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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

'88 APR 26 P2:25

Before the Atomic Safety and Licensing Board

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

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

LILCO'S RESPONSES AND OBJECTIONS TO SUFFOLK
COUNTY'S SECOND SET OF INTERROGATORIES AND REQUESTS
FOR PRODUCTION OF DOCUMENTS REGARDING CONTENTIONS
1-2, 4-8, AND 10 TO THE LONG ISLAND LIGHTING COMPANY

LILCO hereby responds to Suffolk County's Second Set of Interrogatories and Requests for Production of Documents, dated April 9, 1988.

**I. GENERAL ANSWERS AND OBJECTIONS TO
INTERROGATORIES, DEFINITIONS, AND INSTRUCTIONS**

LILCO gives the same general answers and makes the same general objections to Suffolk County's Definitions and Instructions that it made in response to Suffolk County's First Set of Interrogatories and Requests for Production of Documents. See LILCO's Responses and Objections to Suffolk County's First Set of Interrogatories and Requests for Production of Documents (March 30, 1988), at 1-2.

II. ANSWERS AND OBJECTIONS TO INTERROGATORIES

Suffolk County Interrogatory No. 1

Does LILCO intend to pursue its "immateriality" theory with respect to Contentions 1 and 2 in the CLI-86-13 remand proceedings?

Response: Yes.

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Suffolk County Interrogatory No. 2

Unless the answer to Interrogatory 1 is negative, identify all witnesses who will testify on that issue, and for each such witness, identify the facts and opinions to which the witness will testify.

Response: LILCO has already identified the witnesses it expects will testify in the "best efforts" remand proceeding. See LILCO's Responses and Objections to Suffolk County's First Set of Interrogatories and Requests for Production of Documents (March 30, 1988) and LILCO's Supplemental Responses and Objections to Suffolk County's First Set of Interrogatories and Requests for Production of Documents (April 1, 1988). With respect to the immateriality issue, Mr. Behr, Mr. Crocker, Mrs. Dreikorn, and Mr. Weismantle will testify generally that implementation of a Shoreham evacuation "without traffic controls" would not "eliminate evacuation as a viable protective action." See CLI-86-13, 24 NRC 22, 31 (1986). Mrs. Dreikorn will also testify to the immateriality of any increased doses which might result due to longer evacuation times in the event of an "uncontrolled" Shoreham evacuation. Mr. Lieberman will testify to the matters discussed in his affidavit, which is attached to LILCO's Motion for Summary Disposition of Contentions 1, 2, and 9 -- Immateriality (Dec. 18, 1987).

Suffolk County Interrogatory No. 3

Identify all modifications to LILCO's traffic analysis which were incorporated into the revised evacuation time estimates of Revision 5 of the LILCO Plan ("Rev. 5"), including but not limited to, changes in methodology and in assumptions.

Response: The following is a general description of the modifications which were made to the Revision 3 input streams to the DYNEV model:

- ° Four new origin centroids were established within Zone Q to represent traffic that was previously assumed to use local streets in evacuating the network. Five new links were added in Zone Q to represent a collector road that was previously not included in the evacuation network. In the process, it was necessary to subdivide an existing link into two serial links in order to represent this new configuration. It was also necessary to reassign traffic from an existing origin centroid so that it was consistent with the new network configuration.

- Changes which were responsive to the concerns expressed by the Suffolk County Police in their previous testimony were incorporated.
- A complete audit was done of the previous simulation input stream and a few errors which were detected in the course of this audit were corrected.
- A complete audit was done of the traffic assignment input stream and some of those inputs were refined.

There were no changes in methodology. An iterative procedure was again used in executing the traffic assignment model followed by execution of the traffic simulation model within the DYNEV system.

Suffolk County Interrogatory No. 4

Explain why EPZ Zone Q was reanalyzed to produce the revised evacuation time estimates in Rev. 5. Were any other subzones of the EPZ reanalyzed? If so, identify them and the results of the reanalysis of the additional subzones.

Response: As is indicated in LILCO's Response to Interrogatory No. 3 above, the review conducted to produce the updated evacuation time estimates (ETEs) extended over the entire input stream. The changes in Zone Q were the only ones which took the form of changes in the representation of the evacuation network configuration. This change in network configuration reflected LILCO's belief that the previous estimate of the number of vehicles in that area evacuating via local roads might not realistically represent the actual traffic patterns in that area. This conclusion was based upon a careful review of the roadway geometrics in Zone Q. It was therefore decided to refine the previous analysis by extending the analysis network to include a north-south road called Crystal Brook Hollow Road, which extends from the vicinity of the coast, south to Route 25A.

Suffolk County Interrogatory No. 5

Identify and explain all factors which contributed to a reduction reflected in Rev. 5 of LILCO's uncontrolled evacuation time estimates.

Response: A general description of the factors which probably contributed to a reduction in the uncontrolled ETE for Revision 5 relative to those of Revision 3 is as follows:

The assignment of traffic (i.e., the routing of evacuation traffic from the various origin-centroids within the EPZ along the existing roadway system to the EPZ boundary) depends primarily on the "attractiveness" of one evacuation path relative to the other available paths. In other words, there is a competition for service among the various vehicles which are seeking to evacuate or travel from within a given area.

The network configuration used for the Rev. 3 ETEs assumed that a significant amount of traffic originating in Zone Q used local streets exclusively to evacuate from that zone. This representation meant that the northwestern routes which consist of Shore Road, Old Post Road and East Broadway; North County Road; and Route 25A were loaded with less traffic for the Rev. 3 calculations than for the Rev. 5 calculations. Thus, for the Rev. 5 representation these three evacuation routes serviced more traffic from Zone Q than was the case for Rev. 3 representation. Consequently, the "attractiveness" of these routes differed between the Rev. 5 and Rev. 3 studies. As a result, the traffic in Zone F, which is to the east of Zone Q and which uses the routes, was assigned by the DYNEV model differently in the Rev. 5 representation than in Rev. 3. Consistent with the previous methodology, that is described in Appendix D of Appendix A of the LILCO Plan, an iterative procedure was undertaken for the Rev. 5 calculations in the same manner as for the previous set of ETEs. As part of this activity, LILCO identified the need to change signal splits in rough proportion to the competing volumes of traffic at each node. This reassignment of traffic and the associated changes in signal splits that were necessary to respond to the resulting changes in link-specific traffic volumes are probably the dominant factors in changing the ETEs for all case studies.

It appears that for uncontrolled evacuations, the new traffic patterns which resulted from these analyses resulted in a somewhat more efficient usage of available capacity of the highway system in the northwest region of the EPZ. This conclusion appears to be supported by the results of the other sensitivity runs that were conducted for Rev. 5. Specifically, the increase in ETEs for the noncompliance cases implies that for the Rev. 5 runs, noncompliance produces a less efficient usage of the existing highway roadway system than for the case where 100% compliance is assumed. For the Rev.3 study, the effect of noncompliance was

virtually nil, relative to the 100% compliance case, since that case already represented a relatively inefficient usage of the available highway system.

This more efficient usage of the highway system in the uncontrolled cases outweighed the effect of the additional 1500 or so cars which were added to the evacuation network in the Rev. 5 study relative to the Rev. 3 study. These 1500 cars constituted less than 3% of the total demand. For the controlled case, the ETE did increase slightly in the Rev. 5 study relative to that of Rev. 3.

Suffolk County Interrogatory No. 6

Was traffic in Zone F reassigned in the revised traffic analysis reflected in Rev. 5? If so, explain how such traffic was reassigned, the assumptions underlying the reassignment, the routes to which such traffic was reassigned, and the number of vehicles reassigned.

Response: As indicated in LILCO's Response to Interrogatory No. 5 above, a new reassignment was made, consistent with the methodology described in Appendix D of Appendix A, so that traffic everywhere in the EPZ was potentially "reassigned" in the revised traffic analysis reflected in Revision 5. Absent a detailed review of computer output, these reassignments in Zones F and Q were the significant reassignments in the network.

Suffolk County Interrogatory No. 7

Identify and explain the criteria used to select additional roads in Zone Q for the assignment of evacuating traffic.

Response: As noted in LILCO's Response to Interrogatory No. 4 above, only one additional collector road was added to Zone Q. This was the only road which crossed the three major east-west routes passing through Zone Q. Specifically, Crystal Brook Hollow Road crosses Old Post Road, North County Road, and Route 25A in addition to acting as a collector road for residents in the area. While there are other collector roads in Zone Q (for example, Oakwood Road and Cliff Road), these roads merely act as conduits for traffic to enter an evacuation road; they do not act as conduits for traffic to travel between these east-west roads as does Crystal Brook Hollow Road. Consequently, it was concluded that introducing Crystal Brook Hollow Road to the evacuation network could have a meaningful impact on the rate of flow along the three

evacuation routes identified earlier and would also serve as a means for traffic to distribute itself among those three roads.

Suffolk County Interrogatory No. 8

Identify all assumptions regarding the capacities of the additional roads referred to in Interrogatory 7 above.

Response: The estimates of capacity for Crystal Brook Hollow Road were derived using the same procedures as those applied for all the other roads within the EPZ network. Specifically, a field survey was made and the assessments were based thereon. It should be noted that the allocation of green time at those nodes where Crystal Brook Hollow Road intersects the three evacuation routes also influences the capacities of all approaches to these nodes. Specifically, the nominal capacities of the Crystal Brook Hollow Road approaches to Old Post Road, North Country Road, and Route 25A are, respectively, 270, 270, and 240 vehicles per hour.

Suffolk County Interrogatory No. 9

Explain the basis for adding 1310 additional cars to the network in Zone Q for the Rev. 5 evacuation time estimate analysis.

Response: The basis for adding cars to the network in Zone Q was discussed in LILCO's Response to Interrogatory No. 4, above. It must be recognized that these "additional cars" do not represent an increase in the vehicle population of the area but rather in the way that traffic is represented in the input stream to the DYNEV model. Recent review of the computer outputs indicates that the number of additional vehicles approximates 1500.

Suffolk County Interrogatory No. 10

Explain the basis for the Rev. 5 assumption that approximately 300 cars from Zone Q will evacuate by local roadways not represented as links in the evacuation network. See Affidavit of Edward B. Lieberman ¶ 5 (Dec. 14, 1987) (attached to LILCO's Motion for Summary Disposition on Contentions 1, 2 and 9 -- Immateriality (Dec. 18, 1987)) ("Lieberman Affidavit").

Response: Within Port Jefferson to the east of Main Street, there are many local streets which intersect directly with Main Street. Thus, there is the opportunity for residents in the area to avail themselves of these local streets and to depart from the EPZ by entering Main Street directly without recourse to any of the three east-west evacuation routes identified

previously. The estimate of 300 or so vehicles which would use these local streets represents a conservative assessment of that usage.

Suffolk County Interrogatory No. 11

Provide all documents, including computer inputs and outputs, concerning the revised Rev. 5 evacuation time estimates.

Response: LILCO is reviewing its records for documents that are responsive to this interrogatory and will make such documents available for inspection the week of April 25, 1988.

Suffolk County Interrogatory No. 12

Explain why the Rev. 5 time estimates are more sensitive to non-compliance with assigned routing than previous estimates. Identify and explain all factors which contributed to the increased sensitivity of the Rev. 5 time estimates to noncompliance with assigned routing.

Response: LILCO objects to Interrogatory No. 12 as vague and ambiguous since the request to "explain why the Rev. 5 time estimates are more sensitive to noncompliance with assigned routing than previous estimates" can be construed to mean different things and it is unclear what the County intends. Without waiving this objection, in an effort to be responsive to this request, LILCO directs the County's attention to the discussion of noncompliance in LILCO's Response to Interrogatory No. 5.

Suffolk County Interrogatory No. 13

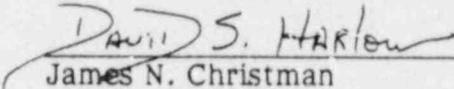
Explain specifically how the reassignment of traffic from two subzones in Zone F had the effect of decreasing the uncontrolled evacuation time estimate. See Lieberman Affidavit ¶ 7.

Response: See LILCO's Responses to Interrogatories Nos. 5 and 6, above.

Objections Stated by Counsel

All objections and references to objections were stated by counsel.

Respectfully submitted,


James N. Christman
Lee B. Zeugin
David S. Harlow
Counsel for Long Island Lighting Company

Hunton & Williams
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DATED: April 22, 1988

VERIFICATION

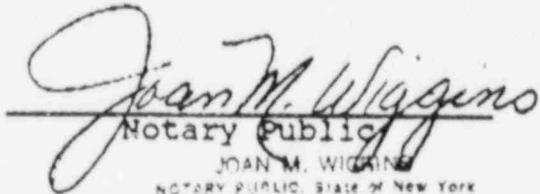
Douglas M. Crocker, being first duly sworn on oath, deposes and says: that he is currently the Manager, Nuclear Emergency Preparedness, Nuclear Operations Support Department for Long Island Lighting Company; that he has personal knowledge of a portion of the subject matter of this litigation; that responsible corporate employees have provided him with additional facts necessary to provide the information contained in the foregoing Answers to Interrogatories; that he has read the answers, and knows the contents thereof; and that based upon such information of which he has personal knowledge and with which he has been provided, he is informed and believes the matters stated therein to be true, and on these grounds alleges that the matters stated therein are true and therefore verifies the foregoing on behalf of Long Island Lighting Company.



Douglas M. Crocker

State of New York SS:

I, Joan Wiggins, a Notary Public in and for the jurisdiction aforesaid, hereby certify that Douglas M. Crocker whose name is signed to the foregoing Answers to Interrogatories, dated April 22, 1988, has personally sworn before me that the statements therein are true to the best of his knowledge and belief.



Notary Public
JOAN M. WIGGINS
NOTARY PUBLIC, State of New York
No. 4850591
Qualified in Nassau County
Commission expires September 15, 1988

My Commission expires: 9/15/88

LILCO, April 22, 1988

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CERTIFICATE OF SERVICE

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

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

I hereby certify that copies of LILCO'S RESPONSES AND OBJECTIONS TO SUFFOLK COUNTY'S SECOND SET OF INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS REGARDING CONTENTIONS 1-2, 4-8, AND 10 TO THE LONG ISLAND LIGHTING COMPANY were served this date upon the following by Federal Express as indicated by one asterisk, or by first-class mail, postage prepaid.

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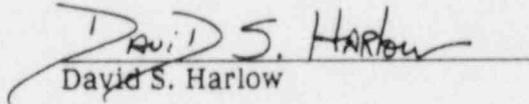
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