

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

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In the Matter of)

LONG ISLAND LIGHTING COMPANY)

(Shoreham Nuclear Power Station,
Unit 1))

Docket No. 50-322-OL-3
(Emergency Planning)

TESTIMONY OF STEPHEN COLE
ON BEHALF OF SUFFOLK COUNTY
CONCERNING EMERGENCY PLANNING
CONTENTION 15

Q. Please state your name and occupation.

A. My name is Stephen Cole. Currently I am a professor of sociology at the State University of New York at Stony Brook. I am also President of Social Data Analysts, Inc., a consulting firm engaged in conducting applied sociological surveys and polls. I graduated from Columbia College with majors in both sociology and history in 1962. I received a Ph.D. in sociology from Columbia University in 1967.

Since 1962 I have been professionally involved in conducting social surveys. For the last 12 years, first under the name of Opinion Research Associates and starting in 1977 as Social Data Analysts, Inc., I have conducted approximately 150 social surveys for various clients, including Newsday, The

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Boston Globe, The Baltimore Sun, Gannett News Service, Columbia University, the University of California at Irvine, the National Bureau of Economic Research, Brookhaven National Laboratories, Suffolk County, and the Long Island Lighting Company ("LILCO"), among others. I am the author of more than 25 articles appearing in such journals as Scientific American, Science, Public Opinion Quarterly, American Sociological Review, and American Journal of Sociology. In addition, I am the author of seven books, including a textbook on research methods, The Sociological Method, Third edition (Boston, Houghton Mifflin, 1980). My work in sociology has been recognized by the receipt of a Guggenheim Foundation Fellowship, appointment as Fellow to the Center for Advanced Studies in Behavioral Sciences, and receipt of a Ford Foundation Faculty Research Fellowship. For a more complete description of qualifications and publications, see my Vita which was attached to my testimony on Contention 23 and admitted into evidence (see Tr. 2792).

Q. What is the purpose of this testimony?

A. The purpose of this testimony is to address Emergency Planning Contention 15, which reads as follows:

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. Intervenor's 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.

Seven subparts follow the portion of the contention I have quoted.

Q. Do you agree with Contention 15?

A. Yes I do.^{1/}

Q. How does LILCO's credibility relate to the implementation of the LILCO Plan?

A. If a radiological emergency occurred at the Shoreham Nuclear Power Station ("Shoreham"), LILCO's Plan calls for an announcement of that emergency and all information relating to it, including recommendations as to what protective actions should be taken by the public, to be provided by the director of LERO (a LILCO Vice President) or other LILCO officials. The

^{1/} The reference in the contention to the Social Data Analysts Survey should read "approximately" 60 percent, instead of "more than" 60 percent.

extent to which LILCO and its officials are credible to the population of Suffolk and Nassau Counties is likely to have a significant impact on the public's reaction to an accident at Shoreham and, in particular, on their decision as to whether or not they would believe or follow LILCO's protective action recommendations.

Surveys conducted by Suffolk County and LILCO show that Long Island residents have a high level of concern and fear about the dangers associated with nuclear power. Given this high level of fear, if there were an accident at Shoreham many citizens, including people whom LILCO expects to play various roles implementing the LILCO Plan, would experience high levels of anxiety. Under these conditions, it is unlikely that these people would believe messages telling them they were safe from harm, or that particular actions would protect them from harm, no matter who the messages came from. It is almost certain that they would not believe they were safe or would be protected if the source of the information was LILCO or one of its representatives. A substantial majority of Long Island residents do not trust LILCO to tell the truth. In the case of an actual nuclear accident, an event which LILCO has continually told the public is almost impossible, LILCO's credibility would most likely be even lower.

The importance of the credibility of an information source during an emergency has been recognized by LILCO's witnesses in their testimony on Contentions 23 and 65.C.2 and 65.F, in which they state: "Once the warning (emergency information) is understood, it is necessary for people to believe that the warning is real and that the contents of the message are accurate."^{2/} Thus, the response of the public to LILCO's announcements and recommendations during a Shoreham emergency will depend in part upon the extent to which they believe the LILCO official and have confidence that LILCO will provide accurate information to the public. If residents do not trust LILCO to tell the truth about a radiological emergency at Shoreham, then many of them are likely to disregard the information and advice that they are given, resulting in LILCO being unable to implement its Plan.

Q. What is the basis for your agreement with the statement in Contention 15 that LILCO is not considered by the public to be a credible source of information?

^{2/} Testimony of Matthew C. Cordaro, et al. on Behalf of the Long Island Lighting Company on Phase II Emergency Planning Contentions 23 (Shadow Phenomenon) and 65.C.2 and 65.F (Panicked Drivers) dated November 18, 1984, ff. Tr. 1470, at 24.

A. e is a considerable amount of data available which support that conclusion. I will first discuss the Social Data Analysts survey that is referenced in Contention 15. That is a survey that my company conducted for Suffolk County in May, 1982, among a random sample of approximately 2,600 Long Island residents.^{3/} We asked the respondents how much they would trust a LILCO official to tell the truth about a possible accident at Shoreham. The exact wording of the question was as follows:

LILCO is currently completing the Shoreham Nuclear Power Plant which is in Suffolk County about 60 miles from New York City. Suppose that LILCO completes this plant and begins to operate it. If there was an accident at the plant how much would you trust a LILCO official to tell the truth about the accident?

Only 4 percent of the Nassau-Suffolk population said that they would have a great deal of trust in the LILCO official to tell the truth about the accident, 36 percent said that they would trust a LILCO official "somewhat." Fully 58 percent said that they would not trust a LILCO official at all to tell the truth about the accident, and 2 percent had no opinion on this question.

^{3/} The survey methodology and results are discussed in detail in my testimony on Contention 23, dated November 18, 1983, which is already in evidence. See Tr. 2792.

My company has also conducted two surveys for Newsday relating to Shoreham in which we included questions on the credibility of LILCO. In February of 1983, we interviewed 1,132 residents of Nassau and Suffolk Counties. We asked these respondents how much they would trust various people, including Charles Pierce, then LILCO's Chairman of the Board, to tell the truth about the Shoreham Nuclear Power Plant. Of all the people respondents were asked about, LILCO's Chairman of the Board had the lowest credibility. Forty-four percent of the sample said that they would not trust him at all to tell the truth about the Shoreham Nuclear Power Plant, and only 7 percent said that they would trust him a great deal. In fact, the respondents' distrust of LILCO's Chairman on Shoreham matters was almost twice as great as it was of any other person included in the questionnaire.

In late September and early October, 1983, we reinterviewed a sub-sample of 605 of the original 1,132 Newsday respondents. At that time we repeated the same question asked in the February survey. In this second survey we found that distrust in LILCO's Chairman had increased, with fully 52 percent of the Long Island population saying that they would not trust Mr. Pierce at all. Thus, between February of 1983 and the end of September of 1983 LILCO's credibility decreased.

Q. Why are these Newsday survey numbers lower than the County's survey numbers?

A. The question asked in each of the two surveys was different. The Newsday survey asked a general question about telling the truth about Shoreham. The County survey asked about telling the truth about an accident at Shoreham. The fact that the County survey showed higher proportions of the sample distrusting LILCO is evidence that LILCO's credibility will decline in the event of an accident.

In addition, the County survey was conducted prior to the announcement that Shoreham's operation would bring about a large increase in electricity rates for LILCO customers. For years, LILCO had been telling Long Island residents that Shoreham would save them money. The data from the two surveys I conducted for Newsday indicate that the announcement of the rate increase related to Shoreham brought about a substantial increase in the proportion of the public with unfavorable attitudes about the competence of LILCO's management. Before the reported rate increase, 38 percent of the sample thought Shoreham cost overruns were a result of mismanagement by LILCO; after the reported rate increase request, 62 percent gave this response. It should also be pointed out that the County survey

was conducted before the problems involving the diesel generators at the Shoreham plant were reported in the press. It is my professional opinion that were the County survey to be repeated today, an even larger proportion of the people would say they would not trust LILCO to tell the truth about an accident at Shoreham.

Q. To your knowledge has LILCO conducted any research which provides data on LILCO's credibility in the event of a nuclear accident at Shoreham?

A. Yes. In 1979, LILCO commissioned Social Systems Analysts of Watertown, Massachusetts, to conduct a study of the attitudes of Long Island residents toward LILCO. The study found that Long Island residents had "a profound distrust of nuclear energy,"^{4/} and that LILCO's customers judged nuclear energy as:

- not natural
- a hostile distortion of natural processes
- threatening to health, conjuring up images of atomic bomb explosions and mutations

^{4/} LILCO: the Customers and the Company, July 1979, Executive Summary, Social Systems Analysts, at p. 4.

-- threatening the family which is perceived as a natural unit

-- contrary to the ecology movement which stresses the importance of non-artificial energy sources and of the overriding importance of "public good" at the expense of any economic consideration

-- developed and controlled by large centralized bureaucratic organizations which have low ratings of integrity and believability.^{5/}

This study also concluded that "most LILCO customers no longer believe LILCO is inherently trustworthy."^{6/} In its Detailed Report to LILCO, Social Systems Analysts stated:

[C]ustomers now do not perceive LILCO as inherently trustworthy or as a benign rational authority. Many customers actively distrust, rather than trust, any LILCO communication. Some of this negative attitude is an inevitable spinoff from a current post-Watergate American distrust of bureaucracy in general and so is difficult to change by any LILCO action.^{7/}

More recently, LILCO commissioned the firm of Bill Johnson and Associates, Inc. to conduct three different surveys essentially similar to the one described above which Social Data

^{5/} Id. at 5.

^{6/} Id. at 15.

^{7/} LILCO, The Customer and the Company, July 1979, Detailed Report, Social Systems Analysts, at 28.

Analysts conducted for Suffolk County. In fact, all the Bill Johnson surveys contained exactly the same questions on credibility as did the County survey. The County survey found that in Eastern Suffolk, 60 percent of the population said that they would not trust a LILCO official at all to tell the truth about an accident at the Shoreham Nuclear Power Plant. Johnson's three surveys found 60 percent, 65 percent, and 64 percent of Eastern Suffolk residents saying they would not trust a LILCO official at all to tell the truth about an accident at the Shoreham Nuclear Power Plant. The County survey found 60 percent of people in Western Suffolk saying they would not trust a LILCO official at all. The three Johnson surveys found 61 percent, 59 percent, and 67 percent of Western Suffolk residents giving this response. The County survey found 57 percent of Nassau residents saying they would not trust a LILCO official at all to tell the truth about an accident at Shoreham; the three Johnson surveys found 59 percent, 59 percent, and 52 percent of Nassau residents giving these responses. Thus, the results obtained from the Johnson surveys are virtually identical to those obtained from the May 1982 Suffolk County survey.

Q. Has LILCO conducted any other research which bears on its credibility?

A. Yes. The study LILCO commissioned by Yankelovich, Skelly and White (YSW) conducted in May of 1983 contained questions on credibility.^{8/} In the introduction to that report, at page 4, YSW states:

As part of planning efforts it is important to communicate with the public through credible sources, and to make those most closely involved (e.g., LILCO and the Suffolk County Executive [sic]) more credible. Accomplishing this is essential to effective communications, and as this study clearly indicates better communication is a necessity.

Only 23 percent of the YSW sample rated information given out by LILCO as being very believable and 37 percent rated information given out by LILCO as very unbelievable. Moreover, the YSW survey found that as compared to various other entities such as governmental officials, police, the NRC, TV and radio reporters, and State health or civil defense officials, LILCO is the least credible source of information about nuclear power.

Q. Is it true that although LILCO has low credibility, other utilities with nuclear power plants also have low credibility?

^{8/} The YSW survey is discussed in LILCO's testimony on Contention 23 and also in my testimony on Contention 23.

A. Recent research done on the electric utility industry shows that many utilities have credibility problems. There are reasons to believe, however, that LILCO's credibility is lower than that of many other utilities. All the following recent events and perhaps others as well are likely to have contributed to a reduction in LILCO's credibility: the Bokum mining scandal; the ever increasing cost overruns at Shoreham; the New York State Public Service Commission's tentative finding that LILCO mismanagement is responsible for more than \$1.5 billion of the Shoreham cost overruns; the announced huge LILCO rate requests based upon Shoreham (after the company had been telling the public for years that Shoreham would save them money); and the multiple problems with the emergency diesel generators in the Shoreham plant.

Furthermore, the crucial question with respect to Contention 15 is not whether LILCO has lower credibility than other nuclear utilities. To my knowledge, no other nuclear utility has proposed an offsite emergency response plan that is to be directed, controlled and implemented by utility employees, without the participation of state or local governmental officials. LILCO's very low credibility is significant in this case because it makes it impossible to implement the LILCO Plan.

Q. Are you familiar with Subpart E of Contention 15?

A. Yes. That subpart states:

Contention 15.E. The sample messages for EBS broadcasting which are contained in the Plan (OPIP 3.8.2) 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.

Q. Have you reviewed the sample EBS messages in Revision 3 of the LILCO Plan?

A. Yes I have.

Q. In their direct testimony on the evacuation shadow phenomenon (on page 27), LILCO's witnesses list "sender determinants" as a variable influencing the reaction of people to an emergency warning. They say:

Emergency public information or warnings must seem credible and reliable to the people receiving them. People have different views about who is credible and who is not. To alleviate the possibility that any one source could be perceived as non credible, any warning message should contain endorsement by a mix of scientists, organizations, and officials.

In your opinion, would the inclusion of such a statement in an EBS message issued by a LILCO official increase the likelihood of its being believed or followed by the public in the event of a nuclear emergency at Shoreham?

A. No. Any announcement made by LILCO would not be believed, no matter what authorities were referred to in the message. In in-depth interviews of Long Island residents that I have conducted, I have found respondents unwilling to trust any potential LILCO spokesperson, no matter how trustworthy they might otherwise be. The participants perceived anyone connected with LILCO as being untrustworthy.

In addition, LILCO's witness Steve Barnett, in a 1981 paper on nuclear energy attitudes, points out the difficulties involved in attempting to use authorities to enhance trust with respect to nuclear power issues:

An authority can be trusted because of technical and specialized abilities, or one can have faith in an authority simply because of the office of authority. For nuclear energy, authorities impose unique problems either in terms of faith or trust. Trust, after Three Mile Island and other media-enhanced events, is difficult since it is precisely technical skills which are perceived wanting. Faith, at least so far, is not a real option in the area of nuclear energy.

For Americans, an authority must be able to examine and state "facts." "Facts" is a word which, through a simplified version of the scientific method, has become cultural reality for Americans. And, especially since Watergate, Americans believe that vested interests override and obscure facts. If a potential authority is believed to have a vested interest, those interests will override and negate the possible facts in that authority's presentation. . . .

The idea that vested interests override facts is especially acute for technological risk issues. If a technologically related risk is believed to conflict with a "natural" way of life and if it is supported by a large corporation or an industrial sector, acceptable authorities are very difficult to find.^{9/}

In their testimony concerning LILCO's EBS messages, the LILCO witnesses also failed to adequately take into account the inability of a utility to control the flow of information during a nuclear emergency. Were there an accident at Shoreham of any magnitude, Long Island would become a center of media attention. It is inevitable that many people would be interviewed who would express very different opinions about the potential danger of an accident occurring at Shoreham. In fact, given the lack of consensus about nuclear power that currently exists in our society, it is virtually inevitable that

9/ A Planmetrics Cultural Analysis Report: Nuclear Energy Attitudes, presented by Dr. Steve Barnett, Planmetrics, Inc., 1981, at 28.

once an accident occurs, there will be much contradictory information that flows to the public. For example, LILCO would have no ability to prevent television networks from interviewing persons (including perhaps government officials from Long Island) who might express grave concern for the health and safety of residents living in the vicinity of the plant even though LILCO officials and others might be minimizing the dangers that they faced. Thus, including in its EBS messages a statement that LILCO has conferred with people who might on their own have more credibility than LILCO, would not, in my opinion, increase the likelihood that people would believe the EBS message or act according to its recommendations.

Given LILCO's low credibility, the inevitability of the media broadcasting conflicting opinions, and the deep seated fear of radiation from nuclear plants, we can predict with some assurance that in the event of a Shoreham emergency (1) a very large number of Suffolk County residents would attempt to evacuate even if there were a recommendation from LILCO that they shelter or take no protective actions; (2) many of them would not follow LILCO's instructions or believe information from LILCO who would be seen as the cause of the problem; and, (3) many non-LILCO personnel relied upon by LILCO for implementation of its Plan would not believe or follow directives from LILCO officials.

Q. Does that conclude your testimony?

A. Yes.

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) (Emergency Planning)
)
)

CERTIFICATE OF SERVICE

I hereby certify that copies of Testimony of Stephen Cole on Behalf of Suffolk County Concerning Emergency Planning Contention 15, have been served on the individuals identified by an asterisk below this 30th day of March, 1984 by U.S. mail, first class, except as otherwise noted.

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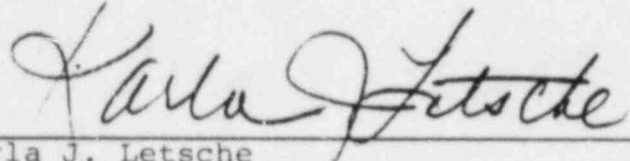
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By Hand, April 2, 1984

By Federal Express