

October 12, 1982

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)
	)	(Emergency Planning
(Shoreham Nuclear Power Station,	)	Proceeding)
Unit 1)	)	

RESOLUTION OF SUFFOLK COUNTY CONTENTION  
EP 1(A) -- EFFECT OF WEATHER ON SIRENS

THIS AGREEMENT by and among Long Island Lighting Company ("LILCO"), the Nuclear Regulatory Commission Staff ("Staff"), Suffolk County ("the County" or "SC"), the Shoreham Opponents Coalition ("SOC"), and the North Shore Committee ("NSC") (hereinafter collectively the "Parties") resolves Suffolk County Contention EP 1(A) in accordance with the terms stated below, subject to the approval of the Atomic Safety and Licensing Board ("Licensing Board").

Suffolk County Contention 1(A) concerns the effects of weather on the sound level of the sirens used to notify the public in the event of a radiological emergency at the Shoreham Nuclear Power Station. Suffolk County has contended in EP 1(A) that weather conditions such as rain, snow, and fog may muffle

the sirens, and that high winds and thunderstorms may affect the ability of the population to hear the sirens. Such adverse effects on the sirens would impair a critical aspect of the necessary emergency preparedness for responding to a radiological emergency at Shoreham.

By this Resolution agreement, LILCO has documented to the County's satisfaction, through the attached document from Wyle Laboratories, that the effects of extreme weather have been taken into consideration in the design of the sirens used for the prompt notification system for the Shoreham Nuclear Power Station. As indicated by the attachment to this resolution, LILCO, through its consultant Wyle Laboratories, has represented to the County that the siren ranging criteria, that is, loudness of siren with distance, reflects the conservative extremes of weather across the United States. In general, in still air, sound is attenuated more in low humidity than in high humidity. This effect was specifically considered in developing siren range values for LILCO, by examining local weather conditions (temperature and humidity extremes) for the LILCO system. Additionally, (1) temperature-induced refraction of sound, and (2) ground absorption are factors that do not vary widely from one location to another. Thus, conservative estimates for these effects were used.

While it is not possible to predict siren system performance under the ultimate extremes in all possible weather scenarios, and while many extreme weather scenarios have a low probability of occurrence, it is likely that thunder would only momentarily mask a single siren, and that heavy snow would not change the siren design range. During snow, siren sound propagation losses are expected to be comparable to those for normal conditions, and ambient background noise levels are generally lower, resulting in greater detectability of the siren.

In light of the representations made herein, the County finds that SC Contention EP 1(A) is resolved. As a result, the Parties jointly urge the Licensing Board to accept this resolution to terminate litigation of SC Contention EP 1(A).

Kathryn E. B. McCuskey 10/6/82  
Counsel for (Date)  
LONG ISLAND LIGHTING COMPANY

Richard L. Black / RMS 10/8/82  
Counsel for (Date)  
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*Stephen B. Latham/Cram* 10/8/82  
Counsel for (Date)  
SHOREHAM OPPONENTS COALITION

*Christopher M. W. Murray* 10/8/82  
Counsel for (Date)  
SUFFOLK COUNTY

## WYLE LABORATORIES

October 1, 1982

J/N 39126

Mr. Mark Blauer  
Chairman, Emergency Planning Task Force  
Long Island Lighting Company  
175 East Old Country Road  
Hicksville, N.Y. 11801

Reference: Wyle Research Report WR 82-10 - Final Design of Prompt Notification System for Shoreham Nuclear Power Station

Dear Mr. Blauer:

In response to your request for clarification of the environmental considerations for the referenced study, we offer the following:

The estimates of siren levels utilized in design of the Long Island Lighting Company (LILCO) prompt notification system are based on a comprehensive analysis of a large number of siren sound propagation studies throughout the world. The subsequent siren range design values developed reflect a wide range of environmental, topographic, ground cover and housing constructions. Thus, the siren design ranges - i.e., siren sound level with distance -reflect conservative conditions of rain, snow, temperature, humidity throughout the United States, as well as conservative values for outdoor to indoor acoustic attenuation of siren signals.

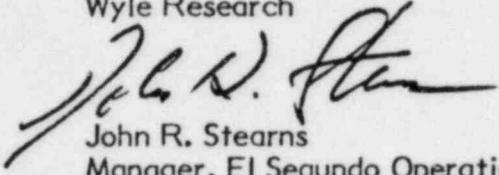
In general, sound is attenuated more rapidly in dry than in moist air. This effect was specifically considered in developing siren range values for LILCO by examining local weather conditions (i.e., temperature and humidity extremes). However, other weather and topography effects in sound propagation, namely wind and temperature-induced refraction of sound and ground absorption, are more significant factors which do not vary widely from one location to another. Thus, conservative estimates for these latter effects were used. Consequently, the siren ranging criteria is conservative for the LILCO design.

It is not possible to predict system performance under the ultimate extremes in all possible weather scenarios which have an extremely low probability of occurrence. However, in regard to specific weather conditions, thunder would only momentarily mask a siren signal. Heavy snow would not change the siren design range since siren sound propagation losses are expected to be comparable to those for normal conditions and ambient background noise levels are generally lower with snow on the ground resulting in greater detectability of the siren.

If you should require further clarification of our siren ranging and siting procedures, please call me.

Very truly yours,

WYLE LABORATORIES  
Wyle Research

A handwritten signature in black ink, appearing to read "John R. Stearns". The signature is fluid and cursive, with a long horizontal stroke at the end.

John R. Stearns  
Manager, El Segundo Operations

JRS:slg

cc: Mr. W. Renz, Long Island Lighting Co.  
Ms. K. McClesky, Hunter & Williams