

LILCO, October 12, 1982

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

OFFICE OF SECRETARY  
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Before the Atomic Safety and Licensing Board

In the Matter of

LONG ISLAND LIGHTING COMPANY

(Shoreham Nuclear Power Station,  
Unit 1)

)  
)  
) Docket No. 50-322 (OL)  
) (Emergency Planning --  
) Phase I)  
)

TESTIMONY OF  
WILLIAM G. SCHIFFMACHER AND WILLIAM F. RENZ  
FOR THE LONG ISLAND LIGHTING COMPANY ON  
PHASE I EMERGENCY PLANNING CONTENTION 1(B) --  
PROMPT NOTIFICATION SYSTEM

PURPOSE

The purpose of this testimony is to demonstrate that in the event of loss of power to all or part of the siren system, the Long Island Lighting Company (LILCO) could restore back-up power to allow timely warning to the population potentially affected.

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Attachments to this Testimony:

EP 1(B)-1

Resume of William G.  
Schiffmacher

EP 1(B)-2

Resume of William F. Renz

EP 1(B)-3

LILCO's Emergency Plan  
section 6.4.1, "Offsite  
Actions"

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Q1. Please state your name and business address.

A1. [Schiffmacher] My name is William G. Schiffmacher. My business address is 175 East Old Country Road, Hicksville, New York 11801.

[Renz] My name is William F. Renz. My business address is 175 East Old Country Road, Hicksville, New York 11801.

Q2. By whom are you employed and in what capacity?

A2. [Schiffmacher] I am employed by LILCO. My current position is Manager of the Electrical Engineering Department.

[Renz] I am employed by LILCO. My current position is Scientist, Nuclear Engineering Department.

Q3. Please state your professional qualifications and why you are knowledgeable about the issues raised in EP 1(B).

A3. [Schiffmacher] My resume, describing my professional qualifications, is Attachment EP 1(B)-1. My knowledge about the issues in EP 1(B) is based on my prior responsibilities in Electric System Planning relating to the planning and design of the transmission system and on my current responsibilities for the installation of the siren network.

[Renz] My resume, describing my professional qualifications, is Attachment EP 1(B)-2. My knowledge about the issues in EP 1(B) stems from my position as Scientist, Nuclear Engineering and my full-time assignment since November 1980 to corporate and offsite emergency planning.

Q4. Are you familiar with the text of EP 1(B)?

A4. [Schiffmacher and Renz] Yes. EP 1(B) states:

LILCO intends that individuals situated within a 10-mile radius of the plant will be alerted to a radiological emergency through 89 sirens and approximately 150 tone alert receivers (Plan at 6-11 through 6-12; Wyle Laboratories Report WR 82-10 at 4-3). LILCO's system, known as the "Prompt

Notification System," is inadequate to effectively notify the population which may be affected by a radiological emergency and thus fails to meet the requirements of 10 CFR §§ 50.47(b)(5) and (6), 10 CFR Part 50, Appendix E, Item D.2 and NUREG-0654, Items II.E and F for the following reasons:

B. LILCO has not adequately demonstrated that in the event of a loss of power to all or part of the system, it could provide backup power in time to offer timely warning to the population.

Q5. Simply stated, what is the gist of EP 1(B)?

A5. [Schiffmacher and Renz] In appropriate circumstances, LILCO will make protective action recommendations to Suffolk County and New York State. If Suffolk County, or New York State, or both, make the decision to notify the public regarding these protective actions, the Prompt Notification System (PNS) is sounded by the County to alert the public to tune in their radios for further instructions (see Attachment EP 1(B)-3). As best as can be discerned, EP 1(B) is concerned with whether LILCO has considered the possibility that there may be a delay in the initiation of the PNS due to a loss of power to all or part of the system. The gist of EP 1(B) seems to be that this alleged delay will preclude timely notification to the affected public.

Q6. What is included in the PNS?

- A6. [Schiffmacher and Renz] The PNS consists of 2 alerting modes: sirens and tone alerts.
- Q7. What part do the tone alerts play in the notification plan?
- A7. [Schiffmacher and Renz] In addition to the siren network that provides notification throughout the EPZ, special facilities in the EPZ, such as hospitals, nursing homes, schools, major employers, and other large institutions, will have tone alerts that are activated by radio signal. The tone alerts are radio receivers that are pre-tuned to WALK, the radio station on which instructions to the public will be broadcast. Upon activation of the PNS, WALK will send a coded signal to the tone alerts so that they will immediately begin broadcasting instructions regarding what protective actions, if any, are to be taken.
- Q8. How would a loss of power affect the tone alerts in the special facilities?
- A8. [Schiffmacher and Renz] It would not have any effect. Each radio activated tone alert has a battery back-up that ensures continuous radio capability notwithstanding the loss of electrical power.

Q9. How many sirens are there in the siren network?

A9. [Schiffmacher & Renz] The sirens are located on poles in 89 locations, with one siren to a pole, throughout the EFZ.

Q10. How are the sirens activated?

A10. [Schiffmacher and Renz] The sirens are activated by a radio signal that will be initiated either from the Suffolk County Police Communications Center in Yaphank, or the Suffolk County Emergency Operations Center, also in Yaphank. The radio transmitters are not yet installed in either of these locations because LILCO has been unable to receive permission for their installation. Recently, LILCO again requested permission to install the radio transmitters at these facilities. In response, the Deputy County Executive for Suffolk County requested more information about the entire siren system. LILCO has provided this information for the County's review.

Q11. What effect would the loss of all or a substantial part of the electric system have on the operation of the siren network?

A11. [Schiffmacher] First of all, the probability of this occurring is remote. Aside from the blackout of 1965 which affected the entire northeast, LILCO has experienced

only one subsequent event that would have affected the bulk transmission system. Furthermore, measures have been introduced since 1965 that have significantly decreased the average power restoration time. Based on that history, the data to date indicates only one power outage in the last seventeen years that would have caused a loss of power to all sirens.

Secondly, LILCO is committed to restore power to the sirens on a priority basis. Procedures have been established with LILCO's System Operations Department to ensure restoration on this basis. This commitment will produce restoration of power to the siren system in two stages following any large blackout:

- (1) Restoration of approximately 72 of the 89 sirens within thirty minutes, including all sirens within the 5-mile EPZ; and
- (2) Restoration of the remaining sirens within an additional thirty minutes.

Q12. How will the restoration of power to the sirens be accomplished?

A12. [Schiffmacher] The restoration of power is accomplished by the System Operator. He initiates the operation of gas turbines at multiple locations in the system. Further, he



initiates a series of switching operations to route the power from these gas turbines to the substations and circuits identified as priority locations. These activities on the part of the System Operator will allow rapid restoration of power to the sirens.

Q13. Would the initial loss of power to the siren system preclude a timely warning to the public?

A13. [Schiffmacher and Renz] No. The procedures described above will provide a quick restoration of power to the siren system. In addition, it must be remembered that the primary objective is to notify the public located in the area of the projected plume. Once this relatively small geographical area is identified, even supplemental notification efforts by County Police or other service personnel using vehicular or helicopter sirens or loud speaker sound systems, if implemented, could be effective.

Q14. What about outages of less magnitude than major blackouts?

A14. [Schiffmacher] The sirens are distributed on a number of circuits, with power to the circuits supplied through a number of substations. These substations, in turn, are fed by several separate transmission lines. This decentralized and redundant system of power supply means that the loss of power to a circuit, for example, has a

minimal effect on the siren network since only those sirens on that circuit will be affected. Also, through LILCO's ability to reroute power through different circuits, power may be redistributed to the sirens to correct a wide variety of minor loss of power situations.

It should also be noted that the tone alerts provide a partial back-up to the siren system itself. These tone alerts, which operate independently of the siren system, will allow some localized notification should the siren system in that locale not be immediately available.

Q15. Are you familiar with the requirements of 10 C.F.R. §§ 50.47(b)(5) and (6), 10 C.F.R. Part 50, Appendix E, IV(D)(3), and the recommendations of NUREG-0654, Items II(E) and (F)?

A15. [Schiffmacher and Renz] Yes. 10 C.F.R. § 50.47(b)(5) and (6) provide:

(5) Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and followup messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.

(6) Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.

Though EP 1 cites 10 C.F.R. Part 50, Appendix E, IV(D)(2), this provision does not cover the subject matter of EP 1(B). The more appropriate provision is 10 C.F.R. Part 50, Appendix E, IV (D)(3), which provides in relevant part:

A licensee shall have the capability to notify responsible State and local governmental agencies within 15 minutes after declaring an emergency. The licensee shall demonstrate that the State/local officials have the capability to make a public notification decision promptly on being informed by the licensee of an emergency condition. . . . The design objective of the prompt public notification system shall be to have the capability to essentially complete the initial notification of the public within the plume exposure pathway EPZ within about 15 minutes. The use of this notification capability will range from immediate notification of the public (within 15 minutes of the time that State and local officials are notified that a situation exists requiring urgent action) to the more likely events where there is substantial time available for the State and local governmental officials to make a judgment whether or not to activate the public notification system. . . . The responsibility for activating such a public notification system shall remain with the appropriate governmental authorities.

NUREG-0654, Items II(E) and (F) provide the general evaluation criteria for "Notification Methods and Procedures" and "Emergency Communications."

Q16. Does LILCO's PNS fully meet these regulatory requirements and guidelines?

A16. [Schiffmacher and Renz] Yes.

Q17. Do you have any reason to believe that there is a lack of reasonable assurance that a timely warning will be forthcoming in the event of a loss of power?

A17. [Schiffmacher and Renz] No.

Q18. Messrs. Schiffmacher and Renz, would you please summarize your testimony?

A18. [Schiffmacher and Renz] The siren and tone alert systems provide a timely method for alerting the population within the ten-mile EPZ. Even under blackout conditions, the restoration of power to the sirens on a priority basis will result in the sirens being operational in the quickest time possible. Less serious outages, handled with appropriate power rerouting over alternate paths, will be limited in scope and have a minimal impact on the effectiveness of the PNS.

PROFESSIONAL QUALIFICATIONS

WILLIAM G. SCHIFFMACHER

Manager, Electrical Engineering Department

LONG ISLAND LIGHTING COMPANY

My name is William G. Schiffmacher. My business address is Long Island Lighting Company, 175 East Old Country Road, Hicksville, New York 11801. As the Manager of the Electrical Engineering Department at LILCO, I am responsible for all electrical engineering including overhead and underground transmission, substations, distribution facilities, fossil and nuclear plants and buildings. I have held this position since August 1981. I have been employed by LILCO for 17 years.

I received my Bachelor of Electrical Engineering degree in 1965 from Manhattan College. I received my Master of Science degree in Management Engineering in 1969 from Long Island University.

From June 1965 to July 1971 I worked in various sections of the Distribution Engineering and Planning Departments at LILCO, progressing from Junior Engineer to Associate to Engineer. From July 1971 to July 1972 I assumed the position of Supervisor of Area Planning. In this capacity I oversaw

five engineers involved with recommending system improvements and expansion of the subtransmission, distribution substation and feeder circuits. From July 1972 to November 1972 I was the Supervisor of Substation Operations and was responsible for coordinating the efforts of 15-20 field personnel involved in operation of the electric system. From November 1972 through September 1975 I held the position of Supervisor of Transmission and Intersystem Planning. With a complement of five engineers, I was responsible for planning and recommending system transmission projects including substations.

As Manager of Electric System Planning from September 1975 to December 1977 I was responsible for transmission, interconnection and generation planning. As Manager of Substation Design and System Control and Protection from December 1977 to May 1979, I was responsible for the physical-electrical design of all substations and the complete engineering and design of all protective relaying, supervisory control and telemetering systems for LILCO. From May 1979 to April 1981 I was again the Manager of the Electric System Planning and was responsible for conducting all studies and investigations for electric facilities planning for LILCO.

Prior to my present position as Manager of the Electrical Engineering Department, from April 1981 until August 1981 I held the position of Manager of Distribution Engineering. In this capacity I was responsible for the design

and qualification of all overhead and underground equipment associated with the distribution system. In addition, I was responsible for the development of standards and procedures associated with the distribution system and its equipment.

My professional affiliations include membership in the Association of Edison Illuminating Companies' Committee on Electric Power Apparatus, the Edison Electrical Institute's Electrical System and Equipment Committee, the National Electric Safety Code Committee, the American National Standard C-2 Subcommittee 8 and the EEI NESC Electric Utility Representatives Coordinating Group.

In 1979 I was affiliated with the Adjunct Faculty of the Nuclear Engineering Department of Polytechnic Institute of New York, Masters Degree Level.

PROFESSIONAL QUALIFICATIONS

WILLIAM F. RENZ

Associate Scientist, Nuclear Engineering Department,  
Nuclear Engineering Division

LONG ISLAND LIGHTING COMPANY

My name is William F. Renz. I am a Scientist in the Nuclear Engineering Department of the Long Island Lighting Company (LILCO). My business address is 175 East Old Country Road, Hicksville, New York 11801. I am responsible for keeping the status of the Shoreham Nuclear Power Station (SNPS) Emergency Plan up-to-date in accordance with any resolutions to NRC-generated comments. I also coordinate the development of the SNPS Corporate Implementing Procedures with the Engineering Control department, Stone & Webster, and the WTM Management Corporation in support of the Plan.

I represent LILCO on the New York State Radiological Emergency Preparedness Group Scenario Development Task Force, on the New York State Power Pool Subcommittee on Emergency Planning, in negotiations with Suffolk County's Departments of Planning, Emergency Preparedness and Health Services. I am also responsible for maintaining working relationships with Suffolk County and Stone & Webster as well as other Emergency Planning contractors as needed.



I am responsible for coordinating the development and implementation of the Prompt Notification System and the communication requirements regarding the specifications for the Hotline, dedicated lines, beepers, radios and other specific emergency communication systems.

I have a Bachelor of Science degree in Oceanography from The George Washington University (1977). I have done post graduate study in the field of Water Pollution Research Technology. I am presently attending Polytechnic Institute of New York and am studying for a Master of Science degree in Technology Management.

Prior to assuming my present responsibilities at LILCO, I was a Field Inspector in the Underground Lines Department (1979-80). My responsibilities there were associated with the supervision of pipe line contractor activities dealing with the installation of new gas services and mains in the Bellmore Operations Center territory. I responded to all customer complaints directed toward this activity. I prepared the capital portion of the Weekly Workload Plan for Area 8 utilizing pre-check and date due reports and an area monthly forecast plan. I administered all PSC-required programs (10-year, 5-year, Annual Curb Cock Inspection, Valve, Substructure, Major Mains, Vegetation and Hazardous Mains) within the Bellmore Operations Center territory. I directed all 5-year, 10-year and vegetation programs with respect to contractor performance.

In addition, I prechecked all New Business Department work orders, including gas, electric and cathodic protection orders. I also prepared annual work orders for main replacement and, as directed by the Area Supervisor, performed economic analyses involving their investigation, implementation and use in current program work within the Bellmore Operations territory. As a Field Inspector, I coordinated efforts aimed at the restoration of roadways with State and local authorities.

From 1978 to 1979 I was a Systems Mapper in LILCO's Systems Engineering department. I was responsible for accurately updating all types of LILCO distribution maps from the various source documents available including work order historicals, map corrections, etc., as well as for the plotting of the electrical and gas distribution systems for future company reference.

Before joining LILCO, I was employed for one year, in 1978, as Office Manager for Poolservice Company in Arlington, Virginia. My duties included Public Relations, Managing Home Pool Maintenance, Cover Sales and some structural repairs to residential pools and their systems. This involved a cost analysis on each contract prepared including work-sheets, payment schedules and inflative and overhead costs.

In 1977 I gained field experience, for which I received special recognition, as the chosen leader and chief scientist of the 12:00 to 4:00 watch during a water pollution research

cruise sponsored by the Marine Science Consortium covering the Chesapeake Bay and chosen surrounding sites. My parameter, total organic carbon in bottom sediments, covered 105 stations in seven days.

As a result of my participation in the aforementioned cruise, I was asked to participate on a similar cruise from off the coast of Brazil to Puerto Rico, sponsored by the U.S. Navy.

I also participated in various field studies from 1973 to 1977, including a topographic study between Washington, D.C. and Harpers Ferry, West Virginia; a coastal ecosystem study on Wallops Island, Virginia; a core strata study of Pleistocene rocks in Lewes, Delaware; and a Miocene rock strata study in Calvert Cliffs, Maryland.

My relevant professional training includes training in Principles of Nuclear Power (1979), administered by LILCO; Introduction to Boiling Water Reactor Nuclear Power Plants (1981), administered by General Physics Corporation; and training in a Radiological Emergency Planning seminar (1981), administered by the Federal Emergency Management Association (FEMA).

Additionally, EPIP describes subsequent and/or supplemental corrective actions for the scope of potential situations within each of the emergency classifications. These EPIPs are designed to guide the actions of personnel to correct or mitigate a condition as early and as near to the source of the problem as feasible. Specific actions are described, for example, which may prevent or significantly reduce a potential release of radioactive material, provide for prompt fire control and ensure timely damage control and repair. These procedures are also utilized as emergency training media and are the basis for periodic emergency drills.

#### 6.4 Protective Actions

##### 6.4.1 Offsite Actions

The EPIP gives the details of which offsite authorities will be notified for each emergency class, information to be provided in accordance with the New York State Notification Fact Sheet and Dose Assessment Fact Sheet and verification practices to be used.

LILCO will make a protective action recommendation to Suffolk County and New York State authorities for the population at risk. The various protective action options available are detailed in the New York State and Suffolk County emergency response plans. The protective action recommendation is based upon dose projection calculations, field monitoring data, EPA protective action guidelines, sheltering factors offered by local dwellings and evacuation time estimates for ambient conditions. The emergency plan procedure, "General Emergency" immediate implementing actions, contains protective actions to be recommended during events that are deteriorating rapidly based upon conditions in accordance with NUREG 0654, Appendix 1. The details of this decision process are contained in the EPIPs. Regarding the protective actions taken on behalf of the general public, notification will be made of an emergency situation via the use of the Prompt Notification System set up throughout the ten (10) mile Emergency Planning Zone (EPZ).

This notification system, installed by LILCO, will be operationally tested and functional prior to fuel load and consistent with the criteria set forth in Appendix 3 to NUREG-0654.

Although the utilization of this system is the responsibility of Suffolk County (individual operating and administrative responsibilities for this system are described fully in the County's Emergency Response Plan Procedures), the system shall be maintained by LILCO. This system, made up of sirens for general population coverage and tone activated radios for special facilities (i.e., hospitals, nursing homes, nursery schools, etc.), shall alert the public within the 10 mile EPZ of a possible nuclear incident.

Upon notification of an emergency to the general public via the Prompt Notification System, the public shall be directed by previously disseminated information to tune to a specific radio station and await

informative instruction on what protective actions such as sheltering or evacuation, if any, should be taken for their respective Emergency Response Planning Area.

Informative pamphlets shall be located in strategic locations such as gas stations, motels and resorts for the purpose of supplying the transient population with emergency information. Public notification and education are reviewed in great detail in Section 8.4.

Evacuation routes are defined in the Suffolk County Emergency Plan; however, maps of the EPZ and population distribution, in a sector format, are located on Figures 6-2 and 6-3, respectively.

As stated above, notification to the public as a whole will be made via the siren warning system. Incorporated into this system for the purpose of notifying those organizations with a large number of personnel, such as large businesses, hospitals, etc., are separately operated, tone-activated, alert radios which would be in accordance with the appropriate County procedures. At the same time, the population would be notified of the need for evacuation, buses would be dispatched to evacuate schools and special institutions, and road blocks would be set up for the purpose of restricting in-coming traffic in accordance with the Suffolk County Radiological Emergency Response Plan.

The basis for the choice of recommended protective actions from the plume exposure pathway is shown in the EPIP. Time estimates for the evacuation of the 10 mile EPZ are as delineated as in the attachment to LILCO's submittal to the NRC in SNRC-488, dated August 7, 1980 and as amended by the information found in Appendix C.

#### 6.4.2 Plant Site Action

Protective action within the plant site will be initiated by actual or imminent radiological conditions or other habitability hazards such as toxic gas or fire. Upon assessment by the Emergency Director that a situation exists that requires evacuation of areas of the plant, an evacuation signal will be activated simultaneously with an announcement of the emergency condition over the party page system indicating the areas to be evacuated. Evacuated personnel will report to designated assembly areas consistent with implementing procedures.

When personnel have assembled, personnel accountability will then proceed following the guidance of the personnel accountability procedures. Accountability for onsite personnel will be accomplished within 60 minutes.

In the event of a site evacuation, Figure 6-1 details the onsite assembly areas with primary and secondary evacuation routes leading to the LILCO main access road. Transportation for onsite personnel shall be by personal vehical as well as car pooling where conditions warrant.