be uncared for during the emergency.

Contention 69.E. The Plan fails to provide a means of dealing with an escalation of the emergency (and accompanying need to recommend protective actions of sheltering or evacuation) that may occur during the lengthy process of early dismissal. Indeed, the LILCO Plan provides that once schools initiate early dismissal, LILCO will not inform the schools of subsequent sheltering or evacuation protective action recommendations. (OPIP 3.8.2 at 5). Thus, in the event of such an escalation, children are likely to be stranded in schools, or en route to their homes (walking or on buses), without

available shelter, means of evacuation or other protection. Children would thus be exposed to health threatening radiation doses.

Contention 70. Although the LILCO Plan states that schools will be advised to evacuate if evacuation or a combination of sheltering and evacuation is recommended for the general public, the Plan does not identify relocation centers for, or the means or procedures to evacuate, any of the schools. Appendix A at II-20.) Thus, the LILCO Plan has no provision concerning how its proposed evacuation and relocation of children, or the safe reuniting of children with their families, could or would be implemented. And, contrary to LILCO's assumption, there is no evidence in the Plan that school officials have conducted "preplanning" for a Shoreham emergency. (See OPIP 3.6.5 at 10a). Intervenors contend that in failing to provide for an implementable evacuation of the school children in the school districts in the EPZ the LILCO Plan fails to comply with 10 CFR Sections 50.47(a)(1), 50.47(b)(10), and NUREG 0654 Sections II.J.9 and II.J.10.

Contention 71. Intervenors contend that the Plan's proposed evacuation of school children (Appendix A at II-19 to II-21; OPIP 3.6.5) could not and would not be implemented for the following reasons:

Contention 71.A. Assuming the availability of relocation centers for evacuated nursery school children (the Plan fails to identify any such centers), under the LILCO Plan, a timely evacuation of the nursery schools in the EPZ (see Appendix A at II-20, II-21; OPIP 3.6.5) could not be implemented because:

1. Even if LILCO had agreements with companies to provide a sufficient number of buses and agreements with schools or parents permitting

children to ride in buses being driven by LILCO employees in an evacuation of nursery schools (see Contention 24), many of the buses in fact would not be accessible to LILCO employees because they would be in the custody of the normal school bus drivers, or the buses would be located substantial distances away.

2. The LILCO Plan has no provision for supervision of children at schools, on buses or at relocation centers.

Contention 71.B. An evacuation of nursery and other schools, even if buses and bus drivers were available (See Contention 24) would take too long and children would not be adequately protected from health threatening radiation doses because:

1. Evacuating buses would encounter congestion from other mobilization and evacuation traffic, and thus would be substantially delayed in traveling from schools to relocation centers (the Plan fails to identify any such relocation centers).

2. Normal school dismissals require substantial numbers of multiple bus runs as well as staggered dismissal times. In the event of an evacuation, an even larger number of multiple bus runs (requiring several hours) would be necessary to transport all children out of the EPZ.

Contention 72. The LILCO Plan proposes to evacuate all hospitals, nursing homes and other special health care facilities in the EPZ, using buses, ambulances, and ambulettes. (Plan, Appendix A at II-28 to 29, IV-166 to 168; IV-172 to 178; OPIP 3.6.5). This aspect of the Plan cannot be implemented; accordingly, people in special facilities will not be adequately protected in the event of an emergency and the LILCO Plan fails to comply with

10 CFR Sections 50.47(a)(1), 50.47(b)(3), 50.47(b)(8), 50.47(b)(10) and NUREG 0654, Sections II.A.3, C and J for the following reasons:

Contention 72.A. Assuming the necessary vehicles were available to LILCO and were mobilized, the time necessary, following mobilization, to accomplish the proposed evacuation of special facilities will be too long to provide adequate protection from health-threatening radiation doses. Evacuation will take too long as a result of: the large number of trips necessary to transport persons individually to relocation centers; the other mobilization and evacuation traffic congestion which the evacuation vehicles will encounter; and the time necessary to load and unload passengers from ambulances. Thus, the Plan fails to comply with 10 CFR Sections 50.47(a)(1) and 50.47(b)(10).

Contention 72.C. The Plan fails to identify any relocation or reception centers for persons evacuated from any hospitals, nursing homes, or other special health care facilities other than the United Cerebral Palsy of Greater Suffolk Inc.

Contention 72.D. The LILCO Plan recognizes that under certain circumstances the evacuation of John T. Mather Memorial, St. Charles and Central Suffolk Hospitals might be necessary, and that LILCO may recommend such an evacuation. (Appendix A at II-28, IV-172; OPIP 3.6.5 at 8). However, the Plan fails to specify adequately or accurately the circumstances that would necessitate an evacuation of the hospitals, and does not include adequate procedures to permit the person in command and control to make an accurate determination as to whether or not such an evacuation is needed. Thus, the Plan fails to comply with NUREG 0654 Section II.J.10.m and 10 CFR Section 50.47(b)(10).

Contention 72.E. Instead of planning to provide adequate protection to hospital patients in the event of such an evacuation, the LILCO Plan simply provides that "LERO will evacuate these facilities using an ad hoc expansion of transportation resources that are presently committed to other aspects of evacuation." (Appendix A at II-28, IV-172). Apparently, this ad hoc plan will not be developed until an emergency actually occurs. (See Appendix A at II-28; II-172, 173). The ad hoc plan will utilize the vehicles assigned to implement the evacuation of other segments of the population, but such vehicles will be supplied for the purpose of evacuating hospital patients only "on an as available basis," and only "as the rest of the affected population evacuation nears completion." (Appendix A at IV-173). Thus, there is no assurance that adequate protective measures could or would be taken for hospital patients and LILCO has thus failed to satisfy the requirements of 10 CFR Sections 50.47(a)(1) and 50.47(b)(10), and NUREG 0654, Section II.J.10.d.

Contention 73: Handicapped People at Home

Contention 73. The LILCO Plan proposes to use ambulances to evacuate handicapped people who are not in special facilities. (OPIP 3.6.5). Intervenor contends that this aspect of the LILCO Plan cannot be implemented in a timely manner and therefore will not provide adequate protection to handicapped persons in the EPZ. Thus, this aspect of the Plan fails to comply with 10 CFR Sections 50.47(a)(1), 50.47(b)(1), 50.47(b)(3) and 50.47(b)(10), and NUREG 0654, Sections II.A.3, C.4 and J, as specified in paragraphs A and B below.

Contention 73.A. All handicapped persons in need of special evacuation services will not be known to LILCO and therefore will not be evacuated

in the event of an emergency. The preregistration system proposed by LILCO (Plan, Appendix A, at II-18; see also Information Brochure), will not result in identification of a substantial number of persons who may need assistance in order to evacuate because:

1. Many people who will require assistance will not return the postcards to LILCO because they do not: (a) perceive themselves to be handicapped; (b) desire to be identified as handicapped; (c) understand the reason or need to return the cards; (d) remember to return the cards; and/or (e) desire to rely on LILCO assistance in the event of an emergency.

2. There is no provision for verifying the completeness of the LILCO listing to be compiled from the returned postcards.

3. There is no provision for regularly updating the listing.

Contention 73.B. The LILCO Plan does not provide for the assistance and equipment necessary to accomplish an evacuation of handicapped persons at home, and thus fails to comply with 10 CFR Sections 50.47(b)(1), 50.47(b)(3), 50.47(b)(5) and 50.47(b)(8), and NUREG 0654, Sections II.A.3, C.4, E and J. Specifically:

1. The only provision for notifying non-deaf handicapped individuals of a pending evacuation is by means of a telephone call from the LILCO Home Coordinator. (OPIP 3.6.5). This is an inadequate and ineffective means of notifying many handicapped individuals such as those who are bedridden, unable to get to a telephone or unable to communicate on a telephone, and thus LILCO fails to comply with 10 CFR Section 50.47(b)(5) and NUREG 0654, Sections II.E.5 and E.6. (See FEMA Report at 9).

3. One LILCO employee -- the Home Coordinator -- is responsible for contacting all the handicapped persons and identifying and contacting all reception centers (none of which are identified in the Plan). (OPIP 3.6.5, Section 5.1.2). While OPIP 3.6.5 provides that the Home Coordinator should "[d]raw on Communications and Administrative Support personnel to assist in this effort," there is no indication that such personnel will be available. Thus, there is no assurance that disabled persons will be notified promptly enough to permit timely evacuation.

4. The proposed evacuation would take far too long, and as a result, handicapped people would be likely to receive health-threatening doses of radiation because evacuating vehicles would encounter congestion from other mobilization and evacuation traffic, and thus would be substantially delayed in traveling to the homes of handicapped individuals, and to relocation centers.

5. The LILCO Plan calls for the deaf to be alerted of an accident, and advised of the appropriate protective action, by LILCO route alert drivers who are expected to drive to the home of each deaf resident within the EPZ (OPIP 3.6.5). This proposed notification will not be timely, however, since route alert drivers will be delayed by mobilization and evacuation traffic. Furthermore, even disregarding expected traffic conditions, there is no assurance that enough route alert drivers will be assigned to this function to enable LILCO to carry out such notification promptly.

Contentions 74-77: Relocation Centers

Further Preamble to Contentions 74-77. An offsite emergency plan must include means of relocating evacuees and must provide for relocation centers located at least five miles and preferably 10 miles beyond the EPZ. NUREG 0654, Sections 11.J.10.g and h. Such relocation centers are essential to provide food and shelter to those evacuees who have no alternative places to stay and also to provide radiological monitoring and decontamination for evacuees and their vehicles. The relocation centers must have sufficient personnel and equipment to monitor evacuees within a 12-hour period. NUREG 0654, Section 11.J.12.

The LILCO Plan calls for the establishment of relocation centers outside the EPZ at the following facilities (Plan, at 4.2-1; OPIP 4.2.1):

- Suffolk County Community College (primary)
- BOCES Islip Occupational Center (primary)
- State University of New York at Stony Brook (primary)
- State University of New York at Farmingdale (backup)
- St. Joseph's College, Patchogue (backup).

The Intervenors contend that LILCO will be unable to provide adequate relocation centers and services for evacuees, and thus the Plan fails to comply with 10 CFR Sections 50.47(a)(1), 50.47(b)(8), 50.47(b)(10), and NUREG 0654 Section J. The specific deficiencies which lead to this conclusion are set forth in Contention 74-77.

Contention 74. Two of the three primary relocation centers designated by LILCO are well within 20 miles from the Shoreham site. Both Suffolk County Community College and the State University of New York at Stony

Brook are only 3 miles from the plume EPZ boundary, contrary to the requirement of NUREG 0654, Section II.J.10.h.

Contention 75. The LILCO Plan provides no estimates of the number of evacuees who may require shelter in a relocation center, and the Plan fails to demonstrate that each such facility has adequate space, toilet and shower facilities, food and food preparation areas, drinking water, sleeping accommodations and other necessary facilities. Accordingly, there is no assurance that the relocation centers designated by LILCO will be sufficient in capacity to provide necessary services for the number of evacuees that will require them. Thus, LILCO fails to comply with NUREG 0654, Sections II.J.10.g and J.12.

Contention 77. The equipment used by LILCO to measure thyroid contamination at relocation centers -- RM 14 with HP270 probe -- (see OPIP 3.9.2) will be incapable of differentiating the required signal from background readings. The instrument's most sensitive scale (0-500 cpm) is insufficiently sensitive for the accurate measurement of 150 cpm or 0.13 mR/hr (the threshold for requiring hospital care) in the presence of background readings which are likely to be elevated [sic] above the 50 cpm maximum (10-15 cpm nominal) assumed by LILCO. (OPIP 3.9.2 and Plan, at 3.9-4). In addition, the Plan provides no information or instruction on how to make a measurement if the background reading exceeds 50 cpm. Accordingly, the LILCO plan fails to comply with NUREG 0654 Section II.J.12.

Contentions 78-83: Food, Milk, Water and Livestock Control

Further Preamble to Contentions 78-83. 10 CFR Section 50.47(b)(10) requires that protective actions for the ingestion exposure pathway EPZ

"appropriate to the locale" be in place. The ingestion exposure pathway generally covers an area approximately 50 miles in radius. 10 CFR Section 50.47(c)(2). Plans for the ingestion pathway are required to "focus on such actions as are appropriate to protect the food ingestion pathway." Id. The purpose of these requirements is to protect the public from consumption of contaminated foodstuffs. NUREG 0654, Section II.J.11.

Contention 81. The Plan contains insufficient procedures or other means of implementing the protective actions set forth in OPIP 3.6.6. Thus, LILCO has not developed adequate plans for the 50-mile ingestion exposure pathway, and there is no compliance with 10 CFR Sections 50.47(a)(1), 50.47(b)(1), 50.47(b)(3), 50.47(b)(10), 50.47(c)(2) and NUREG 0654 Section II.J.11. Specifically:

Contention 81.A. The Plan does not provide adequate procedures or guidance governing the disposition of contaminated lactating dairy animals, or the treatment of uncontaminated lactating dairy animals should uncontaminated stored feed not be available. Thus, there is no assurance that the milk or meat products of these animals will be kept from public consumption.

Contention 81.B. The Plan calls for withholding contaminated milk from the market to allow radioactive decay of short-lived radionuclides but does not call for its disposal or continued withholding after the decay period. (OPIP 3.6.6, Attachment 7, at 1). The Plan provides no standards for determining what constitutes an adequate "decay period" or for identifying short-lived radioisotopes, nor does it contain any provisions for dealing with long-lived isotopes which would pose a serious health consequence to the public. In addition, the Plan does not state: (1) how the withholding of

contaminated milk would be achieved; (2) how the prolonged storage and special pasteurization of milk would be achieved; (3) how the diversion of the production of fluid milk would be achieved; or (4) how the introduction of milk supplies into commerce would be prevented.

Contention 81.C. The Plan calls for washing contaminated fruit and vegetables and milling and polishing contaminated grains (OPIP 3.6.6, Attachment 7, at 1a). However, the Plan contains no procedures for disposing of the wash water or residue, which could pose a serious potential for adverse health consequences. In addition, the Plan does not state: (1) how the removal of surface contamination from fruits and vegetables by washing, etc. would be achieved; (2) how the milling and polishing of contaminated grains would be achieved; or (3) how the many informal local farm stands can be found and controlled.

Contention 81.D. The Plan contains no maps showing key land use data, watersheds, water supply intakes and treatment plants and reservoirs. Nor does it state: (1) how and from where alternative drinking water supplies would be made available; or (2) how affected wells would be identified and isolated and reservoirs secured.

Contention 81.E. The Plan does not state: (1) how the diet of all residents and visitors is to be restricted; (2) who will pay for condemnation and under what procedures condemnation will be executed; or (3) how exports of agricultural products and ducks from Suffolk County to other parts of the country can be controlled or prevented.

Contention 81.F. The Plan does not provide for personnel, facilities, equipment or even a communications network to implement any of the actions listed in subparts A through E.

Contentions 84-91: Recovery and Reentry

Preamble to Contentions 84-91. The LILCO Plan proposes that short-term and long-term recovery and reentry operations will be performed by LILCO personnel following a radiological emergency at Shoreham (Plan, at 3.10-1 and 3.10-2; OPIP 3.10.1). For the reasons specified in Contentions 84-91, Intervenors contend that contrary to the emergency planning standards of 10 CFR Section 50.47(b)(13) and NUREG 0654, Section II.M, the LILCO Plan fails to include general plans for recovery and reentry, including the development of necessary procedures and methods that are capable of being implemented.

Contention 85. The LILCO Plan at 3.10-1 states that after site conditions are controlled the Director of Local Response will appoint a Recovery Action Committee which "will plan and implement actions for the restoration of the affected areas to their pre-emergency conditions." (Id.) The LILCO Plan thus provides merely that planning for recovery and reentry will commence after the appointment of the Recovery Action Committee; at this time, no such plan exists. This is contrary to the requirement of 10 CFR Section 50.47(b)(13) that "[g]eneral plans for recovery and reentry are developed," (emphasis added), and NUREG 0654 Section II.M.

Contention 88. OPIP 3.10.1 sets forth "Acceptable Surface Contamination Levels" in units of disintegrations per minute. The Plan does not include a method for converting such information into radiation doses to the public (e.g., persons-rem[sic]). The Plan also fails to state the dose criteria that will provide the basis for a determination that it is safe for the public to reenter previously evacuated areas. The Plan calls for cost benefit analysis

based on a \$1,000/person-rem during temporary reentry (OPIP 3.10.1 at 5), but provides no guidance on how to analyze a situation in order to be able to apply this criterion. Thus the Plan fails to comply with 10 CFR Section 50.47(b)(13) and NUREG 0654, Sections II.I.10, and II.M.1.

Contention 92: State Emergency Plan

Contention 92. There is no New York State emergency plan to deal with an emergency at the Shoreham plant before this Board. (See Plan, at Attachment 1.4.2). In addition, the LILCO Plan fails to provide for coordination of LILCO's emergency response with that of the State of New York (assuming, arguendo, such a response would be forthcoming). (See FEMA Report at 1.) In the absence of a State emergency plan for Shoreham, there can be no finding of compliance with 10 CFR Sections 50.47(a)(2), 50.47(b), or NUREG 0654, Section I.E, I.F, I.H or II.10/

Contentions 93-96: Loss of Offsite Power

Preamble to Contentions 93-96. The LILCO Plan must provide an adequate response for even "the worst possible accident, regardless of its extremely low likelihood." NUREG 0654, Section I.D. at 7. This includes a loss of offsite power, which would not be unlikely in conjunction with a severe accident at Shoreham. The LILCO Plan, however, contains no measures for dealing with such a circumstance, and thus does not provide for the

10/ In LBP-83-22, at 60, the ASLB mentioned that contentions would be appropriate concerning lack of coordination between the LILCO plan and the State plan. As noted in this contention, however, there is no State Plan before the Board. Thus, there is in fact noncompliance with all the NUREG-0654 planning requirements which pertain to the State. The County has not alleged separate contentions as to each of these, it being considered sufficient to note merely the lack of any State plan.

protection of the public health and safety, for the reasons set forth in contentions 93-96 below.

Contention 93. 10 CFR Section 50.47(b)(8) requires the emergency response organization to establish "adequate facilities" to maintain the emergency response. See also NUREG 0654, Section II.H. The LILCO Plan fails to satisfy this requirement by failing to allow for the possibility of a loss of offsite power. Specifically:

A. The LILCO Plan does not indicate that the EOC has a backup power supply nor does it provide for the management of the emergency response from another location. In the event of a loss of offsite power the EOC would become inoperable and LERO would become unable to implement an emergency response.

B. The LILCO Plan does not indicate that backup power supplies have been established for staging areas, bus transfer points, receiving hospitals, or relocation centers. In the event of a loss of offsite power, these facilities would become inoperable.

Contention 94. 10 CFR Section 50.47(b)(5) and NUREG 0654, Section II.E.2 require that emergency plans provide for the prompt notification of response personnel. See also 10 CFR Part 50 Appendix E, Sections 4C and D. Notification channels must remain open on a 24-hour basis. NUREG 0654, Sections II.F.1.a. The LILCO Plan violates this requirement by not allowing for the possibility of a loss of offsite power. Specifically:

A. The LILCO Plan does not indicate that the LILCO Customer Service Office has a backup power supply. In the event of a loss of offsite power, the LILCO Customer Service Office will become inoperable. Thus, the SNPS

Control Room will be unable to notify LERO and initiate the emergency response process. See LILCO Plan at Section 3.3.

B. The LILCO Plan does not indicate that the EOC has a backup power supply. In the event of a loss of offsite power, the EOC will become inoperable, and LERO will be unable to notify emergency personnel in the field.

Contention 95. 10 CFR Section 50.47(b)(5) requires every emergency plan to provide for early notification and clear instruction to those within the plume EPZ. These requirements are distinct: the public must be given an early alert signal and a follow-up instructional message. See NUREG 0654, Appendix 3, Section B(2)(a). The LILCO Plan violates these requirements by failing to take account of the possibility of a loss of offsite power. Specifically:

Contention 95.A. LILCO relies on a system of sirens for providing an immediate alert to the public. See LILCO Plan at 3.3-4; OPIP 3.3.4. However, the LILCO Plan does not indicate that the sirens have a backup power supply. Therefore, in the event of a loss of offsite power, the sirens will not function.

Contention 95.D. LILCO relies on tone alert radios to provide the extra evacuation time required by large facilities such as factories and schools. See LILCO Plan at 3.3-4,5. The tone alert radios will evidently operate on AC power rather than on batteries. Therefore, in the event of a loss of offsite power, the tone alert radios would not function.

Contention 95.E. Emergency plans must provide formal means for dissemination of information to the public through the news media. See NUREG 0654, Section II.G.3 and 10 CFR Section 50.47(b)(7). LILCO relies on

the establishment of an Emergency News Center to satisfy this requirement. See OPIP 3.8.1. However, the LILCO Plan does not indicate that the Emergency News Center has a backup power supply or that a backup news facility has been established. Therefore, in the event of a loss of offsite power, the Emergency News Center will become inoperable and LILCO's public notification duties will not be satisfied.

Contention 96. 10 CFR Section 50.47(b)(10) requires each emergency plan to provide for protective actions which protect the public health and safety in the event of an accident. NUREG 0654, Section II.J.9 requires a demonstration that the protective actions within a plan are capable of being implemented. The LILCO Plan does not satisfy these requirements because it fails to take account of the possibility of a loss of offsite power. Specifically:

Contention 96.A. Assuming that an evacuation of the plume EPZ were determined to be the appropriate protective action, the LILCO Plan relies heavily on the services of private firms such as ambulance services, LILCO Plan at 3.7, and bus companies, OPIP 3.6.4. However, in the event of a loss of offsite power these firms and facilities would become inoperable and close. LERO would thus become unable to utilize those services.

Contention 96.B. Assuming that an evacuation of the plume EPZ were determined to be the appropriate protective action, LERO would be responsible for evacuating scores of hospitals, nursing homes, and facilities for the handicapped. However, the LILCO Plan does not indicate that these facilities have backup power supplies. In the event of a loss of offsite power, evacuation of these facilities would be either impossible or far more difficult and time-consuming than indicated in the LILCO Plan.

Without functioning elevators, non-ambulatory persons could be moved only with extreme difficulty, if at all. Without lighting, nighttime evacuation of these facilities would be all but impossible. Without functioning medical equipment, management would attempt some form of limited evacuation on its own. In any case, this potential circumstance is not taken into account in the LILCO Plan.

Contention 96.C. Assuming that evacuation of the plume EPZ were determined to be the appropriate protective action, the successful implementation of such an action would depend on the functioning of systems and facilities that would in fact be inoperable in the absence of offsite power. These include: residential lighting, public streetlights, traffic signals, and service stations. The LILCO Plan does not indicate that any of these facilities and systems have backup power supplies. Therefore, in the event of a loss of offsite power, the Plan would not provide for the protection of the public health and safety.

SOC Contention 97: Bad Weather

SOC Contention 97. The LILCO Plan is inadequate because it fails to take account of the possibility that a severe accident at Shoreham might occur in tandem with severe adverse weather, i.e., heavy snow. This deficiency violates the applicable standards in several respects.

Contention 97.B. Pursuant to 10 CFR Section 50.47(b)(10) the LILCO Plan must designate a range of protective actions appropriate to a variety of circumstances. See also NUREG 0654, Section II.J.9. This includes unfavorable weather. Yet the LILCO Plan's procedures for evacuation completely disregard the possibility of the existence of deep snow. SOC contends that

the evacuation procedures outlined in the LILCO Plan would not work during a heavy snowfall, for the following reasons:

1. Key LERO personnel would be unable to travel to the EOC, as required by the LILCO Plan at 3.3;
2. Neither traffic guides, road crews, evacuation route spotters, ambulance drivers nor staging area coordinators would be able to travel to the staging areas, as required by OPIP 3.3.3 and 3.6.3;
3. Even if the persons listed in (2) above were to reach the staging areas, they would be unable to travel to their assigned posts/routes, as required by OPIP 3.6.3;
4. Bus drivers and shuttle operators would be unable to travel to staging areas, as required by OPIP 3.6.4 and, in any case, would be unable to complete their assigned trips;
5. Relocation center staff would be unable to travel to the relocation centers; and
6. Members of the public would be unable to evacuate their homes or places of work.

Contention 98. The LILCO Plan states that emergency response training and periodic retraining "will be offered" to organizations, such as schools, hospitals, nursing homes, adult homes and other special facilities, which may be called upon to "take actions during an incident" at the Shoreham plant. (see Plan, at 5.1-6). However, the Plan fails to demonstrate that such training and retraining will, in fact, be provided, nor is there any description of the training that "will be offered." Further, the Plan fails to demonstrate that training and/or periodic retraining will be

provided to the personnel of emergency response organizations which are relied upon by LILCO to provide essential support services during an emergency, including the U.S. Coast Guard, DOE-RAP, the American Red Cross, and ambulance personnel. Therefore, the LILCO Plan does not comply with 10 CFR §50.47(b)(15), 10 CFR Part 50, Appendix E, Section IV.F, and NUREG 0654, Section II.0. Because the Plan provides no assurance that the persons necessary to implement the LILCO Plan will be timely and adequately trained, there can be no assurance that the protective measures described in the Plan can or will be taken in the event of an emergency, in violation of 10 CFR §50.47(a)(1).

Contention 99. In violation of 10 CFR §50.47(b)(15), 10 CFR Part 50, Appendix E, Section IV.F, and NUREG 0654, Section II.0, the training provided by LILCO to emergency response personnel (both LILCO and non-LILCO) is inadequate and, as a result, in the event of a radiological emergency such personnel will neither understand nor be able to perform properly the functions assigned to them under the LILCO Plan. There is, therefore, no assurance that adequate protective measures can and will be taken in the event of a radiological emergency at Shoreham, as required by 10 CFR §50.47(a)(1). The specific deficiencies in LILCO's training program, each of which contributes to the overall inadequacy of the training proposed by LILCO, are set forth below.

C. LILCO's classroom training sessions have been conducted by individuals who are neither experienced in, nor knowledgeable about, the subject areas they are assigned to teach. In addition, the teachers are not experienced or trained in teaching methods.

G. The LILCO training program provides insufficient information concerning how trainees are to perform the specific duties and responsibilities assigned to them under the LILCO Plan. Instead, the "training" consists primarily of descriptive statements of job titles, job duties, and chains of command.

Contention 100. In violation of 10 CFR §50.47(b)(15), 10 CFR Part 50, Appendix E, Section IV.F, and NUREG-0654, Section II.0, the LILCO drill and exercise programs are inadequate and do not prepare or train LERO personnel to perform properly or effectively their assigned functions under the LILCO Plan. As a result, there is no assurance that adequate protective measures can and will be implemented in the event of a radiological accident at Shoreham, in violation of 10 CFR §50.47(a)(1). The specific deficiencies in LILCO's drill and exercise programs are as follows:

B. During drills, LERO field personnel trainees are not accompanied to their posts by instructors. Therefore, whatever activities they may have performed during the so-called "drill" have not been supervised, observed, evaluated, graded, or critiqued. This renders the "field drills" meaningless as "training."

D. Contrary to the requirements of 10 CFR Part 50, Appendix A [sic], Section IV.F and NUREG 0654, Section II.0.2, most LERO trainees are not required to perform their LERO jobs during training drills. For example, traffic guides did not direct traffic, and bus drivers did not drive buses over bus routes. Thus, LILCO's drill program has not provided LERO personnel with an opportunity to practice their emergency duties and responsibilities.

G. The LILCO drills contain no terminal performance standards, and, consequently, there are no objective, observable criteria to be used by instructors in evaluating the performance of individual trainees.

Strike Issues Admitted by the Board Sua Sponte

1. Whether LILCO's ability to implement its offsite emergency preparedness plan would be impaired by a strike involving the majority of its LERO workers.

2. Whether LILCO should be required to place the reactor in cold shutdown in the event of a strike by LERO workers.

3. Whether placing the reactor in cold shutdown during a strike by LERO workers, after the reactor has operated at full power, would give "reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency."