

ORIGINAL

UNITED STATES  
NUCLEAR REGULATORY COMMISSION

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IN THE MATTER OF:

DOCKET NO: 50-322-OL-3

LONG ISLAND LIGHTING COMPANY

(Emergency Planning)

(Shoreham Nuclear Power  
Station, Unit 1)

LOCATION: HAUPPAUGE, NEW YORK

PAGES: 17403 - 17609

DATE: TUESDAY, JUNE 30, 1987

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C O N T E N T S

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DENNIS MILETI

MICHAEL LINDELL

ROGER LINNEMANN

DOUGLAS CROCKER

DIANE DREIKORN

RICHARD WATTS

DALE DONALDSON      17413      17422

EXHIBITS

Identified      Admitted

Suffolk County Exhibits

No. 1	17458	17468
No. 2	17462	17468
No. 3	17463	17468
No. 4	17503	17547
No. 5	17509	17547
No. 6	17529	17547
No. 7	17531	17547
No. 8	17537	17547
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LILCO Exhibits

No. 1	17421	17421
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Morning Recess.....17451

Luncheon Recess.....17493

Afternoon Recess.....17542

1 P R O C E E D I N G S

2 (9:15 A.M.)

3 JUDGE MARGULIES: Please come to order. Good  
4 morning. This hearing is part of the application proceeding  
5 in which the Long Island Lighting Company seeks an operating  
6 license for Unit 1 of the Shoreham Nuclear Power Station.

7 The Shoreman facility consists of a boiling  
8 water reactor with a rated electrical output of 820  
9 megawatts. It is located in Brookhaven, New York which is  
10 in the north central part of Long Island.

11 This Licensing Board heard the issues concerned  
12 with the off-site emergency plan for Shoreham. In a  
13 concluding Partial Initial Decision of August 26th, 1985  
14 this Board found that there is no reasonable assurance that  
15 adequate protective measures can and will be taken in the  
16 event of a radiological emergency at Shoreham and that no  
17 operating license should be issued for the nuclear power  
18 reactor.

19 Our decision was appealed by Applicant and those  
20 parties opposing the granting of a license. As a result of  
21 those appeals, this Board has had a number of issues  
22 remanded to us for further hearing. One of those issues  
23 that was remanded involves the subject of this hearing, the  
24 suitability of reception centers.

25 In the case of a radiological emergency, the

1 monitoring and decontamination of evacuees is to take place  
2 at reception centers. At the time of the former hearing,  
3 the Nassau Veterans Memorial Coliseum at Nassau County was  
4 to serve as Applicant's reception center.

5 In remanding the matter of the adequacy of the  
6 reception centers to us, the Commission's Appeal Board in  
7 the decision of March 26th, 1986 styled "Long Island  
8 Lighting Company, Shoreham Nuclear Power Station, Unit 1,  
9 ALAB 832, 23 NRC 135," said we were to determine whether  
10 there were any factors that might make that facility  
11 unsuitable to serve as a reception center for emergency  
12 planning zone evacuees. With the Nassau Veterans Memorial  
13 Coliseum becoming unavailable for use by LILCO, the  
14 Applicant moved to reopen the record for the purpose of  
15 permitting a substitution for the Coliseum with three of  
16 LILCO's own facilities, the Hicksville, Bellmore and Roslyn  
17 operation centers.

18 In a Memorandum and Order, dated December 11th,  
19 1986, we granted Applicant's motion to reopen the record on  
20 the matter of the substitution and further found that the  
21 issues raised in the reopened proceeding encompassed all of  
22 the issues contained in the Appeal Board's remand of the  
23 Coliseum matter in ALAB 832.

24 This hearing shall decide all of the issues  
25 raised by the reopening of the record and by the remand of

1 the Appeal Board. The scope of this proceeding was defined  
2 in our December 11th Memorandum and Order.

3 We shall now take appearances. Who appears for  
4 the Applicant?

5 MR. CHRISTMAN: Thank you, Judge. My name is  
6 James N. Christman of the law firm of Hunton & William,  
7 P. O. Box 1535, Richmond, Virginia 23212. With me is  
8 Stephen W. Miller on my right; and Mary Jo Leugers of the  
9 same firm. We represent the Applicant, the Long Island  
10 Lighting Company.

11 JUDGE MARGULIES: Who represents Suffolk County?

12 MR. McMURRAY: Judge Margulies, my name is  
13 Christopher McMurray. To my left is David T. Case. To his  
14 left is Ronald Ross.

15 JUDGE MARGULIES: Who appears for New York  
16 State?

17 MR. ZAHNLEUTER: My name is Richard J.  
18 Zahnleuter. And, I represent the Governor and the State of  
19 New York.

20 JUDGE MARGULIES: Are there any other  
21 appearances for Intervenors?

22 MR. McMURRAY: No, sir.

23 JUDGE MARGULIES: Who appears for Staff?

24 MR. BACHMANN: Judge Margulies, my name is  
25 Richard George Bachmann. I represent the Staff of the

1 United States Nuclear Regulatory Commission. On my left is  
2 George E. Johnson, who has also filed a notice of  
3 appearances in this proceeding.

4 JUDGE MARGULIES: There are several preliminary  
5 matters the Board wishes to take up before we start hearing  
6 from the witnesses. The first is the proposed schedule for  
7 hearing of June 23rd, 1987 agreed to by all of the parties.

8 The Board is well satisfied with the proposed  
9 schedule and will endeavor to implement it. We do wish to  
10 make it clear it is the Board's responsibility to regulate  
11 the course of the hearing; and, in following the proposed  
12 schedule it should be understood we are not abrogating our  
13 responsibility to direct the course of the proceeding.

14 Circumstances may require that in order to  
15 properly manage the case, there might be a need to depart  
16 from the schedule. If so, we will take whatever action is  
17 necessary when the time arises and exercise our  
18 responsibilities as set out in 10 CFR 2.718 and 2.757.

19 On May 29th, 1987, LILCO had filed a motion to  
20 set a firm schedule. The schedule we now have renders the  
21 motion moot. Therefore, the Board now dismisses the motion  
22 for mootness.

23 The next matter the Board wants to discuss is  
24 LILCO's May 5th, 1987 motion to limit cross-examination by  
25 New York State and Suffolk County. The motion was filed

1 both in this proceeding and in the OL-5 case. Stating the  
2 matter succinctly, it would limit Intervenors to conducting  
3 redirect examination of each other's witnesses rather than  
4 permitting cross-examination. Additionally, it sought to  
5 have Intervenors use one person to cross-examine on  
6 Contentions EX-15 and EX-16 in the OL-5 proceeding.

7 Applicant is supported by Staff and is opposed  
8 by New York State and Suffolk County. LILCO sought leave to  
9 file a reply to the State and County responses on the basis  
10 of their alleged incorrect representations as to the nature  
11 of the OL-5 Board's May 13th, 1987 ruling on the  
12 consolidation of the Intervenor's on Contentions EX-15 and  
13 EX-16.

14 The Board finds no need for LILCO to file a  
15 reply based on the action in the OL-5 proceeding in which  
16 the Board took action in regard to the consolidation. The  
17 requested consolidation of the parties was a matter only  
18 involved in the OL-5 proceeding and is not materially  
19 significant to this case.

20 The issue here is whether Intervenors should  
21 have their right to examine restricted. Having reviewed the  
22 filings and the arguments of the parties, we conclude that  
23 the record does not support a showing of past or potential  
24 abuse by Intervenors so as to require consideration of  
25 limiting their right to cross-examination.

1                   As a consequence of that determination, the  
2 Board denies Applicant's motion of May 22nd, 1987 to limit  
3 cross-examination. This action is taken without prejudice  
4 to Applicant renewing the motion should it believe such  
5 abuse is present during the course of the reopened  
6 proceeding.

7                   Is the Applicant ready to proceed at this time?

8                   MR. CHRISTMAN: Yes, sir, we are.

9                   JUDGE MARGULIES: I would like to swear in the  
10 panel. Would the members of the panel that are about to  
11 testify please rise? Would you raise your right hands?

12                   (The panel of witnesses are sworn by Judge  
13 Margulies.)

14                   MR. CHRISTMAN: Thank you, Judge Margulies.  
15 Whereupon,

16                                   DENNIS MILETI,  
17                                   MICHAEL LINDELL,  
18                                   ROGER LINNEMANN,  
19                                   DOUGLAS M. CROCKER,  
20                                   DIANE P. DREIKORN,  
21                                   RICHARD WATTS  
22   and  
23                                   DALE DONALDSON

24 were called as witnesses by and on behalf of the Applicant,  
25 the Long Island Lighting Company, and having been first duly

1 sworn, were examined and testified as follows:

2 DIRECT EXAMINATION

3 BY MR. CHRISTMAN:

4 Q I will ask each of the witnesses who have  
5 already taken the stand to identify themselves by name and  
6 occupation starting with Dr. Mileti who is at the position  
7 farthest from the Board.

8 A (Witness Mileti) My name is Dennis Mileti. I'm  
9 a Professor of Sociology at Colorado State University.

10 (Witness Lindell) My name is Michael Lindell.  
11 I'm a Professor of Psychology. I will be at the Michigan  
12 State University in the Fall.

13 (Witness Linnemann) My name is Roger  
14 Linnemann. I am a physician and radiologist, President of  
15 Radiation Management Consultants and the Associate Professor  
16 of Radiology at the University of Pennsylvania School of  
17 Medicine.

18 (Witness Crocker) My name is Douglas Crocker.  
19 I am the Manager of Nuclear Emergency Preparedness for Long  
20 Island Lighting Company.

21 (Witness Dreikorn) My name is Diane Dreikorn.  
22 I am a Senior Emergency Planner with the Long Island  
23 Lighting Company.

24 (Witness Watts) I am Richard J. Watts. I'm a  
25 Health Physicist and Emergency Planning Consultant,

1 President of Richard J. Watts, Incorporated.

2 (Witness Donaldson) My name is Dale Donaldson,  
3 Health Physicist and Manager in the Radiological Engineering  
4 Services Division for Hydronuclear Services, a subsidiary of  
5 Westinghouse Electric.

6 MR. CHRISTMAN: Thank you. Let me show the  
7 witnesses a document dated March 30, 1987 of 62 pages. It  
8 is entitled, as it has been marked up, "Written Testimony of  
9 Douglas M. Crocker, Dale E. Donaldson, Diane P. Dreikorn,  
10 Edward B. Liebermann, Roger E. Linnemann, Michael K.  
11 Lindell, Dennis S. Mileti and Richard J. Watts on the  
12 Suitability of Reception Centers."

13 And, I should note for the record, Judge, that  
14 this is the marked up version that we sent out to parties on  
15 June 19th, so it shows the errata that we had identified at  
16 least as of that date.

17 Let me show the witnesses and identify for the  
18 record a set of attachments A through T, about two inches in  
19 thickness. And, let me note for the record, Judge, that we  
20 have substituted for the old Attachment A which was Mr.  
21 Daverio's resume two attachments, A-1 and A-2 which are the  
22 resumes of Douglas M. Crocker and Diane Dreikorn who have  
23 been substituted for Mr. Daverio.

24 BY MR. CHRISTMAN: (Continuing)

25 Q And, let me ask you if those represent your

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1 testimony in this proceeding and if they were prepared by  
2 you or under your direction and supervision?

3 You can all answer.

4 A (Witness Crocker) Yes, they do.

5 (Witness Dreikorn) Yes.

6 (Witness Watts) Yes.

7 (Witness Donaldson) Yes.

8 (Witness Miletic) Yes.

9 (Witness Lindell) Yes.

10 (Witness Linnemann) Yes.

11 MR. CHRISTMAN: And, Judge, I have two addenda,  
12 if you will, to the testimony and attachments. I have one  
13 document called "Addendum" which has the text of the revised  
14 Question and Answer 67 which -- the text of which is  
15 identical to the version I sent out in my letter of I think  
16 June 24. I would like to hand out copies of that addendum  
17 to the Board and parties in just a moment, if I may.

18 I also have two draft maps of the Roslyn  
19 reception center showing the addition of two monitoring  
20 stations, 30 and 31, in the southeast corner and slight  
21 relocation of Stations 9 and 10 which is consistent with the  
22 marked up errata that we showed on the testimony that was  
23 sent out June 19th.

24 I would like to hand all of you a copy of those  
25 documents now.

(Mr. Christman distributes the documents.)

1 MR. CHRISTMAN: There are two maps, because you  
2 will recall there is a primary and secondary method of  
3 monitoring. The setup is different for each of them.

4 BY MR. CHRISTMAN: (Continuing)

5 Q Let me show the witnesses, particularly Mr.  
6 Crocker and Ms. Dreikorn, the addendum which is Question and  
7 Answer 67, and Mr. Watts who sponsors that with Ms.  
8 Dreikorn, and the new drawings of the Roslyn reception  
9 center with the slight modification in the southeast corner  
10 of the monitoring stations and ask you if those were  
11 prepared by you or under your direction and supervision?

12 A (Witness Watts) Yes, they were.

13 Q Now, let me ask you as to all four of these  
14 documents, the testimony, the attachments, the addendum and  
15 the two new maps, whether those documents are true and  
16 correct to the best of the witnesses' knowledge and belief?

17 Answer orally, if you would.

18 A (Witness Dreikorn) Yes.

19 (Witness Watts) Yes.

20 (Witness Crocker) Yes.

21 Q Now, Mr. Crocker, are there any corrections, any  
22 additional corrections, or changes that you want to make to  
23 the testimony as I've just supplied -- as it has been  
24 supplied to everyone?

25 A (Witness Crocker) Yes, there are.

1 Q Would you read those into the record, please?

2 A I have corrections by page and line. I will go  
3 through them slowly. If people have trouble keeping up,  
4 slow me down, please.

5 On Page 12 of our testimony, the first word in  
6 Answer 16, "LERO" should be changed to "the LILCO off-site  
7 emergency preparedness section."

8 Q Mr. Crocker, let me suggest that in addition on  
9 that page we should strike out the parenthetical in the  
10 question. That's not really your bailiwick, that's mine.  
11 But, the parenthetical that says "in terms of percent of EPZ  
12 population" should be stricken since the question no longer  
13 addresses percent of EPZ population.

14 A Yes. On Page 21 of the testimony, on the very  
15 first passage delete Dreikorn as a sponsor.

16 MR. McMURRAY: Sir, is that for the sentence  
17 beginning "There is no evidence...?"

18 WITNESS CROCKER: Yes. On Page 22, in the fifth  
19 line of the answer to Question 30 change "miles" to  
20 "kilometers."

21 On Page 53, on Question 118 in the second line  
22 of the answer change the number 138 to 140. On the same  
23 page, Page 53, Question 119 in the second line of the answer  
24 change "revision of the plan" to "Attachment P."

25 BY MR. CHRISTMAN: (Continuing)

1 Q I think that should be "Change Revision 8 of the  
2 plan to Attachment P."

3 A (Witness Crocker) Revision 8, that's correct.  
4 Also, make the change "driver's hands and feet" to "driver's  
5 head, shoulder, hands and feet."

6 On Page 59 on Question 139, in the seventh line  
7 of the answer, change "Daverio" to "Crocker, Dreikorn."

8 Q Is that all the changes that you want to make to  
9 the testimony as opposed to the attachments?

10 A Yes.

11 Q Do you have any changes to the attachments?

12 A Yes. We have a number of changes to Attachment  
13 P. In OPIP 4.2.3 on Page 15 of 29, which is also Attachment  
14 2 of Page 1 of 1, it's title is "Reception Center, Personnel  
15 and Zone Assignments," we have the following quantities to  
16 change: On the first column under the heading of Bellmore --

17 JUDGE MARGULIES: Just one moment.

18 WITNESS CROCKER: Okay.-

19 JUDGE MARGULIES: This is Page 15 of 29?

20 WITNESS CROCKER: Yes, of OPIP 4.2.3, it's  
21 Attachment 2, Page 1 of 1. It's a table with personnel  
22 quantities indicated.

23 JUDGE MARGULIES: Reception Center Personnel and  
24 Zone Assignments?

25 WITNESS CROCKER: Yes.

JUDGE MARGULIES: Yes.

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1 WITNESS CROCKER: In the first column under the  
2 heading of "Bellmore" the number 28 should be changed to the  
3 number 30.

4 Similarly in the same column the number 14  
5 should be changed to the number 15.

6 In the second column under the heading of  
7 "Hicksville," and the additional subheading of "Area B" the  
8 number 31 should be changed to the number 36, and the number  
9 16 should be changed to 18, that is one eight.

10 Further down that table in the same column, the  
11 number 12 should be changed to the number 24.

12 MR. McMURRAY: I'm sorry, Mr. Crocker, could you  
13 repeat that, please?

14 WITNESS CROCKER: Okay. The last one in the  
15 same column under Hicksville with the side heading "Initial  
16 Monitoring Personnel" the numeral 12 should be changed to  
17 24.

18 In the third column under the heading of  
19 "Roslyn" the number 28 should be changed to 32, and the  
20 number 14 should be changed to 16.

21 As a result of these changes, the totals at the  
22 bottom of each one of these columns also change.

23 The total at the bottom of the Bellmore column  
24 should now be 73, the total at the bottom of the Hicksville  
25 column, formerly 157 should now be 175, and the total at the

1 bottom of the Roslyn column, formerly 64, is now 70, seven  
2 zero.

3 BY MR. CHRISTMAN:

4 Q Are there any other corrections that you need to  
5 make either to the testimony or the attachments?

6 A (Witness Crocker) No, there are not.

7 Q With those corrections, are the testimony and  
8 attachments true and correct to the best of your knowledge  
9 and belief?

10 A Yes, they are.

11 MR. CHRISTMAN: Judge, with that, I would like  
12 to move into evidence the testimony and attachments as  
13 LILCO's correct case and propose that they be bound into the  
14 transcript as though read. As to the latter, we are  
15 prepared to provide 10 copies of all of these things to the  
16 court reporter, if you wish.

17 I'm told there was some departure from that  
18 practice in the 0-5 proceeding. So we can either treat them  
19 as exhibits or have them bound into the transcript, as the  
20 Board wishes.

21 Let me add that my proposal for the addendum is  
22 to bind it right after the written testimony and before the  
23 attachments and that I would propose to add the two modified  
24 maps of the Roslyn reception center as the last two pages of  
25 Attachment J which contains all the other site maps.

1 JUDGE MARGULIES: Is there any objection to the  
2 admission of the documents into evidence?

3 MR. CHRISTMAN: No, sir, subject to this  
4 qualification, which is that we haven't had Mr. Lieberman up  
5 here yet. This document does contain testimony from Mr.  
6 Lieberman. Subject to him getting up here and swearing to  
7 it, we have no objection.

8 JUDGE MARGULIES: Subject to that condition, the  
9 document consisting of the testimony, attachments, addendums  
10 and maps will be bound into the record as if read and is  
11 accepted into evidence.

12 The testimony referred to was  
13 marked for identification as  
14 LILCO Exhibit No. 1 and  
15 admitted into evidence.)

16 MR. ZAHNLEUTER: Judge Margulies, the State has  
17 no objection, subject to that qualification.

18 JUDGE MARGULIES: Thank you.

19 MR. CHRISTMAN: Thank you, Judge, and we will  
20 provide the 10 copies to the court reporter.

21 With that, these witnesses are ready for cross-  
22 examination.

23 JUDGE MARGULIES: You may proceed to cross-  
24 examine.  
25

CROSS-EXAMINATION

BY MR. McMURRAY:

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4 Q Mr. Crocker, could you please turn to page 6 of  
5 your testimony.

6 Let's begin with question and answer 4.

7 Do you see there where you identify the three  
8 reception centers as LILCO operation centers at Hicksville,  
9 Bellmore and Roslyn?

10 A (Witness Crocker) Yes.

11 Q The Roslyn facility is located just off of the  
12 Long Island Expressway, correct?

13 A Yes.

14 Q What is its normal function?

15 A Well, there are a number of activities that go  
16 on there. We have a customer service section where our  
17 billing inquiries and things like that are handled. We  
18 dispatch our maintenance crews out of there. There is a  
19 transportation garage where we repair equipment, trucks and  
20 the like and we stored some supplies there as well.

21 Q How many employees work there normally?

22 A Offhand, I don't know.

23 Q Do you know on an average day how many cars park  
24 in the parking lot there?

25 A No, I do not.

1 Q Do you know how many LILCO vehicles, not  
2 employee personal vehicles, but LILCO vehicles that are  
3 parked there on a normal day?

4 A No. It varies.

5 Q What type of equipment is kept at the Roslyn  
6 Operations Center?

7 A Well, you are familiar with the LILCO trucks you  
8 see on the road. There are all varieties. There is an  
9 assortment like that.

10 Q Let's go to the Bellmore facility, which is just  
11 off of Sunrise Highway, correct?

12 A Yes.

13 Q What is the normal function of the Bellmore  
14 facility?

15 A Much as I described for Roslyn.

16 Q There is customer service there?

17 A Yes, a district office.

18 Q And there is also maintenance done there?

19 A Yes. There are the usual trucks. There is a  
20 transportation facility there and there is a small storage  
21 space for materials and the like.

22 Q And equipment is stored as well?

23 A Yes.

24 Q How many employees work there normally?

25 A I do not know.

1 Q Do you know on an average day how many cars are  
2 parked there?

3 A No.

4 Q Let's go to the Hicksville facility. What is  
5 the normal function of the Hicksville Operations Center?

6 A Well, as you are aware, that is essentially our  
7 headquarters. Almost any function LILCO does is done there,  
8 everything that I described for the other two centers.  
9 There is a larger warehouse facility and a lot more trucks  
10 and the like.

11 Q There is a great deal of equipment stored there,  
12 correct?

13 A Yes, there is.

14 Q Can you tell me how many employees are employed  
15 there at the Hicksville Center?

16 A No, I cannot, but it's more than the other two  
17 facilities.

18 Q A lot more, right?

19 A Significantly.

20 Q On the order of thousands perhaps?

21 A It's a large number. I don't know the true  
22 answer to that.

23 Q And can you tell me how many cars are parked  
24 there normally during the day?

25 A No, I don't have that information.

1 Q By the way, does anybody on the panel have that  
2 information regarding how many cars are parked at  
3 Hicksville, Bellmore or Roslyn on a normal day?

4 A (Witness Dreikorn) No, I do not.

5 Q Does anybody have any additional information  
6 about the number of employees at any of those facilities?

7 A No, I do not.

8 Q What kind of equipment is stored at the  
9 Hicksville Reception Center or Operations Center, Mr.  
10 Crocker?

11 A (Witness Crocker) As I described before for  
12 Roslyn and Bellmore, we have many, many trucks of all  
13 different varieties. That's what we keep there.

14 Q There is also equipment that is not necessarily  
15 mobile, correct, utility poles, transformers and things like  
16 that?

17 A (Witness Crocker) It's not mobile to the extent  
18 that it doesn't drive around by itself.

19 Q And there are wires and pipes and things like  
20 that stored there?

21 A All the normal supplies you need to operate a  
22 utility.

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1 Q Are they near either of the reception -- either  
2 of the two areas, Area A or Area B at Hicksville?

3 A (Witness Crocker) I think most of them are kept  
4 -- I'm just trying to orient myself on the map. Towards the  
5 southwest corner of the property, which is not near either  
6 one of those two areas.

7 Q If you will turn please to Attachment J of your  
8 testimony, let's go to the Hicksville reception center  
9 diagram.

10 (The witnesses are complying.)

11 A Yes, I have that.

12 Q Okay. Let me turn your attention to Area B in  
13 the lower right-hand corner of that diagram. Do you see  
14 that?

15 A Yes.

16 Q Okay. To the left of Area B is a raised  
17 platform; is that correct?

18 A Yes.

19 Q Okay. And, on that raised platform there are a  
20 number of barrels and drums and things like that that are  
21 stored there, correct?

22 A As I recall, transformers and other  
23 miscellaneous electrical supplies. Drums, perhaps there  
24 were. I can't recall for sure. The drums I remember when  
25 you addressed the question to me in terms of chemicals are

1 down behind the warehouse area to the lower left.

2 Q Are there any drums or other containers  
3 containing chemicals at the top part of Area B, for instance  
4 where the monitoring stations 11, 12 and 25 would be, around  
5 that area?

6 A Not that we recall. There were cables and  
7 transformers and things.

8 Q Let's go to the next page, Page 7.

9 A Page 7?

10 Q Yes.

11 A I have that.

12 Q Okay. Ms. Dreikorn, can I turn your attention  
13 please to the first sentence in the answer to Question 6.  
14 The question is, "When did the 12-hour period in Criterion  
15 J.12 begin to run."

16 Do you see that?

17 A (Witness Dreikorn) Yes, I do.

18 Q Let me just back up a second. Would you turn  
19 back to Page 6? In the middle of that page, Criterion J.12  
20 is set out in the middle of that page, that's Criterion J.12  
21 of NUREG 0654; is that correct?

22 A Yes, that's correct.

23 Q Okay. And, that is the guidance in 0654 which  
24 refers to reception centers and the procedures that are to  
25 take place at those reception centers.

- 1 A That's correct.
- 2 Q In the middle of that page also, you mention  
3 that J.12 is only guidance. Do you see that?
- 4 A Yes, that is correct.
- 5 Q Now, you don't mean to imply by that that LILCO  
6 doesn't intend to try to meet J.12; is that correct?
- 7 A LILCO certainly intends to meet the Criterion  
8 Element J.12.
- 9 Q Do you agree with me that -- strike that.  
10 Let's go to Page 7. We will be moving back and  
11 forth between 6 and 7; keep your finger there.
- 12 You state that it's your opinion that the 12-  
13 hour time limitation in J.12 begins to run when the first  
14 evacuee arrives. Do you see that?
- 15 A Yes, I do.
- 16 Q Okay. Now, looking at Section J.12, as that's  
17 laid out on Page 6, it doesn't say there that the 12-hour  
18 time limitation begins to run when the first evacuee  
19 arrives, does it?
- 20 A The way I interpret Element J.12 --
- 21 Q No, I'm asking you whether it says it  
22 specifically in J.12.
- 23 A Would you like me to read it the way it's stated  
24 here.
- 25 Q No. I would like you to tell me whether or not

1 J.12 specifically says that the 12-hour time period begins  
2 when the first evacuee arrives?

3 MR. CHRISTMAN: Objection. We are wasting time  
4 on this. The guideline speaks for itself.

5 MR. McMURRAY: Judge Margulies, I just have a  
6 series of questions. I'm trying to find the basis for the  
7 opinion that Ms. Dreikorn and others have stated.

8 I want to go through the language of J.12 and  
9 then find that basis.

10 JUDGE MARGULIES: I will permit the question.  
11 You may answer the question.

12 WITNESS DREIKORN: Element J.12 does not say  
13 specifically when the time period begins.

14 BY MR. McMURRAY: (Continuing)

15 Q Okay. Are there any NRC decision which  
16 interpret Section J.12 the way you interpret it?

17 MR. CHRISTMAN: Objection. That's a question  
18 you ask lawyers, not witnesses.

19 MR. McMURRAY: To the extent that she is an  
20 emergency planner, she may know of such decisions. If she  
21 doesn't, she can just say she doesn't.

22 JUDGE MARGULIES: If the witness knows, she may  
23 answer.

24 WITNESS DREIKORN: Okay. There are no  
25 interpretations that I am aware of, either NRC or FEMA.

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BY MR. McMURRAY: (Continuing)

Q Okay. Are there any FEMA guidance materials that set out that particular interpretation of Section J.12?

A There is FEMA guidance for interpretation of Element J.12.

Q I'm talking about the 12-hour time limitation, when that begins to run?

A Specific to the initiation of the 12-hour time frame, I do not believe there is guidance.

Q Okay. Is there any emergency planning literature that you know of that states that the 12-hour time period begins to run when that -- when the first evacuee arrives?

A Not that I'm aware of.

Q Now, you state that you believe that in the case of Shoreham the 12-hour time period will, therefore, begin to run some two hours after the public is first advised to evacuate.

Do you see that?

A No, I do not. Where are you?

Q The second sentence. Perhaps I haven't paraphrased it correctly. If you will turn your attention to the second sentence of the answer to Page 6?

A (Witness Crocker) It says, "We take this to mean --

1 (Witness Dreikorn) On Page 7?

2 (Witness Crocker) We are on the wrong page.

3 Q Okay. Let's start all over again. Page 7,  
4 Question 6.

5 A (Witness Dreikorn) Okay. I found it.

6 Q The second sentence.

7 A Yes.

8 Q You say there that in the case of Shoreham you  
9 take this to mean that the 12-hour time period begins to run  
10 two hours after the public is first advised to evacuate.

11 Do you see that?

12 A Yes, that's correct.

13 Q Okay. Now, is it your testimony that no  
14 evacuees will arrive before two hours after an evacuation  
15 advisory?

16 A Based on the calculations that our traffic  
17 engineering consulting firm has done, it's determined that  
18 evacuees will arrive at the reception centers in  
19 approximately two hours.

20 Q Okay. I'm --

21 A If you look at Element J.12 and read what it is  
22 saying, is that we need to provide a capability for  
23 monitoring when those evacuees arrive at the facility. It's  
24 very difficult to provide that capability or that service of  
25 monitoring until you have the evacuees actually showing up

1 for that service of monitoring.

2 Q And, I'm asking you, is it your testimony -- you  
3 say here that that 12-hour time limitation begins to run  
4 when the first evacuee arrives. Is it your testimony that  
5 not one evacuee will arrive before two hours?

6 A As I said, our Traffic Engineer has determined  
7 that it will take approximately two hours for the first  
8 evacuees to arrive.

9 Q Do you -- independent of what Mr. Lieberman may  
10 have advised you, do you have an opinion as to when the  
11 first evacuee will arrive?

12 A I suppose somebody could arrive before a two  
13 hour time frame.

14 Q Thank you.

15 A (Witness Watts) I also think the two hour time  
16 frame is a reasonable estimate based on my knowledge of the  
17 Shoreham situation.

18 And, I also agree with Ms. Dreikorn that the  
19 interpretation of J.12 with the 12 hours starting at the  
20 time of the arrival of the first evacuee is a reasonable  
21 one. And, I believe it's commonly held in the industry.

22 MR. McMURRAY: Judge Margulies, I'm going to  
23 move to strike Mr. Watts' testimony. It was not responsive  
24 to my question which is whether one evacuee could arrive  
25 before two hours. He has gratuitously given his testimony,

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1 and it was not responsive to the question I have before Ms.  
2 Dreikorn.

3 MR. CHRISTMAN: But, it was responsive to  
4 several of Mr. McMurray's questions, and I think the witness  
5 has indicated he wasn't able to get his response in. He is  
6 certainly entitled to respond to the questions.

7 MR. McMURRAY: Judge Margulies, this is just  
8 going to be chaos if a witness is just allowed to jump in at  
9 any time and give his testimony.

10 Now, Mr. Christman is going to have the  
11 opportunity for redirect at some later time. If it's  
12 appropriate, then Mr. Watts can address it then.

13 (The Board members are conferring.)

14 JUDGE MARGULIES: Back on the record. It would  
15 be appropriate to lay down a ground rule at this time. The  
16 Board feels that it would assist the Board if other panel  
17 members be permitted to supplement the answer of the panel  
18 member that has answered if they had originally been part of  
19 the panel that answered that question.

20 In the second or third panel member responding,  
21 the response must be relevant and responsive and add  
22 something new or additional. And, it cannot be used as an  
23 opportunity to make a speech.

24 In this case, we will strike the answer.

25 BY MR. McMURRAY: (Continuing)

1 Q Let's go back to the question about the 12-hour  
2 time period and when that begins to run.

3 Now, Mr. Donaldson, you have, in fact, expressed  
4 in previous testimony a different opinion regarding when the  
5 12-hour time period begins to run, have you not?

6 A (Witness Donaldson) Yes, I have.

7 Q Okay. And, do you recall testifying in a  
8 deposition on March 11, 1987 which was taken by Mr. Case?

9 A Yes, I do.

10 Q Okay. And, do you recall him asking the  
11 question: What I'm getting at is the 12-hour time period  
12 starts when the first person arrives?

13 And, your answer was: No. Well, 12 hours in my  
14 mind would be 12 hours from the time an order were publicly  
15 given.

16 Do you recall that testimony?

17 A Yes, that was my opinion.

18 Q Okay. You were under oath at that time,  
19 correct?

20 A That's correct.

21 Q Let's go to the next -- to the last sentence in  
22 that answer, the second clause there, it says: "this means  
23 that somewhat longer than 12 hours to monitor 20 percent of  
24 the EPZ population would be acceptable."

25 Mr. Crocker, now let's just look back at J.12.

1 J.12 doesn't set out any particular percentage of people who  
2 need to be monitored at reception centers, does it?

3 A (Witness Crocker) No. It just says all people  
4 arriving at the relocation centers.

5 Q Okay. So, for the 20 percent figure I take it  
6 from your testimony you are relying on the FEMA memorandum  
7 that is attached to your testimony?

8 A The Krimm memorandum.

9 Q The Krimm memorandum, okay. And, just for the  
10 Board's benefit that is Attachment L, correct?

11 A Yes.

12 Q Let's look at Attachment L for a second. This  
13 is a memo which states guidance on NUREG 0654, FEMA REP-1,  
14 Evaluation Criterion J.12, correct?

15 A Yes.

16 Q Okay. And, it purports to set out certain  
17 guidance interpreting Section J.12, correct?

18 A Yes.

19 Q Looking at the second paragraph in that  
20 memorandum, the second sentence says, "Previous experience  
21 gathered on evacuation responses to a variety of natural and  
22 technological emergencies is not conclusive."

23 Do you see that?

24 A Yes, I do.

25 Q Okay. Do you know specifically the natural and

1 technological emergencies which appear to have been the  
2 basis for this memorandum?

3 A No, I do not.

4 Q Have you inquired of FEMA which ones?

5 A No, I have not.

6 Q I will open that question up to the panel. Has  
7 anyone inquired of FEMA as to which emergencies were  
8 evaluated with respect to this memorandum?

9 A (Witness Dreikorn) No, I have not.

10 Q And, I take it, Ms. Dreikorn, going back to Page  
11 7 of the testimony, the two hour estimate when the first  
12 evacuees would arrive is largely based on Mr. Lieberman's  
13 calculations, Question and Answer 7; is that correct?

14 A Yes, that's correct.

15 Q Now, has anyone done any analysis to determine  
16 how many evacuees might arrive at reception centers prior to  
17 two hours, any consultants or LERO personnel or LILCO  
18 personnel?

19 A Not that I'm aware of that have any additional  
20 consultants other than Mr. Lieberman done any calculations  
21 on traffic and traffic flowing to the reception centers.

22 Q Okay. Do you know whether Mr. Lieberman has  
23 done any analysis of the number of evacuees who might arrive  
24 before two hours?

25 A I think that would be more appropriate to direct

1 to Mr. Lieberman on his analysis.

2 Q I'm just asking you whether such an analysis has  
3 been done to your knowledge?

4 A Not to my knowledge, no.

5 Q Okay. And, does anybody else have any different  
6 information?

7 (No response.)

8 Q I don't hear any yes at all, so I assume that's  
9 a no.

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1 Q Mr. Crocker, the reception centers are the  
2 places where the people will be directed to go if there is a  
3 determination that they need to be monitored, correct?

4 A (Witness Crocker) Yes.

5 Q And beyond that, people who may be advised to  
6 evacuate but might not be within that section of the EPZ,  
7 told to seek monitoring, but who also need shelter, will be  
8 directed to go to the reception centers, isn't that correct?

9 A Yes, it is.

10 Q Let's go to page 8 of the testimony .

11 (Panel refers to document.)

12 Q (Continuing) Mr. Donaldson, let me focus on you  
13 for a while. You state in your answer to Question 8 that  
14 you were part of a three man team that drafted the document  
15 that was the precursor to NUREG 0654, is that correct?

16 A (Witness Donaldson) That is correct.

17 Q Who were the members of your team.

18 A A fellow named Mr. Ray Priebe, who is an  
19 engineer from the NRR, Headquarters, NRC. Mr. Hal Gautt,  
20 then with the office of State Programs of the NRC.

21 Q I am sorry. Did you tell us what NRR means?

22 A Nuclear Reactor Regulations, a division of the  
23 NRC.

24 Q I assume that you still haven't found a copy of  
25 your precursor document?

1 A That is correct.

2 Q So, you haven't reviewed it in how long?

3 A The document itself, I would say in about at  
4 least five or six years.

5 Q And under what circumstances did you last review  
6 it

7 A Under what circumstances?

8 Q Right.

9 A It would have been in my office after the  
10 submittal of a document to Mr. Brian Grimes<sup>7</sup> of the NRC, in  
11 comparison with the Rev. 0 of NUREG 0654.

12 Q Let's just back up a minute. When did -- in  
13 what time frame did you draft, you and Mr. Priebe and Mr.  
14 Gautt draft the precursor document?

15 A Let me refer to one of my evidentiary enclosures  
16 to my original deposition, so I can get the chronology  
17 correct.

18 (Witness refers to document.)

19 In October of 1979, myself and three other  
20 individuals from th NRC had requested that current emergency  
21 preparedness improvements be halted by the NRC in order to  
22 consider some information and concerns that we had regarding  
23 lack of criteria that were used by states and licensees of  
24 the NRC.

25 In response to that request, the Office of

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1 Inspection and Enforcement did, in fact, place a moratorium  
2 on further improvement and requested that Mr. Priebe, Mr.  
3 Gautt and myself draft our feeling of criteria to be  
4 submitted to the Federal Steering Committee.

5 We began our work, I believe, in November, two  
6 weeks before Thanksgiving of 1979, using a number of  
7 documents that had been prepared in the past, Regulatory  
8 Guide 1.101, NUREG 75111, other guidance existing in the  
9 emergency preparedness field. Internal submittals from the  
10 Commission having to do with improvements to Appendix E,  
11 10CFR50.

12 We prepared and consolidated comments in the  
13 form of acceptance criteria.

14 That document was submitted to the Committee  
15 approximately one day before Thanksgiving, in 1979, Mr.  
16 Brian Grimes being the Chairman of the committee, the  
17 Federal Steering Committee at the time.

18 Q So, the answer to my question is that you began  
19 drafting around November of 1979, is that correct?

20 A That is correct.

21 Q And it was submitted the day before  
22 Thanksgiving, to the best of your recollection, also in  
23 1979?

24 A In that time frame, that is correct.

25 Q In that time frame. So, it was drafted over the

1 course of two or three weeks?

2 A That is correct; a two week period. Keeping in  
3 mind drawing upon existing criteria that were being applied  
4 within the Commission also.

5 Of course, Revision 0 was published in January  
6 of 1980.

7 Q Mr. Donaldson, just let me ask you to  
8 specifically answer my questions. I was just asking for a  
9 time frame then, and this will go a lot faster.

10 JUDGE MARGULIES: I think it would be helpful if  
11 the witness would be directly responsive to the question  
12 asked, and should your counsel believe that there is  
13 additional information that should be forthcoming from you,  
14 he will have the opportunity to question you further.

15 BY MR. McMURRAY: (Continuing)

16 Q Do you recall the title of your precursor  
17 document?

18 A (Witness Donaldson) I believe it was titleless.

19 Q Do you remember how big it was?

20 A I would say approximately that thick  
21 (gesturing), single sheeted, computer paper.

22 Q You are saying about two inches thick?

23 A About two inches thick. Approximately 150  
24 pages.

25 Q Did you divide up the drafting chores of this

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1 document between you and Mr. Priebe and Mr. Gautt?

2 A In what manner?

3 Q With respect to certain subject matter?

4 A I would say it was more of a team effort in the  
5 sense that I know Mr. Gautt had access to the Wilber  
6 computer within the NRC, and most of the typing was done on  
7 the Wilber System, so he pretty much took care of the  
8 input.

9 It was pretty much conjunctive. We took the  
10 general topic areas and went through them one by one  
11 together.

12 Q With respect to actual drafting, did you draft  
13 the whole document?

14 A Did I do the handwriting, or --

15 Q That is right.

16 A The majority of the documents, handwriting and  
17 input that were brought to the session were mine, yes.

18 Q When you say, 'majority,' over fifty percent?

19 A Well over fifty percent?

20 Q 75?

21 A 75 to 80 percent of it, at least.

22 Q What role did Mr. Priebe and Mr. Gautt play?

23 A Mr. Priebe was a representative of NRR, so from  
24 the viewpoint of statutory authority of the Commission, Mr.  
25 Priebe was that representative of the Commission.

1           Mr. Gautt was a representative from at that time  
2 the State Programs Group, which was responsible for the  
3 Regional Assistance Committee in assisting States in  
4 developing response plan.

5           Q     My question was what role did they play in the  
6 preparation of the document? You have given me their titles  
7 and responsibilities.

8           A     They wrote, they commented, they reviewed, they  
9 typed, they copied.

10          Q     Was there any particular subject matter that Mr.  
11 Priebe was responsible for?

12          A     Again, as I said, the committee worked pretty  
13 much as a holistic group.

14          Q     Was the document broken down into criteria, like  
15 NUREG 0654?

16          A     Yes, sir, it was.

17          Q     How many criteria were there?

18          A     In the Licensee Section, there were  
19 approximately 125, 130. In the State and Local Planning  
20 Section, approximately the same number.

21          Q     I believe you stated that the draft, once it was  
22 completed, -- strike that.

23                   How many versions of your precursor document did  
24 you and Mr. Priebe, and Mr. Gautt go through before it was  
25 submitted to the Steering Committee?

1 A Would you restate that again.

2 Q This may make it more complicated. How many  
3 drafts of your precursor document did you go through before  
4 it was submitted to the steering committee?

5 A It is really hard for me to answer your  
6 question. It wasn't really developed that way. If you  
7 could rephrase it, I really can't answer it that way.

8 Q Explain to me how it was developed?

9 A It wasn't that a draft from A to Z were  
10 completed, and then it was distributed for review, and then  
11 the second draft were done. We worked about sixteen to  
12 eighteen hours a day for the two week period. We worked  
13 criterion by criterion, and area of responsibility by area  
14 of responsibility.

15 So, when that portion was done, it was  
16 constantly cross-checked back until we had what we felt was  
17 a meaningful product.

18 Q And when the precursor document was completed,  
19 it did not have specific language that was similar to  
20 Criterion J-12 of NUREG 0654, is that correct?

21 A That is correct.

22 Q Now, we have been mentioning a steering  
23 committee. What was the steering committee?

24 A The steering committee was formed just prior to  
25 January of 1980 when the NRC's responsibility for overseeing

1 the Federal response, FEMA was the agency, and the Federal  
2 Preparedness Agency.

3 The Federal Preparedness Agency's responsibility  
4 was not invested with FEMA. With the advent of FEMA, the  
5 steering committee was formed, and main responsibility for  
6 offsite planning then moved to FEMA.

7 So, the Committee came into play right about  
8 that period of time to try and make a cleaner break between  
9 the Office of State Programs and the NRC, and the Federal  
10 Response from FEMA.

11 Q Just to get the chronology straight. At the  
12 time that the precursor document was completed and you gave  
13 it to Mr. Grimes, the steering committee did not exist, is  
14 that correct?

15 A The steering committee was in the process of  
16 being formed right about this time. FEMA had been formed as  
17 a statutory group, and they were combining this FEMA group.

18 Q And the members of this steering committee are  
19 set out on Page ii of NUREG 0654, isn't that correct?

20 A Yes, they are.

21 Q So, the co-chairmen, were Mr. Grimes and Mr.  
22 McConnell from NRC and FEMA, is that correct?

23 A The representative was Mr. McConnell from FEMA.  
24 The co-chairman on Page II of the draft document, which was  
25 Mr. Grimes of the NRC and Mr. Ryan of FEMA, who was -- noted

1 their detail from the NRC.

2           Essentially, much of the FEMA group were NRC  
3 people who were associated with the office of State  
4 programs, who under the reorganization went with FEMA.

5           Q       Excuse me for a second while I get the draft.  
6                   (Mr. McMurray obtains document.)

7           A       There were two revisions, Rev. 0 dated January  
8 1980 was the Committee at that time, and that is on Roman  
9 Numeral Page II also.

10           Rev 1 of 0654, dated November 1980, with the  
11 manuscript completed in October. Rev. 1, which is the one I  
12 believe you are familiar with, is the one that lists Mr.  
13 McConnell. This was the one that was sent for comment.

14           Q       At the time that the steering committee was  
15 first formed, you were not a member of the steering  
16 committee, correct?

17           A       No.

18           Q       You were never a member of the steering  
19 committee?

20           A       Never a member of the steering committee, that  
21 is correct.

22           Q       Mr. Priebe was not a member of the steering  
23 committee, correct?

24           A       No.

25           Q       Nor Mr. Gautt?

1 A No.

2 Q Now, once your precursor document is submitted  
3 to the steering committee, you don't know how they consider  
4 that document, isn't that correct?

5 A Generally, not in detail, no.

6 Q Well, you don't know what procedures they use to  
7 review your document, correct?

8 A Generally, not specific.

9 Q Do you recall testifying at your deposition on  
10 March 11th, the question was asked: Once your draft  
11 document was submitted to the Committee, what procedures  
12 were followed, as you recall? Answer: To be honest about  
13 it, I have no knowledge of that.

14 Do you recall that testimony?

15 A Yes, I do.

16 Q Thank you.

17 Q Is it still your testimony that you have no  
18 knowledge of that?

19 A No specific knowledge.

20 Q The steering committee eventually released a  
21 draft of NUREG 0654, or Rev. 0 of that document, correct?

22 A That is correct.

23 Q Did that draft contain any language which  
24 specifically includes the language of Criterion J-12 as it  
25 now exists in Rev. 1, 0654?

1 A Not as it now exists, no.

2 Q Did it have a specific criterion that maybe  
3 paraphrases the present language of Section J-12?

4 A Not a single criterion, no.

5 Q And after the -- when did the Rev. 0 of 0654  
6 come out?

7 A Approximately January. January of '80.

8 Q And it was open for comment?

9 A That is correct.

10 Q How long was the comment period?

11 A Not exactly certain on that, but the comments  
12 were all published in a NUREG, public and state comments.

13 Q Did you provide comments to the steering  
14 committee?

15 A Through the internal NRC chain, yes, we did.

16 Q Did you provide any comments with respect to  
17 what is now Criterion J-12?

18 A Criterion J-12 did not exist, so there would be  
19 no comments --

20 Q Did you provide any comments with respect to the  
21 subject matter that is addressed in Criterion J-12?

22 A I wouldn't know that, because J-12 didn't exist.

23 Q So, at the time that the draft document -- the  
24 Rev. 0 of 0654 was released, there was no specific language  
25 regarding the 12 hour time limit for monitoring people who

1 arrive at reception centers, is that correct?

2 A 12 hours, no.

3 Q Okay. And in neither your precursor document,  
4 nor Rev. 0, was there any language regarding specifically  
5 the number of people who might be expected to arrive at  
6 reception centers, correct?

7 A No specific language, but it was considered when  
8 the original submittal was made under 654.

9 Q My question is there was no explicit language in  
10 your precursor document or in Rev. 0 regarding the number of  
11 people who might be expected to arrive at reception centers?

12 A Yes, and I would like to clarify it. Absence  
13 does not mean that it was not considered in terms of whether  
14 monitoring capabilities should exist or not.

15 Q Did the steering committee ever consult with you  
16 regarding the number of people who might be expected to  
17 arrive at the reception centers?

18 A No. Quite frankly, they took our draft pretty  
19 much literal.

20 Q The -- Was Rev.0 then close to the text of your  
21 precursor document?

22 A Aside from appearance, if I could clarify, ours  
23 was submitted as a single document, or I should say Parts 1  
24 and Parts 2, one being for utilities, and Part 2 being for  
25 State.

1                   What they did was more cosmetic in combining the  
2 two and putting the lines the way you currently see them  
3 right now. In many cases. Part 1 and Part 2 wording read  
4 the same. So, other than that, the wording, including an  
5 error that we later detected, was published along with it,  
6 and our review could not have been that careful in some  
7 cases.

8                   Q       How long after Rev. 0 was put out was Rev. 1  
9 issued?

10                  A       The publication date is November of 1980, so it  
11 would have been about nine months.

12                  Q       And at that time Criterion J-12 appeared,  
13 correct?

14                  A       That is correct.

15                  Q       In its present form?

16                  A       That is correct.

17                  Q       And you did not draft that criterion, correct?

18                  A       No.

19                  Q       Do you know who did?

20                  A       No. In fact the record of comments submitted to  
21 the Committee does not even reflect that there were any  
22 public comments against that particular area of monitoring,  
23 relocation of evacuees.

24                  Q       I take it, then, that you don't know exactly how  
25 Criterion J-12 reached its present form, correct?

1           A        I would agree with that Mr. McMurray, yes.  
2 I might add to clarify, too, sir, that while I was with the  
3 NRC as an inspector in that area involved with the regional  
4 advisory committee, when these changes came out we attempted  
5 to find out where they came from so we could better  
6 understand and interpret those particular criteria, and to  
7 my knowledge we were unable to find an individual  
8 responsible for that particular criterion, and to this day,  
9 in preparation even for this hearing, I have not been able  
10 to locate a specific individual.

11           MR. McMURRAY: Judge Margulies, I don't know  
12 exactly when the Board would like to take a break, but it  
13 has been traditional in these hearings that sometimes in mid-  
14 morning we take a 15 minute break, or I can go on, or I can  
15 break now, whatever the Board would like to do.

16           JUDGE MARGULIES: Let's take a fifteen minute  
17 recess.

18                   (Whereupon, morning recess was taken at 10:30  
19 a.m., to reconvene at 10:45 p.m., this same day.)  
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JUDGE MARGULIES: Back on the record.

You may proceed, Mr. McMurray.

CROSS-EXAMINATION (Resumed)

BY MR. McMURRAY:

Q Mr. Donaldson, let's turn to question and answer 10 of your testimony on page 8.

In the last two lines of that answer you discuss provisions in your precursor document that call for monitoring equipment to be available both onsite and offsite. Do you see that?

A (Witness Donaldson) Yes.

Q With respect to your reference to offsite, did you specify that monitoring equipment was to be available at reception centers?

A The term "reception center" at that time was not I would say a defined term that had anything to it. So I would have to answer no to that question.

Q Did you specify at all where monitoring equipment should be available, or did you just leave it to offsite?

A Pretty much offsite and limited to the word "provision" still.

Q Going on to question and answer 11, the question is asked "How many people did you think would have to be monitored in a radiological emergency," and you state that

1 when you wrote the precursor document you did not have a  
2 specific number in mind. "We believed, however, that only a  
3 small percentage of the EPZ would require monitoring, do you  
4 see that?

5 A Yes, I do.

6 Q Who is the "we" referred to there?

7 A "We" refers to the two other members of the  
8 committee as well as the general opinions and holdings of  
9 other knowledgeable members of the Commission at the time.

10 Q Do you mean people on the NRC staff?

11 A The NRC staff as well as the Office of  
12 Inspection and Enforcement.

13 Q Did you discuss this particular issue with  
14 Messrs. Gautt and Priebe during the course of drafting the  
15 precursor document?

16 A We did discuss offsite capabilities, yes.

17 Q Did you discuss how many people there would have  
18 to be planning for for monitoring in the event of an  
19 accident?

20 A To the best of my recollection, we did have a  
21 discussion, something to the effect of about how many people  
22 are w talking about, and is this any kind of a big problem.

23 The outcome of that discussion was no, not  
24 really, and consistent with everything else, we feel that  
25 it's important enough that there needs to be provisions for

1 a response, but we did not feel that we should have to  
2 specify details as to how it would be implemented.

3 Q Well, with respect to your personal beliefs, you  
4 don't know, do you, whether or not your particular  
5 philosophies and assumptions regarding the number of people  
6 that might be expected at reception centers was actually  
7 incorporated into the final version J-12, do you?

8 A Into the final version of J-12?

9 Q That's correct.

10 A I can surmise that it was in the sense that we  
11 were ---

12 Q Do you actually know. I don't want what you  
13 surmise. I want do you know.

14 A I don't know, but I have an opinion, a  
15 professional opinion as to that regard.

16 Q Let me just refer you to your deposition, Mr.  
17 Donaldson.

18 In your March 11th deposition you say -- the  
19 question is asked:

20 "Now you indicated earlier that in drafting your  
21 plan or in your draft of the plan, along with two other  
22 gentlemen, you incorporated certain assumptions within that  
23 plan?"

24 The answer is "Yes," correct?

25 A That's correct.

1 Q The question is asked: "Do you know if these  
2 assumptions were incorporated within the language of J-12?"  
3 Your answer is, "That would be hard to say. I can say from  
4 my knowledge of 0654 in general that those assumptions and  
5 philosophies are still there. They have not been diluted  
6 out. Whether that particular clarification of Item J-12 is  
7 contrary to that, I really couldn't say unless I talked to  
8 the individual who wrote it. To my mind it's not  
9 inconsistent with the way I read and understand it with the  
10 rest of 0654."

11 Do you recall that?

12 A That's correct.

13 Q Is that your testimony?

14 A And that is my testimony now. In fact, I would  
15 say that the content of J-12 or the remainder of 0654 does  
16 in fact still support our original philosophy.

17 Q And you also stand by your testimony that  
18 whether that particular item, Item J-12 is contrary to that,  
19 you really couldn't say?

20 A Again for a fact, no. As a professional  
21 opinion, I could give you another answer.

22 Q Let's go over to the next page, page 9. There  
23 you discuss your experiences as an NRC inspector, correct?

24 A That's correct.

25 Q Were you on what is known as the Regional

1 Assistance Committed known as a RAC?

2 A That's correct. I was Co-Chairman of Regions I,  
3 II and III RACs.

4 Q Now in the RACs various members of the committee  
5 represent various agencies; is that correct?

6 A That's correct.

7 Q And those various members are also responsible  
8 for evaluating specific criterion within 0654, correct?

9 A That's correct.

10 Q And you were not responsible for evaluation of  
11 these primarily for J-12; isn't that correct?

12 A Not, not quite correct. As the Co-Chairman of  
13 the committee, it was our chartered responsibility to  
14 oversee the evaluations of all participating members. So in  
15 that sense we did have input and review and essentially  
16 approval of those reviews.

17 Q As far as front line responsibility for  
18 evaluating J-12, that was not one of your sections, correct?

19 A No.

20 Q Have you seen the LILCO reception centers?

21 A Yes, sir, I have.

22 Q When did you see them?

23 A June 8th I believe it was.

24 Q Now also in this answer in the second sentence  
25 you say "I am specifically referring to the preplanning as

1 it relates to organization procedures, facilities and  
2 equipment, and I say basic in the sense that extreme detail  
3 if far less important than clear pre-coordination of the  
4 responsibilities."

5 Do you see that passage?

6 A Yes.

7 Q It is important, though, wouldn't you say, that  
8 there should be adequate facilities and equipment for  
9 monitoring members of the public?

10 A Restate your question.

11 Q You say "extreme detail is far less important  
12 than clear pre-coordination of the responsibilities." Is it  
13 your testimony that it is unimportant to have an adequate  
14 facilities and equipment?

15 A I believe my testimony is that it is less  
16 important.

17 Q So it is important to have adequate facilities  
18 and sufficient equipment, correct?

19 A When you need it, yes.

20 Q Would you say that determining whether there is  
21 sufficient equipment and whether there is sufficient  
22 personnel is an extreme detail in a planning stage?

23 A Again, I would have to say that it is less  
24 important than establishing the pre-coordination for  
25 mustering those resources is applicable.

1 Q Would you say though that it is extreme detail?

2 A If you give me a particular scenario or a degree  
3 of implementation, I think there is a cut-off point where  
4 you reach a degree of detail. Maybe yes; maybe no. If you  
5 would care to give me an example, I would be happy to  
6 answer.

7 Q Mr. Watts, let's go to the second paragraph of  
8 the answer to question 12.

9 There you and Mr. Donaldson state that from a  
10 planning standpoint a plume is generally considered to  
11 impact a down-wind sector and also the sectors on either  
12 side of that.

13 Do you see that testimony?

14 A (Witness Watts) Yes, I do.

15 MR. McMURRAY: Judge Margulies, at this time I  
16 am handing out a one-page document which is a map of the  
17 EPZ. It's from the LILCO plan, and I would like to have  
18 this map identified as Suffolk County Exhibit No. 1 or  
19 whatever designations we are using.

20 JUDGE MARGULIES: It will be marked Suffolk  
21 County Exhibit No. 1 for identification.

22 (The document referred to  
23 was marked Suffolk County  
24 Exhibit No. 1 for  
25 identification.)

1 MR. CHRISTMAN: Judge Margulies, let me off that  
2 we have a large-scale copy of a map of the EPZ that is very  
3 similar as I think is this one. If it would help anybody,  
4 we can bring it into the courtroom. It's right next door.  
5 It may not be the same one, but it shows the zones if there  
6 are going to be a lot of questions. If it would be helpful,  
7 we can provide it.

8 MR. McMURRAY: We can work with this one for the  
9 time.

10 JUDGE MARGULIES: Well, I don't know that anyone  
11 has a problem. If a problem develops, then we will take the  
12 time to get the other one.

13 MR. CHRISTMAN: That's fine. I just wanted to  
14 you to know that it's available.

15 JUDGE MARGULIES: Thank you.

16 BY MR. McMURRAY:

17 Q Mr. Watts, let me show you a document which I'll  
18 represent to you was taken from the LILCO plan, but I have  
19 drawn certain numbers at the end of the various sectors  
20 radiating from the plan.

21 Other than what I have handwritten onto the map,  
22 do you recognize this map as a map of the EPZ?

23 A (Witness Watts) Yes, it looks familiar.

24 Q And this maps shows the 19 sub-zones that the  
25 EPZ divided into; isn't that correct?

1 A Yes, I believe it does.

2 Q And sub-zones are designated the letter  
3 designations, correct?

4 A That's correct, A through S.

5 Q "A" through what?

6 A "S".

7 Q Now, from the Shoreham site there are lines  
8 radiating out at 22 and a half degree angles, do you see  
9 that?

10 A Yes, I believe they are 22 and a half degree? I  
11 would have to take your word on that one.

12 Q Do you have any reason to doubt that these are  
13 the 22 and a half degree angles ---

14 A No, it looks approximate the wide that you  
15 described.

16 Q And just for clarification, I have numbered the  
17 sectors beginning with the sector on the left that is above  
18 the horizontal axis there. It starts above the horizontal  
19 axis and then numbered them counterclockwise around to the  
20 right. Do you see that?

21 A Yes, I do.

22 Q I will be referring, and my intent is to be able  
23 to identify these various sectors by a number designation.  
24 So when I'm referring to Sector 1, I'll be referring to the  
25 sector that is next to the No. 1. Do you have any problem

1 with that?

2 A No, that sounds fine.

3 Q Now let me show you a document, and let's just  
4 go over the sub-zones here that are in Sectors 1, 2 and 3.  
5 If you will focus your attention on Sectors 1, 2 and 3. Sub-  
6 zone A is within that sector, is it not?

7 A Could you repeat that, please? I am looking at  
8 a colored version.

9 Q Of the same map?

10 A Yes.

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1 Q I would like to identify the sub-zones that are  
2 within Sectors 1, 2 and 3. Sub-zone A is within those  
3 sectors, correct?

4 A (Witness Watts) Yes.

5 Q Sub-zone F?

6 A Yes.

7 Q Sub-zone G?

8 A Yes.

9 Q K?

10 A Yes.

11 Q L?

12 A Yes.

13 Q And Q, in the upper left-hand corner?

14 A Yes.

15 Q Okay. And, R?

16 A Yes.

17 MR. McMURRAY: Judge Margulies, we are now  
18 handing out another document, also from the LILCO plan,  
19 which I would like to have marked for identification as  
20 Suffolk County Exhibit Number 2.

21 JUDGE MARGULIES: It will be marked as Suffolk  
22 County Exhibit Number 2 for identification.

23 (The document referred to is marked  
24 as Suffolk County Exhibit Number 2  
25 for identification.)

1 BY MR. McMURRAY: (Continuing)

2 Q Mr. Watts, this is a map from the LILCO plan  
3 which purports to set out the Summer and Winter populations  
4 estimated for 1985.

5 Do you see that?

6 A (Witness Watts) Yes, I do.

7 Q Okay. Do you have any reason to dispute these  
8 population figures?

9 A No, I don't.

10 MR. McMURRAY: Okay. Let me hand out a document  
11 which I would like to have marked as Suffolk County Exhibit  
12 Number 3 for identification.

13 This is a document that says "Population of Sub-  
14 Zones in Sectors 1, 2 and 3 of EPZ."

15 JUDGE MARGULIES: Is there any objection?

16 (No response.)

17 JUDGE MARGULIES: It will be so marked.

18 MR. McMURRAY: Thank you.

19 (The document referred to is marked  
20 as Suffolk County Exhibit Number 3  
21 for identification.)

22 BY MR. McMURRAY: (Continuing)

23 Q All right. Now, Mr. Watts, I've noticed one  
24 error on here.

25 A I've noticed it, too, Mr. McMurray.

1 Q Okay. Down at the bottom of the exhibit where  
2 it says percent of total 1985 Summer population equals 8  
3 percent, it should be 68 percent.

4 A Right.

5 MR. McMURRAY: I would appreciate if everyone  
6 would mark that into their copies.

7 BY MR. McMURRAY: (Continuing)

8 Q Do you see any other areas on here, Mr. Watts,  
9 that are immediately -- that immediately jump out at you?

10 A Well, I think I have the responsibility to point  
11 out to you that Zone M is also intersected by those three  
12 sectors.

13 Q Okay. Any other zones that are in those three  
14 sectors?

15 A Well, potentially C, a little edge of C.

16 Q All right. Now, I have derived the population  
17 figures from -- they are on Suffolk County Exhibit Number 3  
18 from Suffolk County Exhibit Number 2.

19 A Could you -- could we review which number is  
20 which again?

21 Q Suffolk County Exhibit Number 3 is the table;  
22 Suffolk County Exhibit Number 2 is the map with the  
23 population figures on it.

24 A Okay.

25 Q Now, for Sub-zones A, B, F, G, K, L, R and Q,

1 the total Summer population is 109,209; is that correct?

2 And, I will give you a calculator if you would  
3 like to do the math yourself? Do you have any reason to  
4 dispute that?

5 A I think I -- if you will give me just 30  
6 seconds, I think I can check it.

7 (The witness is looking through documents.)

8 Q Okay.

9 A I come up with an answer that is pretty close.  
10 It's not exactly on, but it's close enough. I will accept  
11 your --

12 Q Okay.

13 A -- figure.

14 Q Okay. Have you also calculated the percentage  
15 of those sub-zones represented on Suffolk County Exhibit 3,  
16 the percentage of the total Summer populations?

17 A Yes. I get roughly 68 percent also.

18 Q Okay. Now, if we were to add Sub-zones M and C  
19 onto Suffolk County Exhibit 3, we would be adding 5,296  
20 people for Sub-zone C, correct?

21 A Yes.

22 Q Okay. And for Sub-zone M we would be adding  
23 7,593 people; is that correct?

24 A Yes, that's right.

25 Q And, to figure out the percent of the total

1 Summer population with those sub-zones compared to the  
2 others, we would add those population figures to the 109,209  
3 and divide that total by 160,000, correct?

4 A That's right.

5 Q And, what number do you come up with, what  
6 percentage figure?

7 A I haven't double-checked it, but I get something  
8 like 76 percent.

9 Q All right, 76 percent?

10 A Yes. What number do you get?

11 Q I haven't done it.

12 A Oh, okay.

13 Q I will take your word for it. Let's look at Sub-  
14 zones 2, 3 and 4, Mr. Watts.

15 A Would you repeat that, please?

16 Q 2, 3 and 4, as I have marked them on Suffolk  
17 County Exhibit Number 1. Let me just go over with you the  
18 sub-zones which I've been able to identify as being within  
19 these three sectors.

20 Sub-zone K is within those sectors, correct?

21 A Yes.

22 Q And, A?

23 A Yes.

24 Q L?

25 A Yes.

1 Q G

2 A Yes.

3 Q B?

4 A Yes.

5 Q M?

6 A Yes.

7 Q R?

8 A Yes.

9 Q F?

10 A Yes.

11 Q Any others?

12 A Did we mention C?

13 Q I don't believe we did. C is also within those

14 sectors?

15 A It appears to be, yes.

16 Q Is H also within those sectors?

17 A It appears to be.

18 Q And, to determine the total population within

19 those -- the zones which are within those three sectors,

20 again we could go to Suffolk County Exhibit Number 2 and add

21 up the population figures represented for the sub-zones we

22 have just named; isn't that correct?

23 A Yes, using a similar technique. Yes.

24 Q Okay. And, we could also use a similar

25 technique then to determine the percentage of the EPZ

1 population within those three sectors?

2 A Yes.

3 MR. McMURRAY: Judge Margulies, at this time I  
4 would like to move Suffolk County Exhibits 1, 2 and 3 into  
5 evidence.

6 JUDGE MARGULIES: Is there any objection?

7 MR. ZAHNLEUTER: No objection.

8 MR. CHRISTMAN: No objection.

9 JUDGE MARGULIES: All right. They are admitted  
10 as Suffolk County's Exhibits Number 1, 2 and 3.

11 (The documents previously marked as  
12 Suffolk County Exhibit Numbers 1,  
13 2 and 3 for identification are  
14 admitted into evidence.)

15 BY MR. McMURRAY: (Continuing)

16 Q Mr. Donaldson, do you -- let's go down to  
17 Question and Answer 13.

18 (The witnesses are complying.)

19 A (Witness Donaldson) Yes.

20 Q Okay. Did you have anything to do with the  
21 development of the Krimm memorandum?

22 A No, sir.

23 Q Have you discussed it with anyone at FEMA?

24 A Not at FEMA, no, sir.

25 Q Mr. Watts, have you discussed this memorandum

1 with anyone at FEMA?

2 A (Witness Watts) The Krimm --

3 Q The Krimm memorandum?

4 A No.

5 Q Did you have anything to do with the development  
6 of the Krimm memorandum?

7 A No, I did not.

8 MR. McMURRAY: Judge Margulies, if you would  
9 just indulge me for a minute?

10 JUDGE MARGULIES: Sure.

11 (Pause.)

12 BY MR. McMURRAY: (Continuing)

13 Q Let's go to Page 10 of the testimony.

14 (The witnesses are complying.)

15 There, Mr. Crocker, you refer to a passage from  
16 NUREG 0654, Page 15 of that document, correct?

17 A (Witness Crocker) Yes.

18 Q Okay. And, this is Guidance -- strike that.  
19 What's the purpose of this passage?

20 A The passage identifies the various types of  
21 releases considered in emergency preparedness from the most  
22 significant to the least significant.

23 Q Now, when it refers to volatile solids, that  
24 includes iodine, doesn't it, Mr. Watts?

25 A (Witness Watts) Yes, it does.

1 Q Okay. What other volatile solids are there?

2 A One example may be cesium.

3 Q Any others that you can think of?

4 A Basically, those are the most predominant ones  
5 we are concerned about.

6 Q When you say then in the first sentence after  
7 the passage from NUREG 0654, you say, "The guidance, then,  
8 addresses itself primarily to noble gases and iodine  
9 releases."

10 Do you see that?

11 A Yes.

12 Q And, this could be iodine releases in solid  
13 form, correct?

14 A You are talking about iodine that could be  
15 emitted in a possible variety of forms.

16 Q Including solid?

17 A Particulate, gaseous, yes.

18 Q Okay. In the exercise that took place in  
19 February of 1986 -- strike that. Let me go back.

20 There was an exercise of the LILCO plan in  
21 February of 1986, correct?

22 A Yes.

23 Q Okay. You took part in that, didn't you?

24 A Yes, I did.

25 Q Okay. So, you are familiar with the accident

1 scenario that was used in that exercise, correct?

2 A Yes.

3 Q And, it's true, isn't it, that it was simulated  
4 that one of the types of materials released during the  
5 accident was iodine in its solid form; is that correct?

6 A There was evidence of particulate iodine used in  
7 the scenario, data, yes.

8 Q So, if iodine were released from the Shoreham  
9 plant during an accident, it would not only be released in  
10 gaseous form but it could be released in solid form,  
11 correct?

12 A In particulate form, yes, possibly. We would  
13 not expect it, however, because of the numerous removal  
14 mechanisms that occur. That exercise scenario was a rather  
15 extreme one to test all facets of the plan, including off-  
16 site radiological monitoring capabilities.

17 We would expect -- and there is a lot of  
18 information that has been gathered from experience with TMI  
19 that for a lot of physical and chemical mechanisms that  
20 would prevent substantial releases of iodine.

21 Q Nevertheless, solid iodine in its particulate  
22 form is one of the solids that NUREG 0654 sort of ranks in  
23 second place as some of the material that should be  
24 considered in emergency planning, correct?

25 A Yes.

1 Q Would you go to Page 11 of your testimony?

2 (The witnesses are complying.)

3 Look at the top paragraph. In the second  
4 sentence you discuss, "In the situation in which the release  
5 was delayed several hours, the evacuating public would have  
6 left prior to the arrival of the plume, regardless of  
7 whether it contained particulate contamination," correct?

8 A Yes.

9 Q Okay. In that sort of circumstance, there would  
10 be no advisory to people to seek monitoring, correct?

11 A Yes, that's very possible. That's a situation  
12 where we have in our procedures. As an example, the plant  
13 reaches a general emergency status and even if we don't have  
14 a release, we don't have substantial core failure, we may  
15 advise the public to evacuate --

16 Q Right.

17 A -- out to a two mile radius normally. But, the  
18 reason for that would be really a precautionary evacuation  
19 to avoid exposure to the plume should one occur at a later  
20 time.

21 Q Let me just clarify my question --

22 A Okay.

23 Q -- and get a specific answer to it. In the  
24 event that there was an evacuation called for prior to the  
25 particulate release, there would be no need to direct the

1 evacuees to seek monitoring, correct?

2 A Those -- over and above the evacuation  
3 recommendation in certain zones, that's right.

4 Q Okay. At the bottom of that paragraph, you  
5 state that, "When people relocated they might pick up small  
6 amounts of contamination (e.g., on the soles of their  
7 shoes), but this would not present a health-threatening  
8 situation that required immediate monitoring or  
9 decontamination."

10 Do you see that?

11 A That's right.

12 Q Okay. Are you testifying that J.12 does not  
13 apply to the situation where a plume has passed and then  
14 people are asked to evacuate?

15 A I'm not sure I understand your question.

16 Q Well, you seem to be drawing a distinction here  
17 between health-threatening situations that require immediate  
18 monitoring or decontamination, let's say within the 12-hour  
19 time limit of J.12 and other types of released, and I want  
20 to know whether in the situation under the circumstances  
21 that you spell out in this last sentence, Criterion J.12 is  
22 nevertheless applied; that is, that there be monitoring of  
23 all evacuees who arrive within 12 hours or about 12 hours.

24 (The witness is looking through a document.)

25 A You are talking about two situations here, and

1 I'm not sure what you are driving at as far as  
2 applicability.

3 Q Do the requirements of J.12 apply to the  
4 situation where people pick up contamination on the soles of  
5 their shoes or wherever after the plume has passed and then  
6 they have been told to evacuate?

7 A I would invite other members of the panel to  
8 share their opinions on that. I don't see why we wouldn't  
9 set up our reception centers and staff them to accommodate  
10 evacuees who we suspect would be contaminated.

11 I don't see why we wouldn't follow our normal  
12 procedures. Whether J.12 applies in a legal sense, I'm not  
13 sure. But, I don't -- I think that's moot. I think we  
14 would set up our reception centers and provide for  
15 monitoring anyway.

16 Q Do any members of the panel have a different  
17 response?

18 A (Witness Dreikorn) No. I agree with Mr. Watts.  
19 (Witness Crocker) As do I.

20 Q Now, when you say the people then relocated  
21 after a plume had passed they might pick up small amounts of  
22 contamination, e.g., on the soles of their shoes,  
23 contamination could also be kicked up on other parts of the  
24 bodies; isn't that true?

25 A (Witness Watts) That's very possible, yes. To

1 give you an example of someone who had been sheltered and  
2 then goes outside and does whatever is necessary to leave  
3 the area. We suspect that, you know, the most likely  
4 location of contamination would be on the shoes, assuming  
5 that they are walking.

6 Q But, they could bump into their cars and some  
7 contamination that was on the car might end up on the body,  
8 correct?

9 A They could touch the handle of a car that was  
10 outside and exposed to the plume, get it on their hand,  
11 that's true.

12 Q Or get it on other parts of their body, correct,  
13 if they happen to brush against the car?

14 A Yeah. There may be other locations, but we -- I  
15 have a hard time understanding how they would do that  
16 without getting it on their hands and their feet.

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1           Q       So, in other words, you have the people  
2           relocated after a plume has passed, there are other parts of  
3           the body that could be contaminated other than just the  
4           soles of their shoes, right? You weren't just limiting the  
5           areas of contamination in this testimony to the soles of the  
6           shoes, right?

7           A       (Witness Watts) I believe the shoes would be  
8           the primary location that would be affected. I mentioned  
9           the hands. There is also the possibility of other areas of  
10          the body, but I suspect that those primary locations would  
11          be the ones of most concern.

12          Q       And if those others -- for instance the hand,  
13          the arms, or whatever brushed up against a car or whatever,  
14          became contaminated, that could present a health threatening  
15          situation, correct?

16          A       I don't think so as a health physicist. I think  
17          typically when we deal with contamination, it is my  
18          experience it has not been a health threatening situation.  
19          It is a nuisance. It is a heightening type concern, but not  
20          an immediate threat to the health of the individual.

21          Q       Under no circumstances could contamination on  
22          the hands or the legs or other parts of the body be a health  
23          threatening situation, is that your testimony?

24          A       I think given the spectrum of accidents that we  
25          are talking about here, I believe that it would not be an

1 immediate health threatening situation.

2 As I say, we would be concerned and want to do  
3 verification of the contamination. We would activate our  
4 reception centers and do monitoring. We would follow the  
5 health physicist practice here. But I do not see it as an  
6 immediate health threatening situation.

7 Q When you say, 'immediate health threatening  
8 situation,' what do you mean?

9 A Where we are likely to have immediate clinical  
10 systems occur because of the contamination. Maybe Dr.  
11 Linnemann would like to add to that.

12 Q Let me just follow up with you for a second, and  
13 Dr. Linnemann can then follow up. You have been saying  
14 there won't be any problem or change in the white blood  
15 cells immediately resulting from such contamination,  
16 correct?

17 A That is correct, and I don't see an immediate  
18 problem with the skin either based on some calculations that  
19 we have done.

20 Q Nevertheless, such contamination is something  
21 that should be monitored within the time limits of J-12,  
22 correct?

23 A Within a timely manner, and I am not sure that  
24 12 hours is a magic number with respect to a health  
25 concern. You want to get at it in a timely manner. You

1 want to do the monitoring in a timely manner, and not delay  
2 many, many days, but I don't think 12 hours is a magic  
3 number with respect to doing the monitoring from a health  
4 point of view.

5 Q Nevertheless, J-12 sat that at approximately 12  
6 hours.

7 A It is a regulatory piece of guidance, yes.

8 Q Lets go down to the third paragraph. The last  
9 sentence. Where you talk about the most probable case for  
10 only those people requiring congregate care would be  
11 expected at the reception centers.

12 Mr. Crocker, do you see that?

13 A (Witness Crocker) I am sorry. Can you point me  
14 in that direction again.

15 Q Okay. Last paragraph of that question and  
16 answer is on Page 11. Mr. Crocker, on Page 11, the last  
17 paragraph, Question and Answer 14, the last sentence of that  
18 paragraph that discusses the most probable case, were only  
19 those people requiring congregate care would be expected at  
20 reception centers, do you see that?

21 A Yes, I do.

22 Q Can you tell me first how many -- what  
23 percentage of the population in the EPZ is expected to  
24 require congregate care under the LILCO Plan?

25 A Somewhere in the order of 15 to 20 percent, at

1 the outside.

2 Q Now, in the event of an accident at Shoreham,  
3 and in the event of an evacuation, it is possible, is it  
4 not, that not all people who are evacuated would be advised  
5 to go seek monitoring? Some subset of those people advised  
6 to evacuate would also be advised to seek monitoring?

7 A Depending on the situation, our procedures are  
8 such that we would make every effort to evacuate before  
9 there is any exposure to contamination.

10 In that case, only those people requiring  
11 congregate care would go to the reception centers.

12 Q In the event of an accident, requiring  
13 monitoring, a segment of the population, is it possible that  
14 there could be an evacuation, and for some subset of those  
15 people have to evacuate, also that subset would be advised  
16 to seek monitoring. Is that possible?

17 A Yes, it is.

18 Q Is it possible that everybody advised to  
19 evacuate could be also advised to seek monitoring?

20 A Yes, that is possible. Unlikely, but it is  
21 possible.

22 Q It is more likely that some subset of those  
23 asked to evacuate would be advised to seek monitoring, is  
24 that --

25 A It is most likely that none of them would have

1 to go there if we do it right.

2 Q Assuming that there is monitoring called for, is  
3 that correct?

4 A Yes, I believe so.

5 Q So, the number of people expected to arrive at  
6 LILCO's reception centers would at least include those  
7 people advised to seek monitoring, as well as those people  
8 who are advised to evacuate, but have no shelter is that  
9 correct?

10 A Yes, it is.

11 Q Now, is it your testimony that because in your  
12 opinion the most likely case is one where no monitoring is  
13 required, that the appropriate planning basis should be  
14 based only on the number of people that need monitoring?

15 A I am not sure I understood that, I am sorry.

16 Q The implication of the sentence that I am  
17 looking at, and correct me if I am wrong, is that LILCO's  
18 planning basis is based on what it considers to be the most  
19 probable case, which is that no monitoring is required,  
20 therefore the planning basis is based on only those number  
21 of people who need sheltering in the event of a radiological  
22 emergency?

23 Is that your testimony?

24 A No. Our plan covers the spectrum of accidents,  
25 and that doesn't focus on one single case.

1 Q Covers a spectrum of accidents?

2 A Yes.

3 Q Well, on Page 12 of your testimony, you state  
4 that one need only develop capabilities to cope with a  
5 portion of the range. Did you change your testimony?

6 A Will you show me the reference?

7 Q It is on the 4th line down on Page 12.

8 A Is that the sentence that reads: Instead, one  
9 should develop local emergency response capabilities to cope  
10 with a portion of the range?

11 Q That is correct.

12 A Yes.

13 Q Did you change your testimony?

14 A No, I haven't. We cope with a portion of the  
15 range, the spectrum. Not one single event.

16 Q What you seem to be saying there is that you are  
17 planning for only a portion of the spectrum, is that  
18 correct? Range and spectrum there are used synonymously,  
19 isn't that correct?

20 A Our planning basis is the 20 percent referenced  
21 in the Krimm memorandum, our plan allows us to expand the  
22 response capability to cover more than that.

23 Q That is not my question; let's get back to my  
24 question.

25 A I am trying to answer it.

1 Q You say that NUREG 0654 is based on the  
2 capability to respond to the spectrum of accidents, correct?

3 A Yeah, 396 and 654.

4 Q Now, you go on three sentences later to say one  
5 should develop local emergency response capabilities to cope  
6 with a portion of the range.

7 Does that mean that you are developing a plan  
8 that is designed to deal only with a portion of the range of  
9 possible accidents?

10 A The planning basis aims at the most likely  
11 accidents. The facilities are sized, equipment purchased,  
12 and training is conducted to deal with the most likely  
13 events.

14 However, this basis also provides the ability to  
15 expand, and our plan provides that, so if you get the more  
16 severe accidents, we can accommodate it, and handle it  
17 properly.

18 Q But, nevertheless, the testimony is that you are  
19 developing capabilities to cope with only a portion of the  
20 range, is that correct?

21 A That is what it says.

22 Q Would you agree with me that the plan is  
23 supposed to be able to respond to the spectrum of accidents,  
24 that is referenced in 0654, correct?

25 A Yeah. As the testimony says around that

1 sentence you have been reading, it says to identify one  
2 particular accident or type of accident as the basis for  
3 emergency planning is inappropriate. Instead, one should  
4 develop local emergency response capabilities to cope with a  
5 portion of the range. These capabilities must be capable of  
6 being augmented if required by the demands of an emergency.

7 Q What is the basis for your interpretation of  
8 0654 that one needs to develop the capabilities of only a  
9 portion of the range?

10 Does it state that anywhere in 0654?

11 A In our opinion, as planners, it is most  
12 appropriate to focus on the most likely events as the most  
13 useful allocation of resources.

14 The language here reflects that, and as I  
15 pointed out, we can handle all the accidents.

16 Q Let me go back to my question, which is does  
17 0654 state that one needs to develop local emergency  
18 response capabilities for only a portion of the range?

19 A Let me check the document, if I may.

20 (Witness peruses document.)

21 A (Continuing) There is language about the  
22 spectrum of accidents on Pages 6 and 7 of 0654, and there  
23 may be other references as well. I am not sure.

24 A (Witness Donaldson) May I answer part of that  
25 question.

1 Q I want an answer from Mr. Crocker first.

2 A (Witness Crocker) Bear with me for a moment. I  
3 have to find the citation. I think the answer to the  
4 question you have asked, if I remember your question  
5 correctly, I don't recall it explicitly stated in 0654, or  
6 in its related document, such as 396, which was the  
7 predecessor, or base document for 654, does discuss the need  
8 to base your planning basis on a spectrum of consequences,  
9 tempered by the probability considerations.

10 Q Does it say how it should be tempered?

11 A Prudently, I assume.

12 JUDGE MARGULIES: We are having difficulty  
13 hearing the testimony. Will you both please speak up?

14 WITNESS CROCKER: Yes, sir.

15 BY MR. McMURRAY: (Continuing)

16 Q Other than prudently, which I won't dispute with  
17 you, is there any specific guidances to how the probability  
18 factor should be factored in, specifically within the  
19 document?

20 A (Witness Crocker) There is further guidance  
21 further down the page in Appendix 1 to this document, which  
22 is 396. It talks in general terms.

23 Q Let's back up a second. Isn't it true that the  
24 planning basis on which 0654 is founded rests in part on the  
25 accident release categories in WASH 1400, the RAC Safety

1 Study?

2 A I am not sure of the answer to that myself. My  
3 colleague, Mr. Donaldson, could shed some light on that.

4 Q Mr. Donaldson?

5 A (Witness Donaldson) As far as the spectrum of  
6 accidents per current planning, 10CFR50, Appendix E, is the  
7 emanating requirement which addresses the first regulatory  
8 requirement in relation to scope, where it specifies that  
9 licensee shall have plans to cope with the scope of  
10 accidents defined in, and I believe the reference leads you  
11 to 396, in which Appendix E was revised, of course, in  
12 conjunction with all these documents.

13 So, by going to 396, which was the precursor to  
14 0654, it does discuss, as Mr. Crocker has pointed out, that  
15 you do temper that response.

16 654 further amplifies the scope of accidents by  
17 defining those areas that should be covered, and by  
18 including as an attachment what was NUREG 0610, which  
19 specifies a series of initiating conditions, which ties  
20 specifically to predetermined accident response sequences in  
21 certain kinds of accidents which encompass this spectrum or  
22 range.

23 Therefore, if the initiating conditions are  
24 covered in the emergency action levels by the utility, and  
25 the corresponding responses which are recommended by that

1 piece of guidance are in position, then the spectrum of  
2 action set forth by the Commission is, therefore, determined  
3 to be covered.

4 Q I refer you to Page 7 of NUREG 0654. The first  
5 paragraph, last sentence, do you see where it says, Mr.  
6 Donaldson: Although the selected planning basis is  
7 independent of specific accident sequences -- I will wait  
8 until you get it in front of you.

9 Do you have it in front of you, Page 7?

10 A I have page 7.

11 Q The last sentence of that first paragraph,  
12 starting with the word, "Although," it says: Although the  
13 selected planning basis is independent of specific accident  
14 sequences, a number of accident descriptions were considered  
15 in the development of the guidance, including the core melt  
16 accident release categories of the reactor safety study.

17 Do you see that?

18 A I sure do.

19 Q The reactor safety study is also known as the  
20 WASH 1400, correct?

21 A Yes.

22 Q And those core melt accident release categories  
23 include accidents that could result in the release of  
24 particulates, correct?

25 A In the RSS?

1 Q Reactor Safety Study, yes.

2 A That is correct. My point being, that is  
3 included. In answer to your question, spectrum is defined  
4 by specifically the Appendix 1, Emergency Action Level  
5 Guidelines, which also appears as NUREG 0610, I believe.

6 So, that portion of the reactor safety study, or  
7 WASH 1400, which was determined to be appropriate, those  
8 elements to cover the spectrum which Mr. Crocker speaks, is  
9 embodied in this, you are absolutely right.

10 Q And that spectrum of accidents then, you would  
11 agree, includes core melt accidents resulting in the release  
12 of particulates?

13 A It includes a sequence involving a core melt.  
14 Release of particulates. Difference there.

15 Q I will focus on your last qualification there.  
16 WASH 1400 didn't just discuss accident sequences. It  
17 discussed consequences, didn't it?

18 A That is true.

19 Q And those consequences, as part of the input of  
20 determining consequences, postulated certain release  
21 characteristics, correct?

22 A And also postulated the lack of certain  
23 safeguards which exist in current plans.

24 Q Those release characteristics included the  
25 release of particulates, correct?

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A That is correct.

Q Mr. Watts, let's go to your testimony on Page 4. I think this is your area, and I just want to ask you about it even though you don't sponsor this testimony.

At the top of page 4, you talk about highly improbable radiological releases, where it might be necessary to monitor more than 20 percent of the population. Do you see that? You don't say that, but that is what the testimony says. Do you see that?

A (Witness Watts) Are you asking me a question in regard to Question 2, of which I am not a sponsor?

Q That is right.

A I will be happy to try to answer, but I --

Q Maybe I should ask Mr. Crocker this first. Let's look at that sentence, Mr. Crocker, which begins: Highly improbable radiological releases.

A (Witness Crocker) I have it.

1 Q Do you know anything about PRAs that have been  
2 done for Shoreham?

3 A (Witness Crocker) I'm not an expert in PRA.

4 Q Consequence analyses?

5 A I understand what the term means.

6 Q Okay. Can you tell me how much less probable an  
7 accident is affecting 30 percent of the population than one  
8 affecting 20 percent of the population?

9 A Only to the extent that it's less. But, I can't  
10 quantify it for you.

11 Q Okay. Mr. Watts, can you quantify it other than  
12 saying it's less?

13 A (Witness Watts) I can't quantify it  
14 specifically.

15 Q Okay. Can you quantify how much less probable  
16 an accident affecting 40 or 50 percent of the population is  
17 than one affecting 20 percent of the population?

18 A No, not specifically. No.

19 Q Mr. Crocker, I would like to go over the changes  
20 you made today just so I understand them. At least one of  
21 these was a surprise to us, so I wanted to just discuss them  
22 with you for a second.

23 First of all, do the changes that were made to  
24 the chart personnel, total number of personnel -- I forget  
25 which attachment that was that you made those corrections --

1           A       (Witness Crocker) Okay. That would have been  
2 Attachment P --

3           Q       Attachment P.

4           A       -- to OPIP 4.2.3, Page 15 of 29.

5           Q       Now, do those changes now reflect the fact that  
6 there are 63 monitoring stations?

7           A       Having told you what it was, I have to find it  
8 myself now. Bear with me a moment.

9                   (The witness is looking through documents.)

10           Okay. I have it in front of me now.

11           Q       Okay. Does that now reflect that there are 63  
12 monitoring stations?

13           A       Yes.

14           Q       And, how many monitoring stations have been  
15 added to Bellmore since Attachment P?

16           A       It should be just one.

17           Q       And, two have been added to Roslyn?

18           A       Yes.

19           Q       Okay. And, two have been added to Area B in  
20 Hicksville?

21           A       Yes, we did.

22           Q       One of the changes you made also dealt with the  
23 back-up procedure used at the reception centers. Do you  
24 recall the page?

25           A       Hang on a moment. Which change?

1 Q The change to the procedures to the backup --  
2 the back-up monitoring procedures. I think on Page 53.

3 A Yeah, at Page 53, Question 119.

4 Q Yes. It's now your testimony that regarding  
5 monitoring and the back-up procedure, the areas embodied to  
6 be monitored would be the head, shoulders, hands and feet?

7 A Yes, that's the proper correction.

8 Q When was that change decided upon?

9 A (Witness Crocker) Are you asking us when we  
10 changed the testimony or when we made the decision to add  
11 head and shoulders?

12 Q That's right, when you made the decision to add  
13 the head and shoulders?

14 A The head/shoulders addendum was also in the  
15 February 20th material. If you note, there was a second  
16 change on the same line where we changed the reference to  
17 Revision 8 of the plan to Attachment P. Okay. Attachment P  
18 was that February 20th material, and the head, shoulders,  
19 hands and feet I believe is consistent with Attachment P.

20 So, somewhere prior to February 20th. If you  
21 look at Attachment P, Page 9.C, you will see the reference  
22 to the head and shoulders.

23 Q Mr. Crocker, if people from outside the EPZ  
24 proceed to the reception centers and seek monitoring there  
25 is no way to distinguish, under the plan, those people from

1 people from within the EPZ, correct?

2 A Only if you ask them where they came from,  
3 otherwise no.

4 Q Okay. And, are LILCO monitors trained to ask  
5 where they came from?

6 A (Witness Dreikorn) No, they are not.

7 (Witness Crocker) No, they are not.

8 Q So, that those people would be monitored if they  
9 came from outside the EPZ and asked to be monitored?

10 A Certainly.

11 Q And, the same would be true for people from --  
12 within the EPZ that may be outside the area that has been  
13 advised to seek monitoring, they would be monitored if they  
14 showed up as well?

15 A All the arriving evacuees would be monitored.

16 Q Whether they came from inside or outside the  
17 EPZ?

18 A Yes.

19 Q And, it's possible, isn't it, that people from  
20 outside the EPZ might receive monitoring, without getting  
21 into numbers?

22 A It's possible, but we don't think it's too  
23 likely.

24 Q We will get into that a little bit later.

25 MR. McMURRAY: I believe that for the moment at

1 least I am finished with cross-examination of Sections 1, 2  
2 and 3 of the LILCO testimony.

3 Mr. Case will be proceeding with the next few  
4 sections. Since we are about at lunch time now, I would  
5 suggest that we are at a good breaking point. I would  
6 suggest that we take our lunch break now unless there is  
7 objection.

8 MR. CHRISTMAN: There is no objection.

9 JUDGE MARGULIES: We will recess until 1:30.

10 (Whereupon, the luncheon recess is taken at 12  
11 o'clock p.m., to reconvene at 1:33 p.m., this same day.)  
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1 AFTERNOON SESSION

2 (1:33 p.m.)

3 Whereupon,

4 DOUGLAS M. CROCKER

5 DALE E. DONALDSON

6 DIANE P. DREIKORN

7 ROGER E. LINNEMANN

8 MICHAEL K. LINDELL

9 DENNIS S. MILETI

10 and

11 RICHARD J. WATTS

12 having been previously duly sworn by Judge Margulies, were  
13 further examined and testified as follows:

14 JUDGE MARGULIES: Back on the record.

15 As a matter of logistics, the matter of binding  
16 in the prefiled testimony as against putting it in as an  
17 exhibit amounts to something like \$10,000 for all the  
18 prefiled testimony that is involved here, that is both  
19 applicant's and intervenor's prefiled testimony.

20 The costs involved do not justify laying it in  
21 and we will treat it rather as an exhibit. So in terms of  
22 applicant's testimony that was laid into the record this  
23 morning, rather than laying it in, we will put it in as  
24 LILCO's Exhibit No. 1.

25 Under those circumstances, all that the parties

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marysimons

1 need furnish the reporter are three copies. So it is a  
2 savings in that area as well.

3 Is there any objection to proceeding in that  
4 manner?

5 MR. McMURRAY: No, sir.

6 MR. CHRISTMAN: No, sir.

7 MR. ZAHNLEUTER: No, sir.

8 You may proceed with cross-examination, Mr.  
9 Case.

10 MR. CASE: Thank you, Judge Margulies.

11 CROSS-EXAMINATION (Resumed)

12 BY MR. CASE:

13 Q Dr. Linnemann, if I could ask you to turn to  
14 page 15 of the testimony.

15 A (Witness Linnemann) Yes, sir.

16 Q In response to question No. 21, you discuss the  
17 number of people who reported after Three Mile Island for  
18 whole body counts and thyroid counts. What is a whole-body  
19 count?

20 A A whole-body count is the measurement of a  
21 radioactivity inside of the body from basically head to toe  
22 or the major part of the torso.

23 Q And how is that done?

24 A That is done with a counter called a whole-body  
25 counter, and in the usual or the ones at least used in those

1 days you have a large detector in a lead shield, and the  
2 detector looks downward and there is a bed on a screw  
3 drive. The patient lies on the bed and it slowly brings him  
4 under this detector which looks at the head, and then his  
5 chest moves under, the abdomen and the legs. And as it's  
6 doing that it measures not only the type of radiation in the  
7 body, but the amount of each isotope.

8 Q Is that the most accurate method of measuring  
9 the amount of radiation in the body?

10 A Yes, it is.

11 Q Are such whole-body counts routinely done after  
12 industrial accidents, or on-site accidents, do you know?

13 A They are done routinely for many situations in  
14 normal operations at a nuclear power plant or  
15 radiopharmaceutical firms. For people who handle loose  
16 radioactivity, whole-body counts are generally done when  
17 they come to work periodically and then when they leave  
18 work, or leave the employment.

19 Q How long does it take to perform a whole-body  
20 count?

21 A Today about two or three minutes for a scan, and  
22 if you wanted to do an accurate follow-up, it might take  
23 eight minutes.

24 Q When you say accurate follow-up, what are you  
25 referring to?

1           A       Well, if you find anything, what we call an  
2       investigational level, then you use a scan where the body  
3       moves under the detector and get a more accurate  
4       measurement.

5           Q       Now in your testimony in response to Question  
6       No. 21 you specifically talk about thyroid body counts after  
7       the Three Mile Accident; is that correct?

8           A       Right, sir.

9           Q       Is it true that at the time of the accident at  
10      Three Mile Accident that there was no order issued directing  
11      members of the public to report for monitoring for let's say  
12      surface contamination?

13          A       Not that I know of. Do you mean immediately  
14      following the accident or during the time of the releases?

15          Q       During the time of the releases was there any  
16      order directing members of the public to report anywhere for  
17      monitoring or surface contamination?

18          A       I'm not aware of that.

19          Q       Now, Dr. Linnemann, isn't it true that at the  
20      time of the Three Mile Accident there was no order issued  
21      directing members of the public to report for thyroid  
22      counts?

23          A       Not that I am aware of, no. Not until later you  
24      realize.

25          Q       And when you say "later," two weeks later?

1           A       About two weeks later, yes. These were offered  
2 to the public. They were directed to get them.

3           Q       When you say offered to the public, do you  
4 recall the exact message that the offer was made?

5           A       No, I don't. They were made available to the  
6 public and about that many as it turned out of the public  
7 showed up for these counts.

8           Q       In this offer two weeks after the accident, do  
9 you know how that offer was disseminated?

10          A       As I recall, it was disseminated in notices in  
11 the local newspapers and I believe on the radio.

12          Q       Were people advised to get whole-body counts?

13          A       No. It was more in terms of it's available to  
14 them. It was made available to them.

15          Q       Now at the time of the accident at TMI was there  
16 any order directing people, members of the public to report  
17 for whole body counts that you are aware of?

18          A       No, not at the time of the accident and even  
19 later. It wasn't a matter of having them report because as  
20 it turned out, and the analysis of the accident there was  
21 reason to believe that any radioactivity released from the  
22 plant would have gotten into the body, but these were  
23 offered to the public at any rate as more of a reassurance,  
24 as I recall.

25          Q       Now, Dr. Miletic, your familiarity with Three

1 Mile Accident, isn't it true that during the accident at  
2 Three Mile Accident there was never any radio announcements  
3 that people should go to a reception center for monitoring?

4 A (Witness Mileti) Not that I recollect.

5 Q Now, Dr. Mileti, isn't it true that during the  
6 accident at Three Mile Island there was never any radio  
7 announcements that members of the public should report  
8 anywhere for monitoring?

9 A Not that I recollect.

10 Q Now there was, Dr. Mileti, wasn't there, during  
11 Three Mile Island an advisory by Governor Thornburg of  
12 Pennsylvania advising that pregnant women and preschool  
13 children within a five-mile radius of the plant should  
14 evacuate?

15 A Yes, that did exist, as well as a lot of other  
16 public information.

17 Q Now within the five-mile radius of the plant  
18 there were only approximately 5,000 preschool children and  
19 500 pregnant women; is that correct?

20 A I don't remember the figure specifically, but it  
21 was about that, as I recall.

22 Q And isn't it true that 144,000 people within 25  
23 miles of the TMI plant actually evacuated? Is that true?

24 A That is one of the estimates that currently  
25 exists, yes.

1 Q Now, Mr. Donaldson, you would agree that people  
2 on Long Island would behave similarly in the event of an  
3 accident at Shoreham to the way people behaved at TMI?

4 A (Witness Donaldson) Under similar  
5 circumstances?

6 Q Would they behave similarly?

7 A In similar circumstances?

8 Q All right, let's start out with similar  
9 circumstances.

10 A Yes.

11 Q Now if we could turn to page 20 of the  
12 testimony.

13 Dr. Mileti, in response to question No. 29 you  
14 refer to tourist activities in Las Vegas during atomic bomb  
15 testing in Nevada. Do you see that testimony?

16 A Yes.

17 Q Now were potential tourists ever told to stay  
18 away from Las Vegas?

19 A I can't say I would know the answer to that  
20 question, but I would guess that they weren't.

21 Q Were potential tourists ever told that if they  
22 went to Las Vegas they would be exposed to radiation?

23 A I don't know the answer to that question, but  
24 again I would guess that they were not told that.

25 Q Were potential tourists ever told that certain

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1 portions of Las Vegas might need to be evacuated?

2 A Again, I don't know. I don't have an answer for  
3 that question, but I would guess not. I do know that some  
4 of the explosions were quite visible to the tourists in Las  
5 Vegas.

6 Q Were people told in Las Vegas that they would  
7 need monitoring, do you know?

8 A I would bet not.

9 Q Was any part of Las Vegas ever ordered evacuated  
10 as a result of the bomb tests?

11 A I don't know, but I would guess not.

12 Q Were people in any part of Las Vegas every  
13 ordered to report for monitoring as a result of bomb tests?

14 A My answer would be the same.

15 Q In fact, Las Vegas has attractions that are  
16 found nowhere else in the United States, at least until  
17 recently, including gambling; is that true?

18 A If you're talking about legal gambling ---

19 Q Legal gambling.

20 A --- aside from the new centers I've heard about  
21 here on the East Coast, like Atlantic City, I think that is  
22 probably true, but I can't say I know that for sure.

23 Q Well, isn't it true also that Las Vegas actively  
24 promotes itself throughout the United States as a desirable  
25 spot for tourists to go to?

1           A        I don't know that, but I would bet that that was  
2 true. As I recollect, Howard Hughes had a large investment  
3 in Las Vegas during these tests, and he was actively  
4 involved in promoting tourist behavior there.

5           Q        Now you also referenced in response to question  
6 29 property values in the Three Mile Island area. Property  
7 values are affected by a number of factors, correct?

8           A        As a property owner, I would have to say yes.

9           Q        And among those factors which affect property  
10 values are proximity to effective transportation. Is that  
11 one of the factors?

12          A        I seem to recollect that from an undergraduate  
13 class. But I would have to say I guess that, but I don't  
14 know for sure.

15          Q        Does your testimony on Three Mile Island here  
16 take into account proximity transportation and how it  
17 affects the property values in that locality?

18          A        I believe my testimony is based on empirical  
19 research that was done by the Governor's Office for Policy  
20 Research and then by the Policy Board of Realtors in and  
21 around the Three Mile Island area and some of my own  
22 research, and it would have taken all factors into account.

23          Q        When you say taken factors into account, what do  
24 you mean?

25               MR. CASE: If I could have marked as Suffolk

1 County Exhibit No. 4 the following document that purports to  
2 be on the cover page a large "R" and says "Realtor - Greater  
3 Harrisburg Board of Realtors, Inc."

4 JUDGE MARGULIES: The document will be marked as  
5 Suffolk County Exhibit No. 4 for identification.

6 (The document referred to was  
7 marked as Suffolk County Exhibit  
8 No. 4 for identification.)

9 WITNESS MILETI: In answer to your question ---

10 MR. CASE: I don't think there is a question  
11 pending right now.

12 WITNESS MILETI: I'm sorry, I thought there was.

13 MR. CASE: Well, let's clarify it by doing this  
14 since we have a document in front of us and you can refer to  
15 the document.

16 BY MR. CASE:

17 Q Do you recognize what has been marked for  
18 identification as Suffolk County Exhibit No. 4?

19 A (Witness Mileti) No one gave me a copy, but I  
20 brought along a copy of what I sent you during discovery.

21 (A copy of Suffolk County Exhibit 4 was placed  
22 before Witness Mileti.)

23 Q As far as I know, it's the same document.

24 A It sure looks like it.

25 Q What is Suffolk County Exhibit for

1 Identification No. 4?

2 A This was a report done by the Greater Harrisburg  
3 Board of Realtors, Inc., regarding community impact study on  
4 real estate in the Three Mile Island nuclear accident as  
5 it's titled.

6 Q Now would you show me where in this report  
7 proximity to effective transportation is analyzed as a  
8 factor of property values?

9 A (Witness Dreikorn) Excuse me, could we have a  
10 copy down here?

11 (A copy of the exhibit was placed before Ms.  
12 Dreikorn.)

13 A (Witness Mileti) As I recollect, this was a  
14 comparison of the values and the number of sales of property  
15 and factors like that of houses in and around the Three Mile  
16 Island area, and it was basically a comparison of real  
17 estate activity and values in the zero to five-mile area.

18 Excuse me, let me find the table. It's on page  
19 8, the 0 to 5-mile radius, the 5 to 10-mile radius, 10 to 15-  
20 mile radius and the 15 to 20-mile radius, and it was done  
21 across time.

22 As far as I know, transportation as a variable  
23 didn't change across the time intervals that were being  
24 examined, and therefore comparisons about change regarding  
25 average sales, for example, would have controlled for

1 transportation.

2 Q Do you know if the availability of  
3 transportation changed over that period of time?

4 A I don't have the sense that it did. I can't say  
5 that I've seen detailed transportation reports that it  
6 hasn't.

7 Q Do you see any analysis of it in there?

8 A No, I don't, except to the extent that I just  
9 described the way it would be included.

10 Q One of the factors which affect property values  
11 is the quality of the school system, correct?

12 A I would imagine the quality of the school system  
13 could be a factor that could affect property values, yes.

14 Q And does your testimony take into account how  
15 school system quality affected property values around TMI?

16 A My answer would be the same in the sense that  
17 comparisons were made across time, and I don't think that it  
18 was likely that there would have been appreciable changes in  
19 things like the number of roads that are there or  
20 transportation routes since those things take a long time to  
21 build.

22 Q The question was about school systems.

23 A And the same would be for school systems.

24 Q Do you know what the reputation of the school  
25 systems were around Three Mile Island at the time?

1 A At what time, before or after the accident?

2 Q At any time.

3 A No, I don't know that, but I don't have the  
4 sense that they changed.

5 Q You don't know at any time what the reputation  
6 of the school systems were around Three Mile Island?

7 A No.

8 Q Now one of the factors that affects property  
9 values is the health of the local economy in terms of job  
10 availability; is that correct?

11 A I could speak with firsthand experience with  
12 that living in Denver. Absolutely, yes.

13 Q Does this analysis take into account the health  
14 of the local economy at Three Mile Island? Do you see any  
15 analysis of that in your Suffolk County Exhibit No. 4?

16 MR. CHRISTMAN: That was a compound question and  
17 I object. We should have one question at a time.

18 MR. CASE: I'll rephrase the question, Judge.

19 BY MR. CASE:

20 Q In Suffolk County Exhibit No. 4 for  
21 identification is there any analysis of the local economy  
22 around Three Mile Island?

23 A (Witness Miletic) Only to the extent that it  
24 would have been included in the same way that all those  
25 other factors would have been included.

1 Q My question is is there any analysis of the  
2 local economy around Three Mile Island in Suffolk County  
3 Exhibit No. 4?

4 A No. It was focused on real estate values.

5 Q Now, Dr. Miletic, also on page 20 you reference a  
6 fire and a small release of radiation in Sydney, Australia  
7 on March 18th. Do you see that portion of your testimony?

8 A Yes, I see it.

9 Q Do you know whether any members of the public  
10 were ordered to evacuate in the Australian accident?

11 A I don't believe that they were, and my  
12 conversations with a colleague who is head of the Disaster  
13 Research Center at Caulfield Technological Institute, his  
14 account of it was that they were not.

15 Q My question was do you know whether any members  
16 of the public were ordered to evacuate?

17 MR. CHRISTMAN: I object to interrupting the  
18 witness' answer. He had finished it yet.

19 BY MR. CASE:

20 Q The question was a very specific and pointed  
21 out, and the answer was unresponsive.

22 The question was do you know whether any members  
23 of the public were ordered to evacuate?

24 MR. CHRISTMAN: It was unresponsive because you  
25 cut off the last part of his answer and I would like the

1 witness to be allowed to finish his answer.

2 JUDGE MARGULIES: Let's start over again.

3 You've heard the question. Now would you  
4 proceed to answer it.

5 WITNESS MILETI: The answer is no, and the basis  
6 for my knowledge was a conversation with a colleague I know  
7 who is the Director of the Disaster Research Center at the  
8 Caulfield Institute of Technology.

9 BY MR. CASE:

10 Q Do you know if members of the public were  
11 ordered to report for monitoring in the Australian accident?

12 A No, they were not.

13 Q Now, Mr. Crocker, would you turn to page 21 and  
14 your testimony there at the top of the page concerning  
15 population and property value decline around the 10-mile  
16 EPZ? Do you see that testimony?

17 A (Witness Crocker) Yes, sir, I do.

18 Q And what is the basis for the testimony on  
19 property value decline?

20 A The basis, is that the question?

21 Q Yes.

22 A There were two bases for the statement. The  
23 first one was a question that we directed to the LILCO Real  
24 Estate Department, and they in turn took an informal poll of  
25 various appraisers familiar with the Shoreham EPZ area. The

1 information that they gathered and was related to me  
2 verbally was that quite to the contrary, prices have been  
3 going up as much as they have all over Long Island. The  
4 experience of my staff out at Shoreham confirms that. They  
5 are having a hard time finding a house they can afford.

6 The second basis for this was a subsequent study we  
7 commissioned and I believe was turned over to you a short  
8 time ago when we got it, and that was a study that compared  
9 recent changes in property values for the Wading River  
10 School District and the Rocky Point School District, both of  
11 which are close to Shoreham, and it compared it to the rest  
12 of the Town of Brookhaven which includes part of the EPZ and  
13 extends well away from the EPZ.

14 So that was the basis for the position on  
15 property values.

16 MR. CASE: If I could have marked as Suffolk  
17 County Exhibit No. 5 for identification a document with the  
18 first page indicating a "Summary of Real Estate Study  
19 Comparing Price Changes in Shoreham Vicinity Versus the Town  
20 of Brookhaven.

21 JUDGE MARGULIES: It will be so marked for  
22 identification.

23 (The document referred to was  
24 marked Suffolk County Exhibit  
25 No. 5 for identification.)

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BY MR. CASE:

Q Do you recognize what has been marked as Suffolk County Exhibit No. 5 for identification, Mr. Crocker?

A (Witness Crocker) Yes. It appears to be the second report I referenced.

Q Did you have any role in preparing this document?

A No, I didn't.

Q Do you know what the source of data is for this document?

A At the bottom level is a data base that is operated by the company preparing the report, in this case the Albert Appraisal Company?

Q Do you know what is included within that data base?

A Generally it includes sales and property values for any given area of interest.

Q Do you know if it includes seller finance sales?

A I don't know the answer to that one.

Q Do you know where the data base is derived from?

A It's a data base that the company maintains. I don't know where they get it from.

Q Do you know if they obtain it from tax records?

A Perhaps they do.

Q You don't know.

1 A I just don't know.

2 Q Do you know this data base includes all sales  
3 made in a given geographic district?

4 A That's the intent. They believe it does.

5 Q Do you know?

6 A I've made no comparison of sales records versus  
7 this report myself, no.

8 Q Well, if you would explain a bit of this  
9 document to you. On the third page of the document mid-way  
10 down it says annual and cumulative change and there appears  
11 to be a handwritten chart that says 1983, and as you move  
12 across from left to right, minus 11.32, minus 8.57 and minus  
13 11.32. What do those numbers refer to?

14 A Okay. Let me give you a little background on  
15 this company as a necessary preface so you understand what  
16 this means.

17 This is a firm that has for the most part been  
18 doing studies and comparing the assessed values of  
19 properties to their sales values.

20 Now their typical focus of interest is they  
21 prepare these report for cases contesting the assessed value  
22 of property. If an industry feels that it has been assessed  
23 unfairly relative to the base in the community, they will  
24 ask this type of company to prepare an evaluation of how do  
25 the assessments historically compare.

1                   Consequently, these numbers are ratios for a  
2 given area, for example, in the Rocky Point School District  
3 it's the ratio that describes that area, and on this page  
4 it's the ratio of the assessed values to the sale price as  
5 the change you see. So these would be percentages.

6                   For example, if you look in the first column, if  
7 you can follow with me, and look at the row in 1983, that  
8 would be a decrease in the ratio of assessment over sales  
9 price of 11 percent.

10                   So what it is telling you is as the sale price  
11 has gone up, the denominator of the fraction has gone up.

12                   Q       I see.

13                   A       Then you see the values would change as you go  
14 down through time.

15                   Q       Now you would also agree, I assume, with me that  
16 there are a number of factors that affect property values;  
17 is that correct?

18                   A       Undoubtedly.

19                   Q       Among those factors would be, for example, the  
20 reputation of school systems; is that correct?

21                   A       Yes.

22                   Q       Is there an analysis of how the reputation of  
23 school systems affects property values in these localities  
24 within this document, Shoreham Exhibit No. 5 for  
25 identification?

1           A       No. The only that was studied was the cost of  
2 housing and assessments.

3           Q       Among the factors which affect property values  
4 is the health of the local economy; is that correct?

5           A       I would assume so, yes.

6           Q       Is there any analysis in Suffolk County Exhibit  
7 No. 5 concerning the health of the local economy and how  
8 that affected these property values?

9           A       No, there is not.

10          Q       Another factor which affects property values is  
11 the availability of government services; is that correct?

12          A       I would assume so, yes.

13          Q       Is there any analysis of how the availability of  
14 government services affects property values in Suffolk  
15 County Exhibit No. 5?

16          A       No, there is not.

17          Q       Does the location near jobs -- let me back up on  
18 that question.

19                   The location of a piece of property near jobs or  
20 a community near jobs affect property values; is that  
21 correct?

22          A       Are you referring perhaps to commuting times or  
23 something like that?

24          Q       Yes.

25          A       Certainly it's a consideration.

1 Q Is there any analysis in Suffolk County Exhibit  
2 No. 5, to use your word, how commuting time affects property  
3 values?

4 A No, there is not.

5 Q Have you ever worked as a realtor?

6 A Fortunately, no.

7 Q Do you have any training as a realtor or in real  
8 estate?

9 A No, sir.

10 Q Have you ever published any papers analyzing the  
11 factors which influence property values?

12 A No, sir.

13 Q Have you ever led any seminars or discussions on  
14 what factors influence property values?

15 A No.

16 Q Mr. Watts, also on page 21, you discuss an  
17 accident at "Ginna," is that correct?

18 A (Witness Watts) Ginna.

19 Q At Ginna was there any order given to the public  
20 to report for monitoring?

21 A No, there was not.

22 Q At Ginna was there any order for the public to  
23 report to reception centers?

24 A No, there was not.

25 Q Was the emergency at Ginna an onsite emergency?

1           A       It was an onsite emergency. However, there was  
2 a release of radioactivity into the atmosphere which  
3 traveled offsite.

4           Q       But there was no directive to the public to  
5 report for monitoring; is that correct?

6           A       I believe I answered that before.

7           Q       Dr. Linnemann, on page 21 you discuss four  
8 nuclear bombs that were accidentally lost over Palomares  
9 Spain.

10          A       (Witness Linnemann) Yes, sir.

11          Q       Was anyone ordered to evacuate at Palomares in  
12 response to the loss?

13          A       No.

14          Q       Was anyone at Palomares told to report for  
15 monitoring?

16          A       Yes.

17          Q       Who was told to report for monitoring?

18          A       The citizens of the Village of Palomares.

19          Q       How many citizens were there?

20          A       Approximately 2,000.

21          Q       Now this incident was prior to Three Mile  
22 Island; is that correct?

23          A       It was January 1966.

24          Q       So is that prior to Three Mile Island?

25          A       Oh, yes, 13 years. Three Mile Island was 1979.

1 Q And this incident at Palomares was prior to the  
2 accident at Chernobyl; is that correct?

3 A Oh, yes.

4 Q Now you indicate in the last sentence there that  
5 you saw no evidence of Spanish residents fleeing the area;  
6 is that correct?

7 A That's right.

8 Q But as you testified just a moment ago, there  
9 was no order to evacuate; is that correct?

10 A That's right.

11 Q You also refer there to U.S. personnel not  
12 fleeing the area. Are you referring here to U. S. soldiers  
13 and airmen?

14 A That's right.

15 Q Aren't there penalties for soldiers and airmen  
16 who flee their stations or assigned duties?

17 A I would assume that some punishment would be in  
18 order.

19 Q You were an officer in the United States Army,  
20 weren't you?

21 A That's right.

22 Q Isn't it a fact that desertion is subject to  
23 court-martial?

24 A I believe during wartime not doing your duty  
25 would be something less than that serious an offense.

1 Q But you would be subject to some punishment if  
2 you did?

3 A I would assume so.

4 Q Now if you will turn, Dr. Mileti, to page 22 of  
5 your testimony, Question No. 31.

6 A (Witness Mileti) Yes, I'm there.

7 Q Now as I understand this testimony in the first  
8 paragraph here, some people at Kiev left Kiev even though  
9 they were advised not to evacuate; is that correct?

10 A Yes, that is correct.

11 Q And it is also your testimony there that people  
12 acted in Kiev, to the best information you have, based on  
13 their perception of risk; is that correct?

14 A People in all emergencies act on the basis of  
15 their perceptions.

16 Q And the people at Kiev are no different in your  
17 estimation than anyone else in terms of acting on their  
18 perceptions first?

19 A Without firsthand knowledge, I would have to  
20 hypothesize that that would hold.

21 Q Now, Dr. Linnemann, on page 22, question No. 30,  
22 there is testimony there concerning your meeting in Vienna  
23 with the USSR State Committee on Atomic Energy.

24 Do you see that testimony?

25 A (Witness Linnemann) Yes, sir.

1 Q And, to your knowledge, Dr. Linnemann, in the  
2 Soviet Union are there government restrictions on internal  
3 travel?

4 A (Witness Linnemann) I wouldn't know that.

5 Q Dr. Miletì, do you know if in the Soviet Union  
6 there are government restrictions on internal travel?

7 A (Witness Miletì) I don't know.

8 Q Dr. Linnemann, you would agree with me, wouldn't  
9 you, that the Soviet's society is certainly not as mobile as  
10 that in the United States?

11 A (Witness Linnemann) Not necessarily.

12 Q Well, let's break it down a little, then. Is  
13 the transportation system, in terms of roads, as well  
14 developed in the Soviet Union as the United States?

15 A I don't know. I've never been to the Soviet  
16 Union so I couldn't tell.

17 Q Do you know what percentage of Soviet citizens  
18 own cars as opposed to the percentage of the United States'  
19 citizens that own cars?

20 A I have no idea.

21 Q Dr. Miletì, do you know if the road system  
22 within the Soviet Union is as well developed as it is within  
23 the United States?

24 A (Witness Miletì) I have no idea.

25 Q Do you know the percentage of Soviet citizens

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1 who own cars?

2 A I don't know, but I would guess that they are  
3 more inclined to own cows than cars. But, that's just a  
4 guess. I have no basis for that.

5 Q Dr. Linnemann, is Chernobyl within the Ukraine?

6 A (Witness Linnemann) Yes, it is.

7 Q Are you familiar with the force collectivisation  
8 in the Ukraine after the Soviet system was initially  
9 established?

10 A I'm familiar that collective -- what did you  
11 say?

12 Q Collectivisation.

13 A Collectivisation occurs in the Soviet Union in  
14 the Ukraine, but it would be my impression that it's not  
15 total. There are some private farmers.

16 Q Do you know what sort of coercion was applied to  
17 get Ukrainian farmers to leave their private land and join  
18 collectives?

19 A To join collectives?

20 Q Yes.

21 A Oh, no, I wouldn't. I just know -- I thought  
22 you were referring to, they had a difficult time getting  
23 them to leave this area of contamination.

24 Q Well, I'm talking about, let's say, the early  
25 stages of the Soviet system. Are you familiar with the  
coercion that was used to force Soviet -- excuse me,

1 Ukrainian peasants and farmers to leave their land and join  
2 collectives?

3 JUDGE MARGULIES: Mr. Case, how is this relevant  
4 to the issues before us?

5 MR. CASE: I think, Your Honor, it's clearly  
6 relevant. This is a totally different society here that we  
7 are talking about, and there is a historical bases in the  
8 Ukraine. It's a different culture and the ties to the land  
9 are so intense that, in fact, over time it would surprise me  
10 also if anyone left the land in an evacuation.

11 JUDGE MARGULIES: Well, accepting as true where  
12 your questions are going, that brings us up to 1940.

13 MR. CASE: All right.

14 JUDGE MARGULIES: And, it has been a long time  
15 since 1940.

16 (Laughter.)

17 MR. CASE: All right. Well, the point is well  
18 taken, Judge Margulies. Thank you.

19 WITNESS LINNEMANN: I think if I might just add  
20 a point there, I think it was -- at least from the  
21 discussion with the Russians impressive that the citizens  
22 followed their directions after this accident and were quite  
23 orderly. It was quite impressive.

24 BY MR. CASE: (Continuing)

25 Q In other words, citizens evacuated after the

1 accident?

2 A (Witness Linnemann) When they were told to  
3 shelter first and they sheltered; and, then they were told  
4 to evacuate and it seemed as their presentation as a very  
5 orderly process.

6 Q So, how did this last sentence relate to what  
7 you just described, your sentence in Question Number 30, "In  
8 fact, he explained that they had a problem persuading some  
9 people to leave...?"

10 A That's -- well, there are two different types of  
11 population. One was the population in the larger cities  
12 such as Pripyat, a large city of 45,000, and probably I  
13 guess you would say a little more educated or as workers in  
14 these plants. And, what I was referring to here and they  
15 were referring to were individual farmers who had their  
16 small farms. They just didn't want to leave their farms.

17 Those were the ones they had a difficult time  
18 persuading to leave.

19 Q So, in other words, the people in a more  
20 urbanized area followed the evacuation?

21 A Seemed to, right. Seemed to be more responsive  
22 to understanding the situation.

23 Q Now, Dr. Lindell, when -- during an emergency  
24 people respond to physical cues . Is that your experience  
25 as a -- in your profession?

1           A       (Witness Lindell) Yes, that's very often the  
2 case.

3           Q       In other words, they analyze physical cues in  
4 assessing a situation during an emergency?

5           A       Frequently, but that's not the only source of  
6 warning confirmation.

7           Q       But, that is one source of warning confirmation  
8 in emergencies is the analysis of physical cues ?

9           A       That's correct.

10          Q       Okay. And, physical cues , just so we are clear  
11 on the term, include as an example, if you look out the  
12 window and see the winds as a hurricane approaches and the  
13 strength of the winds; is that a physical cue?

14          A       That would be a physical cue, yes.

15          Q       Similarly, in a flood those physical cues , you  
16 can observe the water level at some point in time. Is that  
17 a physical cue also?

18          A       It may not be perfectly reliable, but that is a  
19 type of physical cue.

20          Q       Now, in a nuclear emergency radiation is  
21 colorless; is that correct?

22          A       To the best of my knowledge, yes.

23          Q       All right. And, radiation is also odorless; is  
24 that correct?

25          A       That's also true.

1 Q Okay. And, radiation does not provide a  
2 physical cues; is that correct?

3 A No, but an accident would.

4 Q You say an accident would. What do you mean?

5 A Well, the radiation or more properly speaking,  
6 radioactive materials are carried by the wind and so the  
7 wind direction and wind speed would be a physical cue in a  
8 radiological emergency, the same as it would be in most  
9 other kinds of toxic chemical emergencies.

10 Q Well, as a citizen, in the event of an accident  
11 I can't make a determination myself simply by observing my  
12 body or area outside my house whether radiation has reached  
13 me just on the basis of that information; is that correct?

14 A Well, I'm not really an expert, complete expert,  
15 in that area. I've been told that there are, for example,  
16 certain kinds of -- I guess there is a certain kind of  
17 flower, a spider wart, that is sensitive to radiation and  
18 that it can be told by camera film whether you have been in  
19 a radiation exposed area. So, I guess I'm having a little  
20 bit of difficulty responding to your question.

21 Q I guess, assuming I don't plant my garden with  
22 flower warts or --

23 A Spider warts.

24 Q -- spider warts or similar flowers --

25 A I think it's a great idea.

1 Q -- can I observe with my own two eyes, with my  
2 sense of smell or any other physical senses whether I've  
3 been exposed to radiation?

4 A No. If the wind is blowing in your direction,  
5 you wouldn't be able to tell whether there is radioactive  
6 material in it.

7 Q Now, the reception centers, Bellmore, Hicksville  
8 and Roslyn, Doctor Lindell, have you visited those reception  
9 centers?

10 A Yes, I have.

11 Q Okay. And, when they are not in use during an  
12 emergency as reception centers they are used for the  
13 ordinary purposes that they were designed for --

14 MR. CHRISTMAN: Objection. Asked and answered  
15 this morning.

16 MR. CASE: It was asked of Dr. Crocker what they  
17 were used for, and that's not my question to Dr. Lindell.

18 MR. CHRISTMAN: It sounded like the same  
19 question to me.

20 JUDGE MARGULIES: I will permit the question as  
21 an introductory question.

22 MR. CASE: Thank you, Judge.

23 BY MR. CASE: (Continuing)

24 Q When they are not being used as an emergency,  
25 reception centers have other functions for LILCO; is that

1 correct?

2 A (Witness Lindell) I can only surmise that they  
3 have them there for some other reason. They have lots of  
4 other equipment and buildings, and it would -- I can't  
5 conceive of any reason for having them there other than some  
6 normal daily function.

7 Q Okay. You don't -- other than what Mr. Crocker  
8 told the Court this morning -- know what their normal daily  
9 function is?

10 A Other than what I saw when I was there, which  
11 was the material that was in place in the yards, the  
12 buildings. That's the extent of my knowledge about what  
13 kinds of activities take place in those facilities.

14 Q Now, is it your understanding that in the event  
15 of an emergency which would cause the activation of  
16 reception centers, they would be used as sites for monitoring,  
17 Dr. Lindell?

18 A Yes. I think that's what the emergency plan  
19 calls for.

20 Q Do you know if that monitoring would be  
21 conducted by workers in protective clothing?

22 A On the day that I observed a training session,  
23 the radiation monitors did don protective clothing.

24 Q Ms. Dreikorn, maybe you can help us out on  
25 this. Does monitoring occur -- when it occurs, do the

1 monitors wear special clothing?

2 A (Witness Dreikorn) When you are discussing  
3 special clothing, what exactly are you referring to, please?

4 Q Do they wear some sort of protective clothing?

5 A There are several articles of protective  
6 clothing that could be donned when you are exposed to an  
7 environment containing radioactive material. So, I'm  
8 interested in what specific articles of protective clothing  
9 you are referring to.

10 Q Well, I'm interested in what the plan calls  
11 for. What does the plan call for in terms of specific  
12 articles of clothing?

13 A Initially, the workers would be donning  
14 protective clothing consisting of gloves and booties. In  
15 addition, they may be requested at some time when it has  
16 been determined that there is truly a particulate release  
17 that it is necessary to don additional protective clothing,  
18 and at that point they would be instructed to dress in  
19 protective clothing consisting of the white coveralls.

20 And, that would be something that would be told  
21 to them by their decontamination leaders.

22 Q So, in the event of a particulate release the  
23 monitors would don protective clothing consisting of white  
24 coveralls in addition to their gloves and booties?

25 A That's correct.

1 Q And, monitoring is done, Ms. Dreikorn, in the  
2 event the reception centers had to be activated with  
3 specialized equipment; is that correct?

4 A Yes, that's correct.

5 Q Now, Ms. Dreikorn, you are familiar with each of  
6 the reception centers; is that correct?

7 A Very well.

8 MR. CASE: Judge, if we could have just a moment  
9 to set up a stand.

10 JUDGE MARGULIES: It might be helpful if you  
11 could set that up further back, because you are not letting  
12 all counsel see it.

13 JUDGE SHON: In the past, we've used the area  
14 between the witness table and the Intervenor's counsel  
15 table. It works pretty well. Then, everyone can see it.

16 (An easel is being set up.)

17 MR. CASE: Judge Margulies, we are handing out  
18 copies of this photograph which I would request be marked  
19 Suffolk County Exhibit Number 6.

20 MR. CHRISTMAN: I want to object to even marking  
21 it until I know what this document is and whether we've had  
22 notice of, whether we've had a chance to examine it and that  
23 sort of thing.

24 I assume the County is going to say what these  
25 pictures are and whether they were served on the parties in

1 advance.

2 MR. CASE: Judge, I will represent to you and  
3 subject to verification by Mr. Christman that these are  
4 copies taken from the direct testimony of David G. Hartgen  
5 and Robert Millspaugh submitted on April 13th, 1987.

6 In fact, you can see in the copy that is handed  
7 to counsel and the Court, it's marked Exhibit 6, Hicksville  
8 Area B in the upper right-hand corner. And, in fact, this  
9 is Exhibit 6 from that direct testimony.

10 MR. CHRISTMAN: That's what I thought they are.  
11 And, if that's the case, if it's those color pictures that  
12 were served with the State's testimony we don't object to  
13 them being marked.

14 JUDGE MARGULIES: It purports to show Hicksville  
15 Area B; is that correct?

16 MR. CASE: That's correct, Your Honor. And, we  
17 can ask Ms. Dreikorn about specifics.

18 WITNESS DREIKORN: I'm having a very difficult  
19 time visualizing from the exhibits I've been given and also  
20 from your photograph. I'm just trying to get my bearing.

21 JUDGE MARGULIES: The document will be marked  
22 Exhibit Number 6 for identification.

23 Let the record reflect that there is an  
24 enlargement of the exhibit posted on a board that has been  
25 made available for all of the parties to see.

1 (The photograph referred to is  
2 marked as Suffolk County Exhibit  
3 Number 6 for identification.)

4 BY MR. CASE: (Continuing)

5 Q Ms. Dreikorn, it might help you, this is taken  
6 from New South Road basically west.

7 A (Witness Dreikorn) Okay. Fine.

8 Q Okay. Does it look familiar now?

9 A Yes, it does.

10 Q Okay. Is this, in fact, generally the  
11 Hicksville reception center, focusing specifically on Area  
12 B?

13 A Yes. It is a portion of the Hicksville  
14 reception center known as Area B in our plan.

15 Q And, in the upper left-hand corner, is that some  
16 commercial buildings that surround Hicksville or near, how  
17 about that?

18 A I would like to take a closer look.

19 Q Sure.

20 (The witness is looking at the photograph.)

21 A Okay.

22 Q Are those commercial buildings that are near the  
23 Hicksville reception center in the upper left-hand corner?

24 A Are they commercial buildings?

25 Q Yes.

1           A        They are buildings for some of the -- are you  
2 referring to these buildings here?

3           Q        No. I'm sorry. I'm talking about buildings not  
4 on the facility itself but on the upper portion of the  
5 photograph?

6           MR. CHRISTMAN: I would like to object unless  
7 counsel is going to describe for the record what part he is  
8 talking about. I don't think this is going to be  
9 intelligible in the written record unless we do a more  
10 careful job of specifying about what we are talking.

11           MR. CASE: All right. I will attempt to make a  
12 more careful specification.

13           BY MR. CASE: (Continuing)

14           Q        You will notice on the upper left there are  
15 white buildings, they appear to be one or two-story  
16 buildings, and behind those white buildings other  
17 buildings. Do you see those?

18           A        (Witness Dreikorn) Yes, I do.

19           Q        And, are those commercial buildings that are  
20 near the Hicksville reception center?

21           A        Yes. I believe those buildings are off the  
22 Hicksville property line.

23           Q        Okay. Maybe we can make this clearer by looking  
24 at another photograph of the Hicksville reception center.

25                    (A photograph is being distributed.)

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1 MR. CHRISTMAN: I take it this is also one of  
2 those photographs that were served with the State's  
3 testimony.

4 MR. CASE: Yes.

5 JUDGE MARGULIES: Do you wish to have that  
6 marked, counsel?

7 MR. CASE: Judge Margulies, yes. I would  
8 request that this next photograph be marked as Exhibit 7 for  
9 identification, Suffolk County Exhibit 7 for identification.

10 It bears the heading, "Hicksville Area A." And,  
11 it also has Exhibit 5 on it which is the exhibit number from  
12 the direct testimony of David Kartgen and Robert Millspaugh.

13 JUDGE MARGULIES: It will be so marked.

14 (The photograph referred to is  
15 marked as Suffolk County Exhibit  
16 Number 7 for identification.)

17 BY MR. CASE: (Continuing)

18 Q Ms. Dreikorn, do you recognize Exhibit 7?

19 A (Witness Dreikorn) Yes, I do.

20 Q And, is that another photograph of the  
21 Hicksville reception center?

22 A It's another photograph of a portion of the  
23 Hicksville reception center.

24 Q In the lower one-third of that photograph, there  
25 appear to be houses, residential dwellings in the

1 photograph. They have white roofs. Most of them appear to  
2 be painted white.

3 Do you recognize those?

4 A Would you indicate specifically where you are  
5 referencing?

6 Q Yes. The lower third of the photograph. Is  
7 that a residential area next to the Hicksville reception  
8 center?

9 A Yes. There appear to be some homes there.  
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1 Q Do you know what the density is of the  
2 residential area?

3 A (Witness Dreikorn) Not offhand, no.

4 Q Have there been any studies done of the density  
5 of that residential area?

6 A Not that I am aware of.

7 Q I would like to have the next exhibit marked --  
8 JUDGE MARCULIES: Before we move on, is there  
9 any inter-relationship between what is pictured on Exhibit  
10 No. 7 for identification, as contrasted to Exhibit No. 6 for  
11 identification? Are they two separate areas, not connected.

12 BY MR. CASE: (Continuing)

13 Q What is referred to as Exhibit 8, Area A?

14 A (Witness Dreikorn) Area A is an area where we  
15 will be doing initial monitoring at the Hicksville Reception  
16 Center, and I will show that to you on the diagram now.

17 This area in here (Pointing). And this area  
18 here (Pointing), will be utilized for monitoring  
19 individuals.

20 Q The record should reflect, and correct me if I  
21 am wrong, you pointed to an area -- parking lot area and the  
22 grassy area in front of that parking lot directly in the  
23 center of this photograph?

24 A If I pointed to a grassy area, I didn't intend  
25 to. What I am pointing to is the parking areas where there

1 is ample space between the cars, for additional cars to  
2 travel through and be monitored, as well as the people in  
3 those vehicles.

4 Q So, Area A is limited to the parking lots there  
5 in the center of the photograph, is that correct?

6 A That is correct.

7 JUDGE MARGULIES: My question was, is there any  
8 inter-relationship between Exhibit No. 6 for identification?

9 MR. CASE: Judge, Exhibit No. 6, if we can put  
10 that back up there for a moment.

11 (Exhibit No. 6 attached to easel.)

12 BY MR. CASE: (Continuing)

13 Q Now, if we can look at this photograph, what has  
14 been marked as Exhibit No. 6 for identification, would you  
15 point out where Area A is on that photograph for the Judge?

16 A (Witness Dreikorn) You would like me to point  
17 out Area A on this photograph?

18 Q Yes. First.

19 A Okay. Area A is quite in the distance from the  
20 perspective that this photograph has been taken, but I will  
21 attempt to show you Area A.

22 Area A would be the area up here (Pointing), in  
23 the upper right hand corner.

24 Q Would you show us where what is referred to as  
25 Area B of the plan is?

1           A       Area B is a lot clearer, although not very well  
2 visible. It is this area here (Pointing.) Where monitoring  
3 will also be taking place of people as they arrive in their  
4 vehicles.

5                   JUDGE MARGULIES: Am I correct that the  
6 residential area would be off that picture? We don't see  
7 it?

8                   WITNESS DREIKORN: That is correct, Judge. The  
9 residential area is off that picture.

10                  JUDGE MARGULIES: And as we heard before, the  
11 commercial buildings, or what was indicated as commercial  
12 buildings, would be to the left on that picture?

13                  WITNESS DREIKORN: The commercial building are  
14 located up here, the white buildings, and they are well  
15 beyond the railroad tracks that are beyond the LILCO  
16 property line.

17                  BY MR. CASE: (Continuing)

18                  Q       Do you know if there is a residential  
19 development that would be in the lower -- below the lower  
20 portion of this exhibit?

21                  MR. CHRISTMAN: I am going to object to that  
22 question, which is a continuation of earlier question,  
23 absent any showing of relevance. I don't think that any  
24 relevance has been shown for this whole line of questions,  
25 or for these pictures, compared to the admitted issues in

1 this case, that is.

2 MR. CASE: Judge, one of the issues that is  
3 thoroughly developed in this case, and has been developed  
4 both in the direct testimony of Suffolk County and the  
5 testimony of LILCO, is what is referred to as evacuation  
6 around the reception centers, because they are local land  
7 uses, and this testimony goes directly to that.

8 The fact that there are residential areas around  
9 reception centers as well as commercial developments, and it  
10 bears directly on whether there is going to be an evacuation  
11 surrounding reception centers.

12 MR. CHRISTMAN: I withdraw the objection to that  
13 question.

14 BY MR. CASE: (Continuing)

15 Q Do you recall the question?

16 A (Witness Dreikorn) Could you please repeat your  
17 question?

18 Q All right. Is there a residential development,  
19 to your knowledge, any residential development, that is not  
20 pictured on this photograph that would be right below this  
21 grassy area at the bottom of the photo?

22 A Yes. To the best of my knowledge there are  
23 residences in the lower portion of the photograph that you  
24 are showing me here.

25 I would also like to point out that this is not

1 unusual or unique approach of reception center planning.

2 Q Judge, I would have to object.

3 MR. CHRISTMAN: I would like for counsel not to  
4 interrupt the witness.

5 BY MR. CASE: (Continuing)

6 Q The question was: Were there residential  
7 developments, not whether it was unique or unusual for this  
8 plan.

9 JUDGE MARGULIES: I think it is quite clear  
10 where the answer was going, and it wasn't non-responsive,  
11 and you may want to come back to that, Mr. Christman, and go  
12 into it on redirect.

13 MR. CASE: Judge Margulies, I would like to have  
14 marked as Suffolk County Exhibit 8 for identification, the  
15 photograph, copy of which counsel and Board received, with  
16 the heading: Roslyn Reception Center. It is indicated as  
17 Exhibit 3, and it is from the direct testimony of David  
18 Hartgen and Robert Millsbaugh.

19 JUDGE MARGULIES: It will be marked as Exhibit  
20 No. 8, for identification.

21 (The above referenced document is  
22 marked Suffolk County Exhibit No. 8  
23 for identification.)

24 BY MR. CASE: (Continuing)

25 Q Mrs. Dreikorn, do you recognize Exhibit No. 8

1 for identification?

2 A (Witness Dreikorn) Yes, I do recognize this  
3 photograph.

4 Q And is this photograph -- well, what is this a  
5 photograph of?

6 A What I would really like to see is a drawing of  
7 the plan for the Roslyn facility so I could compare it, if  
8 this is, in fact, Roslyn, it would in fact help me if I had  
9 a reference of our plan diagram.

10 Q Do you know if this is the Roslyn facility?

11 A It appears to be Roslyn, although all the Roslyn  
12 LILCO buildings are not in this photograph.

13 Q Taking that as a given, does this appear to be a  
14 photograph of at least a portion of the Roslyn facility?

15 A As I said, it appears to be Roslyn, although not  
16 all the LILCO Roslyn buildings are in the photograph.

17 Q Are there residential developments, or housing  
18 surrounding the Roslyn facility?

19 A Yes, I think it is clear on the photograph that  
20 there are some houses beyond the facility boundary lines.

21 Q Do you know what the density of the housing is  
22 around the Roslyn facility?

23 A No, I do not.

24 Q Do you know if any studies have been made of the  
25 density of the housing around the Roslyn facility?

1           A           I am not aware of any studies on that.

2                   MR. CASE: I ask that the following picture be  
3 marked as Suffolk County Exhibit No. 9 for identification.  
4 The copy the Board and counsel have received is with the  
5 heading: Bellmore Reception Center, Exhibit 4, and it  
6 refers to Exhibit number of David Hartgen and Robert  
7 Millspaugh.

8                   JUDGE MARGULIES: It will be marked as Suffolk  
9 County Exhibit 9 for identification.

10                               (Above referenced document is  
11                               marked Suffolk County Exhibit 9  
12                               for identification.)

13                   BY MR. CASE: (Continuing)

14           Q           Do you recognize, Mrs. Dreikorn, what has been  
15 marked as Exhibit 9 for identification?

16           A           (Witness Dreikorn) Yes. This appears to be the  
17 LILCO Bellmore facility.

18           Q           And are there housing developments around the  
19 Bellmore facility?

20           A           Again, I think it is clear from your photograph  
21 that there are houses that are in the furthestmost portion of  
22 the photograph, and they are well off the LILCO boundary.

23           Q           Do you know what the density is of the housing  
24 around the Bellmore facility?

25           A           No, I do not.

1 Q Do you know if any studies have been done of the  
2 density of the housing around the Bellmore facility?

3 A NO, I do not know of any studies.

4 JUDGE MARGULIES: Is that the entire Bellmore  
5 facility?

6 WITNESS DREIKORN: Actually, Judge, no, it is  
7 not the entire Bellmore facility. There is a portion that  
8 is cut off from the photograph that is the western most  
9 portion of the facility.

10 It is an additional parking lot area, and also  
11 there is an area of field also to the west that has been cut  
12 off.

13 BY MR. CASE: (Continuing)

14 Q How much of the area has been cut off, do you  
15 know?

16 A I would have to approximate that maybe eight to  
17 ten percent has been cut off.

18 Q And that is primarily paved parking lot area  
19 that has been cut off?

20 A It is a parking lot area, and also a portion of  
21 field.

22 Q I don't have any further questions about this.  
23 Dr. Miletì, if you would turn to Page 25 of the testimony.

24 A (Witness Miletì) Yes, I am there.

25 Q If you will look at the second paragraph, second

1 sentence. It indicates there the main relocation center at  
2 Three Mile Island was approximately ten miles from the  
3 reactor.

4 Do you see that portion of your testimony?

5 A Yes, I see that.

6 Q Was the relocation -- let's backup on that  
7 question. Were people at Three Mile Island ordered to  
8 report to relocation center for monitoring at Three Mile  
9 Island?

10 A No. I think I already said that no one was  
11 advised to get monitored during Three Mile Island as I  
12 recollect what occurred.

13 Q At Three Mile Island, the relocation center was  
14 used for sheltering, for people that didn't have anywhere  
15 else to go, is that correct?

16 A As I recollect, it had that capacity, and it  
17 also had other capacities.

18 Q Now, you indicate in the -- I guess it is the  
19 fourth sentence of that paragraph, that such centers are  
20 little used in any evacuation.

21 Do you see that portion?

22 A Yes, I sure do.

23 Q Is there any instance that you are aware of  
24 where relocation centers were used as monitoring centers for  
25 radiological emergencies?

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1           A        To the best of my knowledge, no. Absolutely. I  
2 just know of no event like that.

3           MR. CASE: Judge Margulies, this is a good  
4 stopping point then in this examination. We can take our  
5 mid-afternoon break now. It would be a logical point.

6           JUDGE MARGULIES: Is there any objection?

7           MR. CHRISTMAN: No objection.

8           JUDGE MARGULIES: We will recess until three  
9 o'clock.

10           (Whereupon, afternoon recess was taken at 2:45  
11 p.m., to reconvene at 3:00 p.m., this same day.)

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JUDGE MARGULIES: Back on the record.

The air conditioning in this room can be somewhat uneven. So if counsel want to remove their jackets at any time during the hearing, it is perfectly permissible.

CROSS-EXAMINATION (Resumed)

BY MR. CASE:

Q Dr. Lindell, isn't it true that during an emergency people react on the basis of their perceptions of the risk?

A (Witness Lindell) Yes, that's true, their perceptions of risk based on the information that they have at the time.

Q Now, Dr. Linnemann, isn't it true that delays in monitoring cause psychological anxiety?

A (Witness Linnemann) Not necessarily. I think that also is a function of the information which people receive or their perception of the risk of contamination.

Q Well, is it possible that delays in monitoring, is it possible that they cause anxiety?

A Again, I think it's very much a function of the information they receive, and I think if they receive the proper information, that contamination basically under these circumstances is not a limiting factor in any action they take. It's not the major health problem.

Q Do you recall testifying at a deposition I took

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1 back on March 5th of 1987?

2 A I recall that we did a deposition, yes.

3 Q And do you recall the following question: "In  
4 other words, some delay -- referring to monitoring here --  
5 some delay is conceivably psychologically detrimental,  
6 although it may not be biologically detrimental, causing  
7 anxiety or whatever?"

8 Answer: "I'm certain there would be anxiety in  
9 this, yes."

10 Do you recall that answer?

11 A I recall the answer, but again I think it's  
12 qualified by that it depends on the information they  
13 received about the contamination.

14 Q So back on March 5th, 1987 under oath you were  
15 certain there would be anxiety? Wasn't that your testimony  
16 back then?

17 A Right, but again I would qualify that if I  
18 didn't then now that it certainly is a function of what they  
19 are told about contamination as to how much anxiety there  
20 would be.

21 Q So you do acknowledge there would be some  
22 anxiety, and the question is how much?

23 A I think it's a function of the information. In  
24 some cases -- in an understandable case it may be very  
25 little, and in others with no information, it could be a

1 very high degree of anxiety. I've seen it both ways.

2 Q Now, Mr. Donaldson, remember we discussed  
3 whether people in Suffolk County would behave the same way  
4 people did at Three Mile Island should there be a disaster  
5 at Shoreham. Do you recall our discussion just today about  
6 that?

7 A (Witness Donaldson) Yes. I remember you had  
8 asked me a question, yes.

9 Q Your testimony, as I recall it, was that people  
10 would act the same today in Suffolk County as they did at  
11 Three Mile Island under similar circumstances; is that  
12 correct?

13 A I believe that was my response, yes, with  
14 similar information and similar circumstances, yes.

15 Q Do you recall the deposition you and I had back  
16 on March 11th of 1987?

17 A Yes.

18 Q And do you recall the following question: "So  
19 as with Three Mile Island, you expect that people will  
20 behave in radiological disaster such as might happen at  
21 Shoreham as they did at Three Mile Island?"

22 Answer: "Yes. I have no reason to expect  
23 otherwise."

24 Do you recall that?

25 A Yes.

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1 Q And that testimony was under oath?

2 A That's correct.

3 Q And your answer there was unqualified?

4 A Yes.

5 MR. CASE: Judge Margulies, at this time I would  
6 move the admission of what have been previously marked as  
7 Suffolk County Exhibit No. 4 for identification, Suffolk  
8 County Exhibit No. 5 for identification, Suffolk County  
9 Exhibit No. 6 for identification, Suffolk County Exhibit No.  
10 7 for identification, Suffolk County Exhibit No. 8 for  
11 identification and Suffolk County Exhibit No. 9 for  
12 identification.

13 JUDGE MARGULIES: Is there any objection?

14 MR. CHRISTMAN: No objection as to 4 and 5, no  
15 objection on the photographs subject to the condition that  
16 the proper foundation be provided when the State's witnesses  
17 are made available. I note that the foundation may be  
18 necessary because photographs can be misleading, particular  
19 aerial photographs from a particular angle, particularly  
20 photographs that cut off part of the picture and  
21 particularly in light of the fact that we have diagrams that  
22 show a much better or allow a much better picture of what  
23 goes on at these reception centers.

24 But subject to that qualification, no objection.

25 MR. CASE: Judge, I would respond to that

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1 objection or qualification by saying a sufficient foundation  
2 has been laid. Under the Federal Rules of Evidence or any  
3 rules, photographs are admissible if they depict the area.  
4 The accuracy in terms of angle of the photograph merely goes  
5 to the weight and not the admissibility of that evidence,  
6 and these were identified by Ms. Dreikorn I believe.

7 JUDGE MARGULIES: Exhibits 4 and 5 for  
8 identification will be admitted into evidence.

9 (Suffolk County Exhibits 4 and  
10 5, previously marked for  
11 identification, were admitted  
12 into evidence.)

13 JUDGE MARGULIES: As to Exhibits 6, 7, 8 and 9,  
14 the witness identified the areas and testified specifically  
15 about the areas. They, too, will be admitted into evidence.

16 (Suffolk County Exhibits 6 through  
17 9, inclusive, previously marked for  
18 identification, were admitted into  
19 evidence.)

20 MR. CASE: I have no further questions on these  
21 three sections of the LILCO testimony.

22 Mr. McMurray will now examine the witnesses.

23 BY MR. McMURRAY:

24 Q Mr. Crocker, you and I had a discussion early  
25 this morning regarding whether there were any barrels of

1 substances on the property close to Area B. Do you recall  
2 that?

3 A (Witness Crocker) Yes, I do.

4 Q Let me show you the color photograph which has  
5 been marked and admitted as Suffolk County Exhibit No. 6,  
6 which is Hicksville Area B.

7 (Counsel McMurray approaches with a large  
8 photograph the witnesses.)

9 I think this would be the most efficient way to  
10 do this.

11 In the middle of the photograph ---

12 JUDGE MARGULIES: Do you wish to say something,  
13 Mr. Christman?

14 MR. CHRISTMAN: No. I'm going to let him get  
15 his question out before -- no one can see it except the one  
16 witness, and it needs to be I think put up so that we can  
17 see what we are talking about.

18 MR. McMURRAY: Unfortunately, we only have one  
19 color photograph, and what I'm going to be pointing to is  
20 small detail. If there is a problem, I can show the Board  
21 exactly the portion of this photograph that we are referring  
22 to, but I would just like to ask my question and get it out  
23 first.

24 JUDGE MARGULIES: You may.

25 BY MR. McMURRAY:

1 Q In the center of the photograph there seem to be  
2 some rows of what I think are barrels which extend across  
3 the middle of the photograph right there and around here.

4 Do you know what those barrels contain?

5 A (Witness Crocker) I think those barrels are  
6 transformers.

7 Q Those are transformers?

8 A Yes.

9 Q What about these items right here?

10 A Some of those are transformers and some look  
11 like plastic containers that are cylindrical barrel shaped,  
12 and some of those might be barrels, but we're pushing  
13 photography.

14 Q But you don't know then whether those are  
15 barrels or not?

16 A I'm not sure. The gray ones are generally  
17 uniformity transformers. Things that are other colors, some  
18 of them may indeed be barrels.

19 Q Okay. Has anybody checked to see whether there  
20 are barrels containing harmful substances in and around Area  
21 B?

22 A I'm glad you asked me that. We make a practice  
23 of storing the harmful stuff, if you can see that, over in  
24 this corner, as I referred to before.

25 JUDGE MARGULIES: Would you describe for the

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1 record which corner you're pointing to?

2 WITNESS CROCKER: Okay. In the photograph it's  
3 the top left-hand corner. In terms of compass directions,  
4 it's the southwest part of the property. As you know,  
5 sometimes in transformers we have quantities of PCBs or  
6 something like that, and it's my understanding that we keep  
7 that stuff in this remote corner of the property.

8 BY MR. McMURRAY:

9 Q Okay. You say remote corner. Under the  
10 expanded version of your monitoring scheme, isn't it true  
11 that there would be some monitoring stations on the road  
12 leading to that corner that you just pointed out?

13 A (Witness Crocker) Let me find my layout, if you  
14 will.

15 MR. CHRISTMAN: Judge, we do have an enlargement  
16 of those layouts in the back of the room which we can  
17 display at any time if it will help.

18 MR. McMURRAY: I think he is turning to a page  
19 in the testimony, Judge Margulies, that everybody has and we  
20 can just refer to that I think.

21 WITNESS CROCKER: Bear with me while I find it.

22 (Pause.)

23 The monitoring that you alluded to, as I  
24 understood the question, and I'll try to point this to you,  
25 Judge the monitoring takes place in this region right here

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1 where it's the south end of this loading platform or storage  
2 area, if you will. My understanding is they keep those  
3 wastes further down this road here.

4 Now there is, as you see, a road going through  
5 the area and we would have vehicles transit that, but the  
6 actual monitoring is away from the area up here. So vehicles  
7 would be traversing the road along which are stored these  
8 toxic chemicals.

9 JUDGE MARGULIES: Before you go forward, Mr.  
10 McMurray, you spoke in terms of one question involving that  
11 photograph.

12 Is counsel for the applicant satisfied with this  
13 procedure or do you want it up on the board?

14 MR. CHRISTMAN: I take it you are about through  
15 with your questioning.

16 MR. McMURRAY: I have one more question.

17 BY MR. McMURRAY:

18 Q The question is that cars would be traversing  
19 the road along which these chemicals are stored, correct,  
20 which is the road on the photograph that runs from roughly  
21 the center left of the photograph up to about three quarters  
22 of the way up to the photograph?

23 A (Witness Crocker) It's generally stored in this  
24 area and, like I said, it's our practice to keep it  
25 removed. So you won't find it immediately adjacent to the

1 road I don't believe. But, yes, the road does traverse the  
2 area where we store these chemicals.

3 Q Let's go to page 40 of the testimony. This is  
4 the section that concerns monitoring.

5 Now, Ms. Dreikorn, do you see the response to  
6 Question 66 where there is a discussion of the primary  
7 method of monitoring at the LILCO reception centers?

8 A (Witness Dreikorn) Yes, I do. What this is  
9 referring to is the initial monitoring phase of our  
10 reception center.

11 Q And that monitoring of the individuals or the  
12 evacuees is to be done while those evacuees are seated in  
13 their automobiles; is that correct?

14 A That is correct.

15 Q And that is correct even for two-door cars; is  
16 that correct?

17 A Yes, that is correct.

18 Q And where passengers then are seated in the back  
19 seat of a two-door car, the monitoring would still be done  
20 while they are seated in the back seat, correct?

21 A Yes, that is correct.

22 Q With respect to monitoring evacuees inside their  
23 cars, this method is not used in any other plans, is it?

24 A There are many variations to how monitoring is  
25 conducted at general public reception centers, and from my

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1 knowledge in speaking with other people in the emergency  
2 planning field, there are situations where people are being  
3 monitored in vehicles, yes.

4 Q Can you tell me where and at what plants or for  
5 what reception centers monitoring is conducted as a primary  
6 method while people are in their vehicles?

7 A I am aware of a couple of plans in New York  
8 State, in operating nuclear power plants in the State where  
9 this is done as a screening process of individuals as they  
10 drive into a facility, and that is a similar approach as we  
11 are doing a screening process at our initial monitoring  
12 stations at our reception centers.

13 Q Mr. Watts, are you aware of the identities of  
14 any other plants where monitoring is done of individuals  
15 while they are in their cars as the primary method of  
16 monitoring?

17 A I can think of a couple of situations. One in  
18 which the initial screening is done of the exterior of a car  
19 with people inside the car, and in that particular case  
20 there is a check done of the outside of the car  
21 contamination. If it's determined that there is  
22 contamination on the outside of the car, then that car and  
23 its occupants are directed to another portion of the  
24 reception center and in that case more detailed monitoring  
25 is done of everyone in the car and the car.

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1                   There is another situation that I'm aware of ---

2                   Q       Excuse me.  Let's identify where that first  
3 method that you described takes place?

4                   A       That's Orange County in New York State.

5                   There is another situation that I'm aware of  
6 where both the car and at least one person in the car, or at  
7 least one passenger is monitored while in the car.  And,  
8 again, if there is an indication of contamination, then a  
9 more detailed survey is done at another location than the  
10 reception center.  There is a wide variety of how this is  
11 done nationwide and we have done our best in formulating our  
12 our approach and procedure to look at a variety of different  
13 instruments and a variety of different techniques.

14                   MR. McMURRAY:  Excuse me, Judge Margulies, just  
15 one second.

16                   (Pause.)

17                   BY MR. McMURRAY:

18                   Q       You would agree with me, wouldn't you, that  
19 monitoring evacuees in their cars is not a common practice  
20 in the industry?

21                   A       (Witness Watts)  I don't know how to answer that  
22 question other than referring to my previous answer that  
23 there is a range of different methods used, and that is one  
24 of them.  That is one of the approaches.

25                   Q       Do you recall when I asked you that question at

1 your deposition on March 12th, 1987, Mr. Watts?

2 A Could you refresh my memory?

3 Q The question was asked: "Is it a common  
4 approach to monitor individuals within their vehicles?"

5 Answer: "No, I don't think so. It's a common  
6 approach to focus on the head, hands, feet and shoulders."

7 Do you have any testimony that is different from  
8 that?

9 A I think that is consistent with what I'm saying.

10 Q So it's not a common approach then to monitor  
11 individuals within their vehicles, correct?

12 A I'm saying there is a wide variety of different  
13 approaches that are used.

14 Q You stand by the testimony in your deposition?

15 A I'm standing by both.

16 Q Ms. Dreikorn, are you aware of any health  
17 physics texts that discuss the approach of monitoring  
18 individuals within their automobiles?

19 A (Witness Dreikorn) No, I am not aware of any  
20 health physics texts that specifically address that.

21 Q Do you know of any health physics literature of  
22 any kind, publications, that discuss monitoring people  
23 within their cars?

24 A No, I do not. What I am aware of is in speaking  
25 with other people in the emergency and planning field, other

1 emergency planners, the different approaches and the  
2 variations that Mr. Watts is referring to that are out there  
3 being done and practiced at reception centers.  
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1 Q Let me refer you, Ms. Dreikorn, to the -- your  
2 testimony where you state that the traffic guide will take a  
3 swipe of one-quarter of the front hood and a wheel well,  
4 holding the swipe for one of the monitors to monitor.

5 Do you see that?

6 A (Witness Dreikorn) Could you indicate  
7 specifically where you are?

8 Q I'm at the answer to Question 66.

9 (The witness is looking at the document.)

10 A Okay. I've found where you are I believe.

11 Q Isn't it possible that there could be hot spots  
12 or contamination on areas other than the one-quarter of the  
13 hood and the wheel well that would be monitored?

14 A Could you repeat that question, please?

15 Q Isn't it possible that there could be what I  
16 think in previous deposition testimony has been called hot  
17 spots or contamination on areas other than the front quarter  
18 of the hood or the wheel wells where the swipe is taken  
19 from?

20 A I suppose it's possible. But, we are  
21 concentrating on areas that had there been a vehicle in an  
22 area where particulates were deposited and the vehicle  
23 travelled through, that those particulates would have rested  
24 on the surfaces or been thrown up into the wheel well area  
25 of a vehicle and we would detect them by this monitoring

1 method.

2 (Witness Watts) We actually, when developing  
3 the monitoring method, had considered the fact that the  
4 typical industry practice is to do a smear over an area of  
5 100 square centimeters, which is a square four inches on the  
6 side. We determined that going a lot more than that in area  
7 would substantially increase the likelihood of catching  
8 contamination which we would suspect would be more diffuse  
9 and uniform from plume deposition.

10 So, we feel that we are doing a suitable  
11 sampling of the car by looking at an area of the hood. And,  
12 we figured one-quarter of the area of a hood was sufficient.

13 Q Mr. Watts, what's the purpose of monitoring a  
14 vehicle?

15 A Checking for the -- as an indication of exposure  
16 to the plume --

17 Q Okay.

18 A -- of the occupants or the vehicle.

19 Q And, you will agree with me that you monitor a  
20 vehicle to determine whether it's contaminated so that it  
21 won't contaminate something else, correct?

22 A Well, we are using it as one of the indicators  
23 of whether the occupants potentially could have been  
24 contaminated having travelled through the plume.

25 Q Isn't another reason though to determine whether

1 the vehicle itself is contaminated so that it won't in turn  
2 contaminate other people or things?

3 A I think that's a secondary reason. But, our  
4 purpose here is to use it as an indicator of contamination  
5 of the occupants.

6 Q Okay. Wouldn't it be prudent then, given that  
7 there is the second purpose that we just discussed, to  
8 monitor the cars where people might actually come in contact  
9 with them such as door handles?

10 A That's why we are looking at the hands of people  
11 in the car.

12 Q Well, but what about the door handles  
13 themselves? Don't you want to determine whether they might  
14 be contaminated?

15 A Well, we are covering that by monitoring the  
16 outside of the car and the occupants inside the car, looking  
17 at the hands of those people. If we find any indication of  
18 contamination then we will do a more detailed monitoring of  
19 the car or the occupants.

20 We are using it as an initial screening  
21 procedure which we think is reasonable.

22 Q But, you will agree with Ms. Dreikorn, won't  
23 you, that it's possible that the contamination could appear  
24 on other parts of the car other than the hood and the wheel  
25 well?

1 A I think it's extremely unlikely.

2 Q But, possible?

3 A Without touching it first? I have a hard time  
4 visualizing that.

5 Q Why is that?

6 A Because, as I mentioned before, the way in which  
7 we are doing the swipe of the car, we are taking a major  
8 area of the car, of the surface area on the hood, swiping  
9 that and also looking at the wheel well. The wheel well is  
10 one of four wheels.

11 And, it's hard for me to visualize that  
12 contamination would end up in any of the other three and not  
13 in one of them that's travelling over a contaminated  
14 surface.

15 Q Well, it's hard for you to visualize but what's  
16 the basis for your difficulty in visualizing that?

17 A Well, I think I've just explained that. It's  
18 the uniform deposition basically on the surface area that is  
19 traversed by the car.

20 Q The car could be contaminated by someone  
21 touching it, right, or brushing up against it by someone who  
22 is contaminated?

23 A At what point? What are the circumstances that  
24 you are talking about?

25 Q Someone who is contaminated or something that is

1 contaminated coming into contact with the car?

2 A And the car is not contaminated?

3 Q That's right.

4 A How would that be?

5 Q Something contaminated would be coming into  
6 contact with the car. You can't visualize that?

7 A It's difficult for me.

8 Q Let's go to Question and Answer 67 which I  
9 believe has been modified. Ms. Dreikorn, this refers to  
10 monitoring bus evacuees.

11 Do you see that?

12 A (Witness Dreikorn) Yes, I do.

13 Q Okay. Now, the modification, I take it from Mr.  
14 Christman's letter which informed us of this modification,  
15 took -- was decided on on June 23rd; is that correct? Some  
16 time last week?

17 A Yes, some time last week we made the change in  
18 testimony.

19 Q Okay. And --

20 A I would like to add that we have been  
21 contemplating that change for some time.

22 Q Okay. The bus evacuees will now be monitored by  
23 having them stand and then the head, shoulders, hands and  
24 feet will be monitored as well as X's run across the front  
25 and the back, correct?

1 Is that now the procedure?

2 A That's correct.

3 Q Okay. When you say an X pattern, how does this  
4 run across the body? Is it from the -- in the front, is it  
5 from the shoulder to the hip?

6 A On the front of the body, the X pattern would be  
7 started at the shoulder and carried down to the foot. And,  
8 then it would traverse back up across to the other foot and  
9 then back up to the opposite shoulder.

10 And, then the same would be done on the back of  
11 an individual travelling to the reception center by bus.

12 Q And, you estimate that this method of monitoring  
13 bus evacuees would take about 60 seconds; is that correct?

14 A That is correct.

15 Q And, you further modified the procedure by  
16 stating that now the thyroid will not be monitored in the  
17 initial monitoring phase, correct?

18 A It was not the intention to monitor thyroids on  
19 individuals as they sat on a bus. So, that is not a change  
20 that has occurred. It's actually an oversight that was left  
21 in when we revised the procedure and prepared the draft  
22 materials.

23 Q You will agree with me though that prior to this  
24 change last week the plan did call for -- as written, it did  
25 call for a thyroid monitoring of bus evacuees; is that

1 correct?

2           A        What I would like to point out, there is a  
3 change that has occurred between the manner in which bus  
4 evacuees are being monitored at Hicksville. In Revision 8,  
5 the evacuees came into a facility and received external  
6 whole body monitoring and a thyroid check once it has been  
7 determined that there is no external contaminants present.

8                    We have changed with the draft materials that  
9 are now presented to bring individuals in by bus and  
10 monitoring them on the bus. When that change occurred, it  
11 was never our intention to include a thyroid monitoring  
12 process on the bus after we had completed external surveys  
13 for contaminants.

14           Q        My question was, in those draft materials though  
15 as written they called for a thyroid monitoring of bus  
16 evacuees, correct?

17           A        As I indicated, that was an oversight that  
18 occurred when we changed the procedure to the draft  
19 materials.

20           Q        In Revision 8, the plan did call for thyroid  
21 monitoring as you just stated, correct?

22           A        That's correct. The individuals were coming off  
23 a bus into a facility for an external and then once it was  
24 determined there were no external contaminants it was  
25 followed up by a thyroid check for internal contaminants.

1 Q Okay. And I assume at that time, it was your  
2 opinion that such a thyroid scan was a prudent thing to do?

3 A The performance of a thyroid scan at that point  
4 would be a very conservative approach.

5 Q Is that what Mr. Watts just told you?

6 A Mr. Watts and I have been discussing thyroid  
7 monitoring for some time.

8 Q But he just whispered that in your ear, didn't  
9 he?

10 A (Witness Watts) Yes. And, I will say it on the  
11 record, too.

12 Q Fine.

13 A We have felt that it is a very conservative  
14 approach. We have asked a number of organizations  
15 nationwide whether thyroid monitoring is done. The LERO  
16 plan committed to do thyroid monitoring in some fashion a  
17 few years ago.

18 We are -- with the exception of the State of  
19 Illinois, we are the only organization that I know of that  
20 does it routinely.

21 Q And, is it your opinion now that such  
22 conservatism is inappropriate?

23 A We have preserved the thyroid monitoring  
24 technique where it is done should there be contamination  
25 detected from people or in the case of people coming in

1 cars. Whether it's on the car or on the person in the car,  
2 they go in for detail monitoring and a thyroid check is then  
3 done.

4 Q Well, it is possible, isn't it, that someone  
5 could have internal thyroid contamination and not show  
6 outward signs of contamination?

7 A That is possible. But, the case is that it  
8 takes time for the iodine to accumulate in the thyroid. It  
9 may be too early possibly by the time we measure it. That's  
10 one of the reasons a lot of the states and the counties  
11 don't do that. They don't contemplate it.

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1 Q Let's go to Attachment P, OPIP 3.9.2, Page 9b.  
2 Ms. Dreikorn, in the procedures set out in the draft  
3 materials prior to their being revised last week, how was a  
4 bus evacuee to be monitored?

5 A (Witness Dreikorn) In the February draft  
6 materials, a bus evacuee is monitored as they stay seated on  
7 a bus.

8 Q Okay.

9 A Monitors --

10 Q Go ahead. I'm sorry.

11 A Monitors would board the bus and monitor each  
12 individual on the bus, using an RM-14 count rate meter with  
13 an HP-260 probe attached to it. They would scan the  
14 individual, paying particular attention to hands, feet, head  
15 and shoulders.

16 Q Okay. Was the -- I'm sorry, you may have said  
17 this. Was the bus evacuee to remain seated, or was he going  
18 to stand up?

19 A As it said in our testimony, the bus evacuee  
20 would remain seated.

21 Q Okay. And, I think you stated in your testimony  
22 as well that the bus passenger would be monitored in a  
23 manner similar to the way that passengers in cars are  
24 monitored; isn't that correct?

25 A That is correct.

1 Q Any major differences in the way that bus  
2 evacuees would have been monitored as compared to automobile  
3 evacuees?

4 I'm sorry. That was a bad question. Strike  
5 that one.

6 Looking at the procedure prior to its recent  
7 revision last week, were there any major differences between  
8 the monitoring procedures for bus evacuees and auto  
9 evacuees?

10 A I would like you to repeat that question once  
11 again.

12 Q You mentioned in your testimony that bus  
13 evacuees were going to be monitored in a manner similar to  
14 the way that passengers in cars are monitored. Do you  
15 recall your testimony on that?

16 A That's correct.

17 Q Okay. I just wanted to know how similar? Were  
18 there any major differences in the monitoring procedures?

19 A No. The methods are very similar. The  
20 monitoring approach is similar. The instrumentation is the  
21 same. The areas that we are concentrating on, looking for  
22 contaminants such as the hands, feet, head and shoulders are  
23 the same on each individual.

24 Q The probe is moved over the body at the same  
25 speed?

1 A That's correct.

2 Q Now, for that procedure you estimated, did you  
3 not -- and I'm referring to Page 9b of 3.9.2 -- that that  
4 scan should take about 90 seconds, correct?

5 A That's correct. What it says there is that the  
6 scan should take about 90 seconds.

7 Q Thank you.

8 A What I would also like to point out is that at  
9 that time the procedure addresses not only arriving bus, but  
10 it says, ".../special facility evacuees."

11 The additional time frame that was left in  
12 there, the 90 second time frame, accounts for the special  
13 facility evacuees that would arrive on buses at the  
14 Brentwood Operations Center or the Emergency Worker  
15 Decontamination Facility for monitoring.

16 There was an overlap of general population bus  
17 evacuees and special population bus evacuees there.

18 Q Let me ask this: Do you treat the two  
19 categories differently in terms of monitoring?

20 A We recognize that the special population  
21 individuals may have special needs, and it may be more  
22 difficult and take a little bit more time to accomplish our  
23 monitoring techniques with those individuals.

24 Q You don't draw that distinction on Page 9b of  
25 OPIP 3.9.2 of the draft materials, do you?

1           A        The distinction is reflected in the time that we  
2 have allowed to accomplish the monitoring activity.

3           Q        That's not my question, Ms. Dreikorn. It's not  
4 reflected here on the written page, is it?

5           A        Not as of yet, no.

6                   (Witness Watts) I have something to add, Mr.  
7 McMurray, if I may.

8           Q        Is it relevant to my question about whether or  
9 not the distinction is reflected on the written page, Page  
10 9b?

11          A        It's another reason for the distinction.

12          Q        Well, my question is whether it is reflected on  
13 the page. I think if you have anything more to add, it can  
14 be brought out on redirect. Or, if I ask another question  
15 that's --

16          A        Fine. I was just trying to provide some other  
17 background for why we are doing it that way.

18          Q        Now that the procedure has been revised, Ms.  
19 Dreikorn, are you monitoring any less areas of a bus  
20 evacuee?

21                   To put it another way, is the monitoring less  
22 complete or is it just as complete as the monitoring set out  
23 in the draft materials at 3.9.2, 9b?

24          A        (Witness Dreikorn) As we state in the change to  
25 our testimony, in addition to monitoring hands, feet, head

1 and shoulders of each bus evacuee we will now do an X  
2 pattern on the front and back of each individual.

3 Q So, it's your testimony that you are actually  
4 doing more of a scan?

5 A I guess you can consider we are covering more of  
6 the surface area of an individual's body at this point.

7 Q Yet, your time estimate now is 60 seconds; is  
8 that correct?

9 A That is correct.

10 Q Ms. Dreikorn, with respect to monitoring people  
11 in their cars you will not be scanning in an X pattern over  
12 the back of the body, correct?

13 A That is correct. The monitors are trained to  
14 sweep across the shoulder area.

15 Q The top of the shoulder?

16 A That is correct.

17 Q So, the back area is not monitored at all,  
18 correct?

19 A In the action of sweeping the probe across the  
20 shoulder area, the monitors are careful to include the upper  
21 back portion of the body.

22 Q Other than the upper back portion, the back of  
23 the body is not monitored, correct?

24 A A portion of the back is monitored.

25 Q And, that's the portion that you just described?

1 A That is correct.

2 Q And, no other part of the back is monitored,  
3 correct?

4 A Other than the portion I've indicated.

5 Q And, that is the portion along the top of the  
6 shoulders, correct?

7 A Are you referring to the area that is now being  
8 monitored?

9 Q That's right.

10 A Yes, that is correct.

11 Q With respect to bus evacuees, I take it you  
12 consider it a prudent practice to scan the back of the bus  
13 evacuees in the X pattern that you described; isn't that  
14 correct?

15 A That's correct. And, maybe it would be helpful  
16 if I explained to you how our bus evacuation process works  
17 to help clarify that.

18 Q Well, let me just ask the questions. And, if  
19 that comes out, that will be great.

20 You state that every -- I'm sorry. In the  
21 answer to Question 68, you state that, "...everyone in the  
22 car will be directed to a decontamination trailer for  
23 additional monitoring and, if necessary, decontamination."

24 Is that your testimony? I'm sorry -- yes, you  
25 do sponsor that.

1           A        If any individual in a vehicle is found to have  
2 contamination on them above acceptable values all  
3 individuals would be directed to the decontamination  
4 facility for follow-up monitoring.

5           Q        Is that true for bus evacuees as well?  If one  
6 person on the bus is contaminated, everybody is sent to the  
7 decontamination facility?

8           A        No, that is not true.

9           Q        Why is that?  Why are they treated differently?

10          A        That is one of the reasons why we have added the  
11 additional X pattern to monitoring of bus evacuees.

12          Q        I'm sorry.  I don't get the connection.

13          Q        Well, if you would like me to explain how our  
14 bus evacuation process occurs, it might help clear up the  
15 confusion.

16          Q        Well, can you describe for me why or the  
17 connection that you are trying to draw to explain the reason  
18 why bus evacuees are not all sent to decontamination  
19 trailers if there is contamination found on one while all  
20 automobile passengers will be sent to decontamination  
21 trailers if there is contamination found on one?

22          A        I would be glad to.

23          Q        Thank you.

24          A        The people that arrive in their personal  
25 vehicles are treated as a unit.  In most instances, they

1 have come from one location and travelled to the facility  
2 together.

3 That's not the case in bus evacuees. What we  
4 have in our bus evacuation plan is approximately 47 transfer  
5 points. People are picked up in their neighborhoods and  
6 bussed to these transfer points at which point, at the  
7 transfer point, individuals are mixed from various zones and  
8 boarded another bus so that they can travel to the general  
9 public reception center.

10 Therefore, we have individuals who may come from  
11 effected areas that might have particulate materials in  
12 their areas with those individuals who are coming from areas  
13 that might not be effected. For that reason, when  
14 individuals arrive on a bus at the general public reception  
15 center, we have added the monitoring of an X pattern to  
16 those individuals to account for those situations of cross-  
17 contamination possibly occurring because of the way we have  
18 mixed individuals from various zones at our transfer point  
19 location.

20 So, individuals arriving on bus are treated as  
21 individuals, whereas individuals that arrive in a vehicle  
22 are treated as a unit.

23 Q Thank you. Let's go to Attachment P. I would  
24 like to go to the last page of Attachment P but keep -- also  
25 go to Page 41 of the testimony. We will be switching back

1 and forth between the two pages.

2 (The witnesses are complying.)

3 Mr. Watts, that's -- let me refer this to you.  
4 On Page 41 of the testimony, the answer to Question 71, you  
5 state that LILCO monitors are trained to move the probe over  
6 the body at about eight to ten inches per second.

7 Do you see that?

8 A (Witness Watts) Yes, I do.

9 Q Okay. Now, the RM-14 meter, if we go to the  
10 last page of Attachment P, has a response time in the fast  
11 mode of approximately two seconds.

12 Isn't that correct?

13 A What are you looking at?

14 Q I'm looking at the specs for the RM-14 radiation  
15 monitor which I think is the last page of Attachment P.

16 A Yes. Okay, I see it.

17 Q Let me start over again. The RM-14 meter is the  
18 meter that's used to read the number of counts per minute  
19 when a particular body is being scanned, correct?

20 A Yes.

21 Q Okay. And, when evacuees are being scanned the  
22 RM-14 is going to be in the fast mode; is that correct?

23 A Yes.

24 Q Okay. Can you explain the difference between  
25 the fast mode and the slow mode?

1           A        It has to do with the electronics of the  
2 instrument itself. And, one will provide a more rapid  
3 response to radiation. The other will have more or less a  
4 dampening effect on the signal. It will tend to have a very  
5 slowly increasing meter reading and slow response which may  
6 have some more fluctuation.

7           Q        In the fast mode, there is more fluctuation of  
8 the needle, correct?

9           A        Yes, typically there is.

10          Q        I'm sorry. I can't hear you. Is your mike on?

11          A        Yes, it is. In addition to the meter, of  
12 course, we turn the volume on full as part of the meter set-  
13 up and we set the alarm set point.

14          Q        Now, in the middle of the specs for the RM-14  
15 which is the last page of Attachment P, it says that the  
16 response time in the fast mode is approximately two seconds.

17                    Do you see that?

18          A        Yes.

19          Q        Okay. What does response time mean?

20          A        It's typically the time to reach a certain  
21 percentage of the full value.

22          Q        Generally, that percentage is about 67 percent,  
23 correct?

24          A        It's quoted by different vendors different  
25 ways. I think in this case this was 90 percent.

1 Q 90 percent, okay. So, here you will get 90  
2 percent of the full reading in two seconds; is that correct?

3 A Yes, approximately.

4 Q Okay. Now, does that mean that the probe has to  
5 be held over the source of the radiation in order for -- for  
6 two seconds in order for the reading to come out on the  
7 meter?

8 Or, does that just mean a delayed time of two  
9 seconds?

10 A Excuse me?

11 Q I'm trying to find out what the response time  
12 means. Does it mean that there is a two second delay in the  
13 reading, or does it mean that you have to have the probe  
14 over the source for two seconds in order to get 90 percent  
15 of the reading of that source?

16 A In proximity to the source.

17 Q Okay. So that when you are moving a probe over  
18 the body at eight to ten inches per second, you can be 10 or  
19 20 inches away from the source of the contamination before  
20 you get even 90 percent of the reading, correct?

21 A Would you repeat that again?

22 Q I'm having a hard time figuring out, if you are  
23 moving the probe along the body at eight to ten inches per  
24 second and you testified that you have to have the probe  
25 over the source of the contamination for two seconds --

1 A Or in proximity to.

2 Q -- or in proximity to --

3 A The probe is sensitive to beta as well as gamma  
4 rays.

5 Q Okay. Let me ask you this: What's the range at  
6 which the probe can detect contamination?

7 A If it's gamma, the gamma -- gamma has a very  
8 long range. If it's beta, possibly ten feet, five to ten  
9 feet.

10 Q But, it's true, isn't it, that if you are moving  
11 the probe along at, let's say, ten inches per second you  
12 could be as much as 20 inches away from the source of  
13 contamination before you get a reading on the RM-14 meter;  
14 is that correct?

15 A That's true if you are considering a small speck  
16 or a small point source of contamination, which we don't  
17 consider to be likely in this case. We would expect diffuse  
18 contamination for major areas of the person.

19 Q Well, but it's not impossible that you could  
20 have limited areas contaminated on the body, correct?

21 A It is possible for -- you could have limited  
22 areas over several areas of the body.

23 Q Okay.

24 A We are looking at feet, hands, head and  
25 shoulders as being those areas most likely to be exposed.

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JUDGE MARGULIES: It might be appropriate to take a 10-minute stretch break at this point. It's somewhat of a departure from the OL-5 proceeding, but we don't have to be in lockstep.

(Whereupon, a recess is taken at 4:00 p.m., to reconvene at 4:08 p.m., this same day.)

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JUDGE MARGULIES: Back on the record.

CROSS-EXAMINATION (Resumed)

BY MR. McMURRAY:

Q Mr. Watts, before we broke we were discussing your answer to question 71. Now there you discuss a document published in July 1982 by State of New York Division of Military Naval Affairs Radiological Intelligence Section.

Do you see that?

A (Witness Watts) Yes, I do.

Q And you say that that document recommends paying special attention to the head, shoulders, hands, feet including the soles and any moist areas.

Do you see that?

A Yes.

Q So the procedure set out there does not say monitor only the head, shoulders, hands and soles of the feet, but rather pay special attention to them, correct?

A Well, in the same answer we quoted the monitoring speed, which is one foot per second, and also indicating around the entire perimeter of the person. So that's correct. It's monitoring around the perimeter of the person and focusing attention on those particular areas.

It's those particular areas that we also are focusing attention on.

1 Q You don't move the probe around the entire  
2 perimeter of the person, do you?

3 A No, we don't. The rationale in both cases for  
4 those particular areas is the same.

5 Q Well, the answer is no, you don't, correct, Mr.  
6 Watts?

7 A The rationale is that we are looking for those  
8 areas.

9 Q If you want to bring it out on redirect, Mr.  
10 Watts, then ask your counsel to bring it out on redirect,  
11 and let's not have any speech making.

12 A I wasn't aware I was making any speeches, Mr.  
13 McMurray. I was trying to be responsive to your question.

14 Would you like to ask the question again, and  
15 I'll give you ---

16 Q No. I've got the answer. Thank you.

17 A Okay.

18 Q Does the LILCO procedure call for monitoring any  
19 moist areas?

20 A No. I'm frankly not sure what that means.

21 Q LILCO personnel then are not instructed to look  
22 for any moist areas and monitor them?

23 A Not specifically, no.

24 Q Let's go to page 42.

25 Mr. Watts, there you state that you estimate it

1 takes 100 seconds to monitor a vehicle used in a primary  
2 method, correct?

3 A Yes, that's right.

4 Q Dr. Linnemann, would you agree with that  
5 assessment?

6 A (Witness Linnemann) Yes, I would.

7 Q And what is the basis for your agreement with  
8 that assessment?

9 A Because I have surveyed people with  
10 contamination and we could do it in that time frame.

11 Q Do you recall being deposed on March 5th, 1987  
12 by Mr. Case?

13 A Yes, I do.

14 Q Do you recall the question on the same subject  
15 of monitoring, that if you had four individuals in a car, in  
16 an automobile and we did this initial triage system you've  
17 described, how long would it take roughly to triage those  
18 individuals in the automobile, that initial scan, checking  
19 the hands and feet of the individual, and the answer was  
20 minutes?

21 Question: "Minutes?"

22 Answer: "Yes. For probably all four of them  
23 you would just check hands and feet."

24 Question: "So if you just checked hands and  
25 feet for the four of them it would take minutes you

1 believe?"

2 Answer: "Yes."

3 Do you recall that testimony?

4 A I do, but could I just see that to refresh my  
5 own memory on that?

6 (The document referred to was placed before  
7 Witness Linnemann.)

8 MR. McMURRAY: For the record, it begins at the  
9 bottom of page 40 and goes on to page 41.

10 WITNESS LINNEMANN: Yes, I do recall that  
11 deposition. When he asked me the question, I was assuming  
12 that I myself was doing the monitoring and if I had to do  
13 four people in a car, it would probably take a few minutes.  
14 If you have two people, it would probably take half that  
15 time. So I think that's in line with about the 100 seconds  
16 they are talking about for two people to monitor a car of  
17 four people.

18 BY MR. McMURRAY:

19 Q Let's go to page 43, Ms. Dreikorn. Let's go to  
20 question 77. The question is "What monitoring equipment  
21 will LERO use? And the answer is, "The Eberline RM-14 count  
22 rate meter with either an HP-210, HP-260 or HP-270 probe."

23 Do you see that?

24 A (Witness Dreikorn) Yes, I do.

25 Q With respect to monitoring individuals in cars,

1 are all of those probes going to be used?

2 A No, they will not be all used. The most  
3 appropriate probe for monitoring individuals in the car  
4 would be the HP-260 probe, which is a pancake shaped probe.  
5 It's highly sensitive to beta particles and gamma rays, and  
6 it has an extension handle on it that extends the detection  
7 portion of the GM-2 about eight inches.

8 Q You say the most appropriate. Does LILCO have  
9 enough HP-270 probes for all the monitoring stations that  
10 would initially be set up, all 63 monitoring stations?

11 Q Did you ask me about 270 probes?

12 Q That's right. 260 is the most appropriate, you  
13 said?

14 A Yes, that's correct.

15 Q Do you have enough HP-260 probes for all 63 of  
16 the monitoring stations that you intend to initially set up?

17 A Yes, we do.

18 Q Do you have them in stock?

19 A Yes, we do.

20 (Witnesses conferring.)

21 Q Is your answer any different now that you've  
22 spoken to Mr. Watts?

23 A No, it's no different.

24 A (Witness Crocker) I can clarify that, if you  
25 will. I'm the guy who signs the purchase orders, and we

1 have signed purchase orders for all that equipment and I  
2 believe it has all arrived.

3 Q But you don't know if it has arrived?

4 A I think some of it happens to be out at Shoreham  
5 for calibration right now. I think we have it all. If not,  
6 we'll have it within the month.

7 Q Let's go back to the RM-14 meter.

8 Mr. Watts, I think you said earlier, and let me  
9 just get back on track here, that under the fast response  
10 mode the RM-14 needle would fluctuate more than it would  
11 under the slow response mode; is that correct?

12 A (Witness Watts) That's correct.

13 Q And how wide can the needle fluctuations be to  
14 the fast mode?

15 A Just off the top of my head I think I've seen  
16 fluctuations of 50 counts to 100 counts per minute.

17 Q Is that in either direction?

18 A In either direction, yes.

19 I would ask Ms. Dreikorn if she would agree with  
20 that.

21 Q Ms. Dreikorn?

22 A (Witness Dreikorn) Yes, I agree with that.

23 Q And what is the threshold level above background  
24 where you determine that an individual contaminated, Ms.  
25 Dreikorn?

1 A With the HP-260 probe?

2 Q Correct.

3 A The acceptable level or the level at which we  
4 determine that contamination is present would be 360 counts  
5 per minute above background.

6 Q When you set the alarm on the RM-14, given that  
7 threshold, what do you set it at?

8 A The way alarm scale is set on the back of the  
9 instrument, you would set it between the numerals 3 and 4  
10 towards the upper end in the proximity --well -- I'm sorry,  
11 I have to backtrack here.

12 You are initially taking your background  
13 measurement. Background commonly with the RM-14 and the 260  
14 probe is at 40 to 50 counts per minute. Our action level is  
15 360 counts per minute above background. So our monitoring  
16 personnel are instructed to add those two values together  
17 which would give you on the order of 400 counts per minute.  
18 So when you are setting your alarm setpoint, you are setting  
19 it at the numeral 4 on the alarm set on the back of the  
20 instrument.

21 Q And basically when they were looking at the  
22 meter they would consider someone contaminated if they  
23 judged that the counts per minute were about 400; is that  
24 correct?

25 A That would be 360 counts per minute above

1 background. At that point the alarm would go off and it  
2 would indicate that we have exceeded that value of the  
3 setpoint.

4 Q And does the alarm go off any time the needle  
5 fluctuates beyond that alarm point?

6 A Yes, it would. When that alarm point is  
7 exceeded, the instrument would alarm.

8 Q And what is a monitor instructed to do if the  
9 alarm goes off?

10 A If the alarm goes off, the monitor would direct  
11 the individual to proceed to the decontamination facility.

12 I would like to also add that our monitoring  
13 personnel are trained that if they have any question at all  
14 about the level of contamination that they are detecting,  
15 that they would send the individual to the decontamination  
16 facility.

17 Q And you'll agree with me, won't you, that given  
18 the needle fluctuation we have just spoken about, that the  
19 alarm might go off even though contamination levels were  
20 below the threshold level?

21 A No, I don't really think that is true.

22 Q Well, let's back up then. You said that the  
23 alarm goes whenever the needle goes beyond that you've set  
24 the alarm at, correct?

25 A That's correct.

1 Q And the needle can fluctuate maybe 50 counts  
2 what the actual reading is, correct?

3 A That is correct.

4 Q So isn't it true then that someone could have,  
5 for instance, say, an actual reading of 300 or 250 counts  
6 per minute? What is the threshold level, 360?

7 A The threshold level is 360 counts a minute above  
8 background.

9 Q Okay. Well, somebody could then have 340 or 350  
10 counts per minute contamination and still the alarm would go  
11 off because of fluctuations that would send the needle  
12 beyond that point maybe 50 or 60 counts?

13 A No, I don't believe that is correct. I believe  
14 the instrument has in itself a correction for that type of  
15 activity.

16 Also, you have to bear in mind that monitors our  
17 monitors are -- if there is any question again of the level  
18 of contamination, they will direct the individual in for  
19 further detailed monitoring.

20 Q Mr. Donaldson, do you agree with that?

21 A (Witness Donaldson) Just to clarify and help  
22 you understand needle fluctuations, on the fast response  
23 time the reason the needle fluctuations is because  
24 spontaneous emission of radioactivity is not a precisely  
25 timed event like a drum beat. It does happen in bursts or

1 counts that may exceed in a short period of time.

2 The needle fluctuations that you're seeing  
3 represent a bound of released radioactivity over a period of  
4 time, and when in fact you read a meter, if you did not have  
5 an audible alarm, you would look at the swing of the meter  
6 from high to low as it fluctuated, and the reading that  
7 would be recorded would be the center reading about which it  
8 roughly swings back and forth.

9 The meter on slow response still -- the probe  
10 still detects the same number of disintegrations per second  
11 or counts per minute, if you will. It's the slowness of the  
12 electronics in transmitting that and in reading those pulses  
13 and transmitting it to the meter portion that smooth the  
14 response out.

15 In other words, that makes it easier for the  
16 person to read it. There is less interpretation involved.

17 Now there is also built in on field instruments,  
18 a built-in error of plus or minus 25 percent which is taken  
19 into account in the calibration.

20 So I think what you are saying about could it be  
21 25 higher, sure it could be 25 counts higher or it could be  
22 25 counts lower because of this built-in natural phenomenon  
23 of the way decay takes place.

24 Q Let me pose the same question to you that I  
25 posed to Ms. Dreikorn, isn't it possible that the alarm

1 could be tripped given the fluctuations in the fast mode on  
2 the basis of the more severe fluctuations that one  
3 experiences in the fast mode rather than the fact that the  
4 person actually has a reading that indicates contamination?

5 A I'm not sure I really understand. Boil it down  
6 a little for me.

7 Q Is it your understanding that whenever the  
8 needle goes beyond the point that the alarm is set at that  
9 it sets the alarm off?

10 A That's correct. In fact it sometimes even  
11 precede it slightly in that instrumentation because it's  
12 internal circuitry, the alarm circuit is slightly  
13 different. So, in other words, the needle may lag slightly  
14 behind the alarm.

15 Q Well, isn't it possible then that someone might  
16 be sent off for decontamination because they have been  
17 determined to be contaminated even though they are not  
18 contaminated or have not reached the threshold level for  
19 contamination?

20 A It's possible, but again when dealing with  
21 contamination, it's a standard health physics practice that  
22 you do apply judgment. The fact is that if the needle does  
23 exceed beyond that portion, then because of built in error  
24 in field instrumentation, it could be plus or minus 25  
25 percent anyway, and it's very unlikely that you're going to

1 find where somebody is right on the borderline.

2 Normally if you have a question and you are a  
3 health physicist, you send them anyway. When in doubt,  
4 punt.

5 Q So more people might be sent off for  
6 decontamination than are actually contaminated, correct?

7 A Well, I think if you get any reading -- oh,  
8 contamination is relative. I think she is referring to an  
9 action level where decontamination would be warranted.  
10 Contamination is merely defined as being having  
11 radioactivity somewhere where you don't want it.

12 Q Well, more people may be sent off for  
13 decontamination than have crossed that threshold at which  
14 they are considered contaminated, correct?

15 A I wouldn't think so. It would be unlikely that  
16 you would have so many people that would be just  
17 borderline. My experience is that when you are looking for  
18 contamination and you have an action level, you don't run  
19 into a lot of cases where people are borderline and you say,  
20 well, are they or aren't they. If you have any question,  
21 you send them. It just work that way. This is quite common  
22 in the plant, the way they do their individual frisking of  
23 themselves.

24 Q Well, I think we are on the same wavelength.  
25 Your response is if there any doubt you send them off to the

1 decontamination trailer, right?

2 A Exactly, and I believe that is built into their  
3 procedure.

4 Q So that in fact more people may be sent to the  
5 decontamination trailer than are actually contaminated,  
6 correct?

7 A Well, back again, contamination is  
8 contamination, and to say that because they have an action  
9 level of 360 counts above background that that person should  
10 exactly be sent at this time, they are trying to build in  
11 the flexibility and fluctuation because we are dealing with  
12 numbers that do have variation like the needle varies.

13 So it wouldn't result in more people. It's  
14 taken into the overall numbers.

15 A (Witness Linnemann) I think there is another  
16 point to be made. It may be that way, that you get a  
17 falsely high reading, but they don't go to get  
18 decontaminated. They would be resurveyed before you would  
19 decontaminate them and it would be probably picked up there  
20 that it really wasn't the case. So there is a backup check  
21 on that.

22 Q But that means then, Dr. Linnemann, doesn't it,  
23 that the resources which LILCO is using for this secondary  
24 monitoring function may have to cope with more people than  
25 the number who may actually be contaminated or run pass the

1 threshold level?

2 A That's probably true, but I don't think it would  
3 be significant of the utilization of those resources. I  
4 don't think you are talking about a lot of people in that  
5 category.

6 Q Why is that?

7 A Because just by the nature of the statistics.  
8 They are either going to be contaminated or not. I don't  
9 think you are going to catch a lot of them just on the  
10 borderline.

11 A (Witness Watts) I would agree with Dr.  
12 Linnemann.

13 Q Why is that, that you're not going to catch a  
14 lot of them just on the borderline?

15 A (Witness Linnemann) Well, I think in a sense we  
16 are really cutting a moot point here. When you talking  
17 about contaminated, these are very, very low levels of  
18 contamination. And when you have a situation which you are  
19 describing here, it's usually a uniform contamination and  
20 it's usually not a question, at least again in my  
21 experience, of it's doubtful whether this is contaminated or  
22 not. Usually you can pretty well tell if it's contamination  
23 or it isn't.

24 And if you have any doubt, as you explained on  
25 the needle the first time, do it again and that will clarify

1 it for you. I don't think you are talking about a lot of  
2 time and resources in delineating this problem. It's not as  
3 big a problem as I think you perceiving.

4 A (Witness Watts) That has been my experience  
5 also.

6 Q Is the secondary monitoring at the  
7 decontamination trailer done with the RM-14 meter set on the  
8 fast or slow mode?

9 Do you know, Ms. Dreikorn?

10 A (Witness Dreikorn) I would like to just  
11 reference the procedure for a second, please.

12 (Pause.)

13 Yes, it would be conducted in the fast response  
14 mode.

15 Q With the same needle fluctuations in the fast  
16 mode as one has in the initial monitoring procedures,  
17 correct?

18 A Yes, that's correct, but at this point we are  
19 trying to quantify the levels of contamination, and when the  
20 survey is being conducted, the monitors are instructed and  
21 they have information that is mounted to the card on top of  
22 the instrument that explains to them that should the needle  
23 fluctuation erratically as it would with the random decay of  
24 radioactive materials, that they should then switch to slow  
25 response and resurvey the area so that they can quantify the  
levels of contamination.

1 Q The LILCO monitors are trained to switch to slow  
2 response, you are saying?

3 A (Witness Dreikorn) That is correct.

4 Q Ms. Dreikorn, when the monitoring is done --  
5 strike that.

6 As I understand it, there is a probe and there  
7 is the monitor, correct? They are two different pieces of  
8 equipment?

9 A That's correct. And, they have a coaxial cable  
10 that connects the two.

11 Q And, how long is the cable?

12 A We have ten foot cables available. We also have  
13 I believe five foot or three foot cables.

14 Q Under the LILCO plan, when the monitoring of the  
15 individuals in their cars is being done, where is the RM-14  
16 going to be?

17 A Some of the monitors prefer to hold them.  
18 Others have set them down in their area that they are  
19 working in off to the sides of the monitoring area.

20 Q Okay.

21 A We are working on adapting some type of handle  
22 or strap to the instruments to make them so that they can  
23 hang on to them nearby.

24 Q Okay. Now, when someone is monitoring  
25 individuals in their car and they enter the car and they are

1 probing around in the back seat, they are also keeping their  
2 eyes on the monitor; is that correct, on the RM-14 to  
3 determine needle fluctuations?

4 A No. At that point they are listening to the  
5 response of the instrument by -- they have an audible volume  
6 control turned up full. They are listening for the alarm to  
7 go off at the set point. So, they are concentrating more --  
8 what we are doing in initial monitoring stations is more of  
9 a, is there contamination or is there not contamination,  
10 screening process.

11 Q Well, at the reception centers there are going  
12 to be car engines running; isn't that correct?

13 A That's correct.

14 Q Okay. And, there's going to be other ambient  
15 noise; is that correct?

16 A I didn't catch the -- your next question.

17 Q Mr. Watts was talking to you. There is going to  
18 be other ambient noise, isn't that correct?

19 MR. CHRISTMAN: Judge, Mr. McMurray is making a  
20 point of noting whenever the witnesses consult. I would  
21 like to note that the witnesses are perfectly entitled to  
22 consult with one another and always have throughout the  
23 course of five years of this proceeding.

24 MR. McMURRAY: Well, I don't --

25 MR. CHRISTMAN: And, comments by counsel are

1 generally inappropriate.

2 MR. McMURRAY: Well, it's not appropriate for  
3 Mr. Watts to talk to her while I'm asking my questions so  
4 she has to ask for it to be reasked. That's just not  
5 polite.

6 If he wants to talk to her, he can do it some  
7 other time. That's the reason I made the comment.

8 BY MR. CASE: (Continuing)

9 Q Now, Ms. Dreikorn --

10 A (Witness Dreikorn) Mr. Watts and I are both  
11 sponsoring the issue on the instrumentation.

12 Q I understand that. Now, there is going to be  
13 other ambient noise; isn't that correct?

14 A Normal outdoors noises. But, that's really not  
15 a problem. You can certainly hear the instrumentation in  
16 that type of environment.

17 Q Well, has anybody determined whether or not when  
18 a monitor is inside a car and there is engine noise and  
19 whatnot, other ambient noise, whether or not the monitor can  
20 be heard?

21 A Well, I for one could attest that I clearly  
22 heard the instrumentation operating when we've done  
23 training, monitoring individuals in vehicles that are  
24 running.

25 (Witness Watts) And, so have I.

1           Q       Have you checked whether or not all of the  
2 monitors are able to set the monitor close enough to  
3 themselves so that they can hear the alarms? Is this  
4 something that the monitors are trained to do?

5           A       (Witness Dreikorn) Believe me, the alarm when  
6 it sounds, you are very well aware of that sound. And, if  
7 you would like I will demonstrate that for you.

8           Q       In the monitoring sessions that you've had, in  
9 the training sessions with LILCO monitors, have the RM-14s  
10 actually been turned on?

11          A       Yes, they certainly have.

12          Q       Mr. Watts, you state in the answer to Question  
13 79 that, "The RM-14 is usable under a wide range of  
14 temperature and humidity conditions."

15                   Do you see that?

16          A       (Witness Watts) Yes.

17          Q       Okay. Have you or anyone else at LILCO or LERO  
18 tested the RM-14 and the various probes under extreme  
19 weather conditions?

20          A       Well, I've seen them used under extreme weather  
21 conditions in the winter time.

22          Q       What sort of conditions?

23          A       During the Ginna accident which occurred in the  
24 winter time when it was snowing. I don't recollect any  
25 problems with the instruments. It was the same variety that

1 we are talking about, a slightly different probe but we used  
2 the RM-14 and the HP-190 probe. Also, a GM-2 end window.  
3 It was a Geiger-Muller 2, end window, a very similar probe  
4 and identical meter.

5 So, in my experience they have worked well under  
6 rather severe conditions. We also contacted the vendor,  
7 Eberline, and asked several questions about experience with  
8 the probe and design of the instrumentation to withstand  
9 environmental conditions.

10 And, it appears that under the design they can  
11 withstand a wide range of humidity conditions and  
12 temperature conditions.

13 Q What sorts of questions did you pose to the  
14 people at Eberline?

15 A Well, Ms. Dreikorn talked to them directly. If  
16 you would like to ask her, she has the specifics.

17 (Witness Dreikorn) I spoke with the gentleman  
18 at Eberline who is the Technical Advisor in Radiation Safety  
19 Officer for Eberline Corporation. And, I discussed with him  
20 the environmental suitability of the RM-14 count rate meter  
21 and the various probes that we are utilizing. And, what Mr.  
22 Little told me is that the instrument can withstand a  
23 significant temperature range, that being the range that we  
24 have stated in our testimony here.

25 I'm sorry, we haven't stated it. The range is

1 minus 20 degrees Fahrenheit to approximately 140 degrees  
2 Fahrenheit. In addition to that, the instrumentation can  
3 withstand very high humid conditions, that in excess of 95  
4 percent relative humidity.

5 In addition, the gentleman explained to me that  
6 the instrument has been widely used by clients in  
7 precipitation and the easiest thing to do is to just put the  
8 instrument in a plastic bag and that will provide  
9 appropriate protection for the instrument, and the  
10 instrument has operated properly in those conditions with no  
11 problem.

12 Q When you put it in a plastic bag, it does not  
13 effect the reading or the ability to read the instrument?

14 A They would be clear plastic bags, so you would  
15 be able to certainly see the scale on the instrument.

16 Q Turn to Page 45.

17 (The witnesses are complying.)

18 In response to Question 86, I believe you state  
19 that, Ms. Dreikorn, it's not plausible that elevated  
20 background levels would be caused by the plume itself.

21 Do you see that?

22 A Yes, I do.

23 Q Are you saying it's impossible for the plume to  
24 travel 40 miles?

25 A I'm saying it's highly unlikely or not

1 plausible.

2 Q Well, a plume can travel a long distance, can't  
3 it? It can travel more than 40 miles, can't it?

4 A But, it's also being dispersed at the same time  
5 that it's travelling distance. So, there is a lot of mixing  
6 going on.

7 Q And, while the concentration of radioactive  
8 material in the plume may go down, nevertheless it could  
9 raise background levels as far as 40 to 50 miles away,  
10 couldn't it?

11 A I guess in a very severe accident scenario, that  
12 might be a possibility.

13 Q Mr. Watts, let me refer you to your answer on  
14 Question 87. And, this time I would like an explanation  
15 where you say that the instrument reading relative to  
16 background would tend to maximize.

17 I don't understand what you mean by that.

18 A (Witness Watts) As Ms. Dreikorn was talking  
19 about before, the instrument is particularly efficient for  
20 beta radiation. If we have background levels slightly  
21 elevated because of a plume which I really feel is unlikely  
22 in this case because we are in the predominantly upwind or --  
23 yes, upwind area, what we are doing is taking readings  
24 essentially one-half inch away from any potentially  
25 contaminated surface area.

1           If we are looking at beta radiation and we are  
2 getting right up close to it and that is the type of  
3 radiation that we are most efficient for, then I would say  
4 that we would maximize the signal to the instrument greatly  
5 relative to the gamma and possible slight amount of beta  
6 radiation in the background.

7           Q       You are saying then that the plume would not be  
8 able -- would not have an affect on the reading --

9           A       There may --

10          Q       -- if it did pass over the reception center?

11          A       There may be some effect on the reading, but  
12 what I'm saying is because we are taking our -- we are using  
13 a frisk procedure, using an instrument that is highly  
14 efficient for beta radiation, and we are in close proximity  
15 to that beta radiation, that the background is going to be  
16 trivial compared to the reading directly from the source of  
17 contamination and beta.

18                   (Witness Donaldson) I've done some studies on  
19 that particular instrument back in the late 70s, around the  
20 Three Mile Island time, because this was a common instrument  
21 that was used in the nuclear industry to evaluate air  
22 samples taken in the environs.

23                   And, to back up what Mr. Watts has said, the  
24 background contribution would be minimal for that particular  
25 instrumentation. In fact, a ten minute air sample taken in

1 a plume directly, it would require at least a ten minute air  
2 sample and concentrated on a charcoal cartridge to give a  
3 minimum detectable amount on that cartridge which would be  
4 equivalent to some level or where some actions in the  
5 environs would have to take place.

6 What I'm saying in short is that if the level  
7 were high enough to effect background, then the levels  
8 already would be high enough that protective actions would  
9 have been implemented and they wouldn't be there in the  
10 first place, because that instrument is so insensitive to  
11 high level beta from direct cloud shine.

12 Q Mr. Watts, you state in the answer to Question  
13 88, the last sentence of that paragraph, you say, "Periodic  
14 background checks are performed, in part to watch for this,  
15 at least every 15 minutes."

16 Let me back up. Strike that.

17 In Question 88, you are talking about the  
18 possibility of instruments getting contaminated; isn't that  
19 correct?

20 A (Witness Watts) Yes.

21 Q And, in order to watch for this, you state that  
22 periodic background checks are performed at least every 15  
23 minutes, correct?

24 A That's right.

25 Q Now, let's assume that your estimate of 100

1 seconds is correct, 100 seconds to monitor a vehicle and the  
2 occupants, a monitor could monitor about nine vehicles in  
3 that time; isn't that correct, in about 15 minutes?

4 A Yes.

5 Q If contamination on an instrument is discovered  
6 under the LILCO plan, is there any provision for calling  
7 back cars or individuals who may have been monitored while  
8 that instrument was contaminated?

9 A I don't see the logic of your question, because  
10 if you have contaminated the instrument that means that  
11 there has been contamination in proximity to the monitor  
12 which would have been picked up.

13 Q It might be on the instrument, correct?

14 A From an individual or from a vehicle which would  
15 have been stopped.

16 Q Right. And, after that time, let's say 15  
17 minutes passes and another nine cars are monitored, will  
18 those nine cars that may not have been contaminated be  
19 called back or those individuals?

20 A I think what is very likely to happen is if you  
21 contaminated the probe, you may get some false indications  
22 of contamination on subsequent vehicles and people in which  
23 case you are going to stop them.

24 Q Right. And, you may send them on to  
25 decontamination or whatever, right?

1 A Well, possibly, yes.

2 Q So, again there could be more people going off  
3 to decontamination than were actually contaminated?

4 A Well, in this isolated case, possibly. I  
5 wouldn't characterize it as being what we would expect as a  
6 common occurrence. You postulated a potential situation,  
7 but I don't believe it would cause undue problems to the  
8 other portions of the reception center.

9 Q Let's go to Page 46.

10 (The witnesses are complying.)

11 In response -- strike that.

12 Question 92 states: "What if a driver requested  
13 a whole body scan?

14 And, you state, Mr. Watts, that that person  
15 would be directed to the decontamination area for detailed  
16 monitoring.

17 Do you see that?

18 A Yes.

19 Q Okay. In what sense is the term "whole body  
20 scan" being used? I know you didn't ask the question; you  
21 answered it. But, do you know what sense "whole body scan"  
22 is being used in?

23 A Well, I think it's my impression -- and you  
24 asked Ms. Dreikorn also her impression -- that if the driver  
25 wanted the type of scan that we do in the decontamination

1 trailers, taking 90 seconds or something of that nature, or  
2 anything else that he feels is necessary above and beyond  
3 what we are doing, we would not refuse that person.

4 (Witness Dreikorn) I would like to add that I  
5 agree with Mr. Watts' description that he just gave. We  
6 would certainly monitor that individual at the initial  
7 monitoring station, monitoring hands, feet, head and  
8 shoulders. And, if the individual was not satisfied with  
9 that type of monitoring technique and requested an  
10 additional technique, we would send him into the  
11 decontamination facility.

12 Q In your response to Question 93, you discuss  
13 whether or not contaminated objects in the trunk of a car  
14 would cause a problem.

15 Do you see that, Mr. Watts?

16 A (Witness Watts) Yes, I do.

17 Q Okay. Let me ask you this: Are personal  
18 articles within a car going to be monitored in the initial  
19 monitoring stage?

20 A Not at the initial monitoring stage. But, at  
21 the -- as part of the detailed monitoring that would be done  
22 if the initial monitoring indicated contamination.

23 Q Is it your testimony that it's impossible for  
24 personal articles to be contaminated without the individuals  
25 in the car being contaminated?

1           A       No. I think if you look at the words, I said it  
2 was unlikely.

3           Q       There you are talking about articles in the  
4 trunk. I'm talking about articles in the car, in the  
5 passenger compartment of the car.

6           A       Okay. I didn't understand your question.

7           Q       Let's go back. In the initial monitoring stage,  
8 the personal articles in the passenger compartment of the  
9 car, are they going to be monitored during the initial  
10 monitoring phase?

11          A       Are you referring to articles that would have  
12 been carried into the car?

13          Q       Articles that may have been there when the  
14 windows were down or whatever, just articles that are found  
15 in the car when it drives up to a monitoring station.

16          A       No. The reason is that we assume that the likely  
17 situation is if there's personal articles in the car they  
18 probably would have been carried in by a person.

19                   We are checking the people. We are checking the  
20 hands of the people who would have carried them in.

21          Q       It's not possible that the article could have  
22 been in there beforehand?

23          A       Oh, it's possible but again it would have been I  
24 would say fairly effectively covered from the deposition.

25          Q       What if the windows were open?

1           A       Well, potentially.

2           Q       So, it's possible that articles in the car could  
3 be contaminated without the people actually being  
4 contaminated?

5           A       Well, yeah. But, also the car is being checked  
6 itself. Again, I have to rehash this philosophy, that we  
7 are checking the car, we are checking the individuals in the  
8 car.

9                        If we have indication of contamination, either  
10 outside or inside we do detailed monitoring and everything.

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1 Q What's your basis -- let's go to the articles in  
2 the trunk. What's your basis for stating articles in the  
3 trunk, "It is unlikely that the articles in the trunk would  
4 be independently contaminated?"

5 A (Witness Watts) In my mind, what that means is  
6 that the articles would have been placed in the trunk by a  
7 person who was contaminated or not contaminated as the case  
8 may be, depending on who is in the car.

9 Q You are assuming then that articles in the  
10 trunk would only be contaminated if they had come into  
11 contact with a contaminated person?

12 A I think that's basically what I'm saying. They  
13 have to get there some how. If they are in there to begin  
14 with, that means -- normally, car trunks are kept closed.  
15 So, if they are in there to begin with I don't think we  
16 would have a contamination problem.

17 Q Couldn't they become contaminated by means other  
18 than their contact with a human being?

19 A I don't -- you would have to give me an  
20 example. I mean, I can't think of one right now.

21 Q Without me giving you an example, you would say  
22 it's impossible?

23 A I can't think -- what I'm saying is I can't  
24 think of the circumstance. I hate to use the word  
25 "impossible."

1 MR. McMURRAY: Judge Margulies, it's one minute  
2 to 5 I guess. I'm at a point now where I could break off.  
3 I think we did say the normal hearing day would be 9 to 5.  
4 I mean, I can ask one more question but I think I'm at a  
5 point where I can break off now.

6 JUDGE MARGULIES: This clock is six minutes fast  
7 by my watch. But, we are not going to deal with seconds.  
8 If this is an actual breaking point, we will break at this  
9 point.

10 MR. CHRISTMAN: Let the record show that your  
11 watch is closer to right than that wall clock.

12 MR. McMURRAY: I'm sorry. I've been following  
13 the wall clock.

14 JUDGE MARGULIES: We will recess until tomorrow  
15 morning at 9 o'clock.

16 (Whereas, the hearing is recessed at 4:55 p.m.,  
17 Tuesday, June 30, 1987, to reconvene at 9:00 a.m.,  
18 Wednesday, July 1, 1987.)  
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CERTIFICATE OF OFFICIAL REPORTER

This is to certify that the attached proceedings before the  
UNITED STATES NUCLEAR REGULATORY COMMISSION in the matter of:

NAME OF PROCEEDING: SHOREHAM NUCLEAR POWER STATION, UNIT 1

DOCKET NO.: 50-322-OL-3  
PLACE: HAUPPAUGE, NY  
DATE: Tuesday, June 30, 1987

were held as herein appears, and that this is the original  
transcript thereof for the file of the United States Nuclear  
Regulatory Commission.

MARY SIMONS  
M. WALSH  
GARRETT WALSH  
(Sigt)  
\_\_\_\_\_  
(TYPED)

Official Reporter

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