

# ORIGINAL

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

---

---

In the matter of:

LONG ISLAND LIGHTING COMPANY

Docket No 50-322-OL-3

(Shoreham Nuclear Power Station  
Unit 1)

---

---

Location: Hauppauge, New York

Pages: 13,853-13,984

Date: Friday, July 20, 1984

*TR 01/01*  
*Original to E. Pleasant*  
*H-1149*

*Add:*  
*3 additional copies to ASLBP-E/W-4/39*

**TAYLOE ASSOCIATES**

Court Reporters  
Street, N.W. Suite 1004  
Washington, D.C. 20006  
(202) 293-3950

8407250228 840720  
PDR ADOCK 05000322  
T PDR

SueT 1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

```

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

```

Court of Claims  
State of New York  
State Office Building  
Room 3B46  
Veterans Memorial Highway  
Hauppauge, New York 11787

Friday, July 20, 1984

The hearing in the above-entitled matter resumed  
at 9: a.m., pursuant to recess,

BEFORE:

JAMES A. LAURENSEN, ESQ., Chairman  
Atomic Safety and Licensing Board  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

DR. JERRY KLINE, Member  
Atomic Safety and Licensing Board  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

DR. FREDERICK SHON, Member  
Atomic Safety and Licensing Board  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555



Sue T

APPEARANCES:

2

On Behalf of LILCO:

3

JAMES N. CHRISTMAN, ESQ.  
KATHY E. B. MC CLESKEY, ESQ.

4

Hunton & Williams  
Main Street

5

Richmond, Virginia

6

On Behalf of the NRC Staff:

7

ORESTE RUSS PIRFO, ESQ.  
Office of the Executive Legal Director  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

8

9

On Behalf of Suffolk County:

10

CHRISTOPHER M. MC MURRAY, ESQ.  
MICHAEL S. MILLER, ESQ.  
Kirkpatrick, Lockhart, Hill, Christopher & Phillips  
1900 M Street, N. W.  
Washington, D. C. 20036

11

12

13

On Behalf of the State of New York:

14

15

RICHARD J. ZAHNLEUTER, ESQ.  
Special Counsel to the Governor  
Executive Chamber

16

17

Room 299  
State Capitol  
Albany, New York 12224

18

19

20

21

22

23

24

25

Sim 1-1

C O N T E N T S

1				
2	<u>WITNESSES</u>		<u>DIRECT</u>	<u>CROSS</u>
			<u>REDIRECT</u>	<u>RECROSS</u>
			<u>BOARD</u>	
3	Matthew C. Cordaro )			
	- and - )			
4	William F. Renz )	13,856	13,859	
5	Matthew C. Cordaro )			
	- and - )			
6	John A. Weismantle )	13,897	13,900	
7	Matthew C. Cordaro )			
	Charles A. Daverio )			
8	- and - )			
	Richard J. Watts )	13,907	13,911	13,944
9	Matthew C. Cordaro )			
10	Charles A. Daverio )			
	- and - )			
11	William F. Renz )	13,946	13,949	

E X H I B I T S

13			
14	<u>EXHIBIT NO.</u>	<u>IDENTIFIED</u>	<u>RECEIVED</u>
15	Suffolk County EP-91		
	(Nomogram)	13,928	

## LAY-IN DOCUMENTS

17			
18	Testimony of Messrs. Cordaro & Weismantle		
	(Contention 92)		13,899
19	Testimony of Messrs. Cordaro, Daverio		
20	and Watts (Contention 49)		13,909
21	Testimony of Messrs. Cordaro, Daverio		
	and Renz (Contention 33)		

22

23

24

25

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

(9:03 a.m.)

JUDGE LAURENSEN: The hearing is now open.

I believe that we have now arrived at the LILCO testimony on -- or Supplemental testimony, rather, on Contention 24.R.

Ms. McCleskey?

MS. McCLESKEY: Judge Laurenson, the witnesses, Doctor Cordaro and Mr. Renz, have resumed the stand. Whereupon,

MATTHEW C. CORDARO,

- and -

WILLIAM F. RENZ,

resumed the stand as witnesses on behalf of LILCO and, having been previously duly sworn, were further examined and testified as follows:

DIRECT EXAMINATION

BY MS. McCLESKEY:

Q Will each of you please identify yourselves for the Court Reporter?

A (Witness Renz) William F. Renz.

A (Witness Cordaro) Matthew C. Cordaro.

MS. McCLESKEY: Judge Laurenson, I believe both of these witnesses have been previously sworn.

JUDGE LAURENSEN: That is correct. You are still under oath.

1 BY MS. McCLESKEY: (Continuing)

2 Q Do each of you have before you a document  
3 consisting of three pages of testimony, plus two attachments  
4 entitled, LILCO's Supplemental Testimony on Contention 24.R,  
5 (Letter of Agreement with Connecticut)?

6 A (Witness Renz) Yes.

7 A (Witness Cordaro) Yes.

8 Q Is this your testimony?

9 A (Witness Renz) Yes, it is.

10 Q Was it prepared by you and under your supervision?

11 A (Witness Renz) Yes.

12 A (Witness Cordaro) Yes.

13 Q Is it true and correct to the best of your  
14 knowledge and belief?

15 A (Witness Renz) Yes.

16 A (Witness Cordaro) Yes.

17 Q Do you have any additional changes to make to  
18 the testimony?

19 A (Witness Renz) No.

20 MS. McCLESKEY: Judge Laurenson, I move this  
21 testimony into evidence, and ask that it be bound into  
22 the record as if read.

23 JUDGE LAURENSEN: Any objections?

24 MR. MILLER: No objection.

25 MR. ZAHNLEUTER: No objection.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

MR. PIRFO: No objection.

JUDGE LAURENSEN: The testimony will be bound  
in the transcript at the page following this.

(Above referenced document follows)



LILCO, June 20, 1984

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

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

LILCO'S SUPPLEMENTAL TESTIMONY ON CONTENTION 24.R  
(LETTER OF AGREEMENT WITH CONNECTICUT)

1. Q. Please identify yourselves.

My name is Matthew C. Cordaro. My address is Long Island Lighting Company, 175 East Old Country Road, Hicksville, New York, 11801.

My name is William F. Renz. My address is Long Island Lighting Company, 175 East Old Country Road, Hicksville, New York, 11801.

[Both witnesses] Our professional qualifications have previously been admitted into the record. Each of us sponsors the remaining testimony below.

2. Q. What is Contention 24.R?

A. Contention 24.R states, in essence, that the State of Connecticut has not agreed to implement protective actions for that portion of the Shoreham 50-mile ingestion exposure pathway EPZ that is within Connecticut. LILCO's previously filed testimony on Contention 24.R sets out the complete text of the contention (Tr. Apr. 6, 1984, Vol. II, p. 27).

3. Q. Since LILCO witnesses filed testimony on Contention 24.R on March 2, 1984 and were cross-examined on that testimony on April 6 and 24, have you received additional information that bears upon the issues raised in Contention 24.R?

A. Yes. LILCO witnesses have testified, based upon a December 15, 1983 letter from the State of Connecticut to the State of New York (Tr. Apr. 6, 1984, Vol. II, Attachment 28), that the State of Connecticut has agreed to assume responsibility for implementing protective actions for the ingestion exposure pathway in the event of a radiological emergency at Shoreham (see Tr. Apr. 6, 1984, Vol. II, pp. 27-28). As a result of the letter introduced by the State of New York on cross-examination of LILCO's witnesses on Contention 24.R (N.Y. Ex. 3, ff. Tr. 6598), we contacted the

State of Connecticut to confirm our understanding of the meaning of the December 15, 1983 letter (see Attachment 1 to this testimony). The State of Connecticut responded on June 14, 1984, with a letter to LILCO that states (1) Connecticut officials will protect citizens of Connecticut should there be an accident at Shoreham, (2) they will do so by instituting existing State emergency plans, (3) they will do so whether they are notified by LILCO "or any other competent source," and (4) they will do so regardless of a response, or lack of it, from New York State or LILCO. That letter is Attachment 2 to this testimony. It was received by LILCO on June 18, 1984.

Taken together, the December 15 and June 14 letters from Connecticut indicate beyond any doubt that, contrary to the allegations of Contention 24.R, the State of Connecticut has agreed to implement protective actions for that portion of the 50-mile ingestion exposure pathway EPZ within its boundaries.

4. Q. Does that conclude your supplemental testimony?

A. Yes.



# LONG ISLAND LIGHTING COMPANY

175 EAST OLD COUNTRY ROAD • HICKSVILLE, NEW YORK 11801

Direct Dial Number

(516) 733-4945

ATTACHMENT 1 TO  
LILCO'S SUPPLEMENTAL  
TESTIMONY ON  
CONTENTION 24.R

May 22, 1984

Mr. Frank Mancuso  
Director  
Connecticut Office of  
Civil Preparedness  
State Armory  
360 Broad Street  
Hartford, CT 06105

Dear Mr. Mancuso:

A few weeks ago, I had the opportunity to talk to Mr. Grandone of your office to discuss the present state of emergency planning in support of the Shoreham Nuclear Power Station. As you know, the Long Island Lighting Company is in the process of developing and implementing a Local Offsite Radiological Emergency Response plan to respond to an emergency at Shoreham. LILCO has undertaken this endeavor as a result of Suffolk County's refusal to participate in the planning for such a response. As I believe you are also aware, the State of New York has taken the position that they will not "impose" a plan on Suffolk County.

LILCO's Plan is currently being considered before the Atomic Safety and Licensing Board. During the development and institution of this Plan, LILCO has reached agreement, or understanding, with many of the external organizations that would be needed to support such a response, such as the U.S. Department of Energy, the U.S. Coast Guard, the American Red Cross, and various ambulance and bus companies.

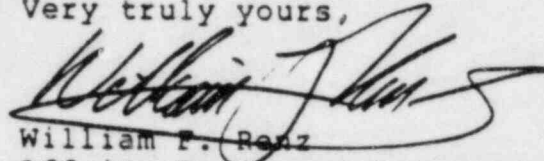
During my conversation with Mr. Grandone, he indicated that if the LILCO Plan is approved by the NRC, and LILCO receives an operating license for Shoreham, the State of Connecticut would institute its emergency plans to protect the health and safety of the residents of Connecticut were LILCO to notify Connecticut of an accident at Shoreham, even in the unlikely event that New York State and Suffolk County were not

Mr. Frank Mancuso  
May 22, 1984  
Page 2

participating in a response to that accident. I know that you have no wish to get involved in the political situation surrounding emergency planning for Shoreham. Although I believe your letter of December 15, 1984 states this position clearly, I would be grateful if you would send us a letter reconfirming this information.

Should you or your staff have any questions regarding this request, or have need of further information, please do not hesitate to contact me at the above listed phone number or address.

Very truly yours,



William F. Renz  
Offsite Emergency Preparedness  
Coordinator

cc: Mr. Frank Grandone

bcc: Messrs. J. A. Weismantle  
E. J. Youngling  
C. A. Daverio  
J. N. Christman  
M. Horoschak  
Ms. K. E. B. McCleskey  
E. D. Robinson





# STATE OF CONNECTICUT

## DEPARTMENT OF PUBLIC SAFETY OFFICE OF CIVIL PREPAREDNESS

ATTACHMENT 2 TO  
LILCO'S SUPPLEMENT  
TESTIMONY ON  
CONTENTION 24.2

June 14, 1984

Mr. William F. Renz  
Offsite Emergency Preparedness Coord.  
Long Island Lighting Company  
175 East Old Country Road  
Hicksville, New York 11801

Dear Mr. Renz:

Your letter of May 22, 1984 requests a reconfirmation that the State of Connecticut Office of Civil Preparedness would react to an emergency or pre-emergency at Shoreham by instituting emergency plans to protect the health and safety of the residents of Connecticut.

It is incredible that you assume we might not. Nevertheless, I will provide reassurance.

Regardless of what New York or LILCO does, Connecticut will look after its own public safety. This office will react to an accident at Shoreham or any other nearby facility by instituting existing emergency plans and resources to protect the health and safety of the residents of Connecticut. This is true whether we are notified by LILCO or any other competent source such as the Federal Emergency Management Agency.

I don't believe it is the intent of NUREG-0654/FEMA-REP-1 to make utilities primarily responsible for municipal level preparedness. This is a dangerous trend. It may lead to a situation with many utilities responsible for off-site standards of preparedness, a development that would make a sham of NUREG-0654/FEMA-REP-1.

I hope this letter satisfies your concern.

Sincerely,

A handwritten signature in cursive script that reads "Frank Mancuso".

Frank Mancuso  
State Director

FM/1a1

cc: F. Grandone  
CF

Phone: 566-3180  
360 Broad Street — Hartford, Connecticut 06105

*An Equal Opportunity Employer*

1 MS. McCLESKEY: Judge Laurenson, these witnesses  
2 are ready for cross examination.

3 JUDGE LAURENSEN: Mr. Miller?

4 CROSS EXAMINATION

XXXXINDEX BY MR. MILLER:

6 Q Gentlemen, I have handed out this morning  
7 the letters which I think, all taken together address  
8 Contention 24.R, and the testimony which has been put in  
9 by both LILCO and Suffolk County.

10 Let me just spend a minute going through  
11 these letters. You should have a December 15, 1983  
12 letter, which was Attachment 28 to the LILCO original  
13 testimony on Contention 24.R.

14 There is a March 30, 1984 letter, which was  
15 New York Exhibit 3.

16 There is an April 18, 1984 letter, which was,  
17 I think, LILCO Exhibit 38.

18 There is a May 22, 1984 letter, and a June 14,  
19 1984 letter, which are the two letters attached to your  
20 Supplemental Testimony.

21 Do you have all those letters in front of you?

22 A (Witness Renz) Yes, I do.

23 Q Mr. Renz, let me start with you. On page 2 of  
24 your Supplemental Testimony, you state in answer to Question  
25 3 actually, there is a statement -- or a question to you --

1 ... have you received additional information that bears  
2 upon the issues raised in Contention 24.R?

3 Do you see that?

4 A Yes.

5 Q And you say that you have received some  
6 additional information, and that is your June 14, 1984  
7 letter, is that correct?

8 A That is correct.

9 Q And that information was solicited by you  
10 from the State of Connecticut, wasn't it?

11 A That is correct.

12 Q If you could, gentlemen, keep these five letters  
13 in front of you because I want to ask just some broad general  
14 questions about all five letters, which I think is the  
15 fastest way to proceed.

16 With respect to any of the letters in question,  
17 Mr. Renz, with of course the exception of your letter of  
18 May 22, 1984, did you have any involvement of any kind in  
19 the preparation of the letters in question?

20 A Involvement in the preparation of the letters,  
21 no.

22 Q You had no discussions with the persons that  
23 prepared any of the letters, other than the letter that  
24 you prepared on your own?

25 A I had discussions with -- well, as the letter

1 I prepared refers to, I had discussions with Mr. Frank  
2 Grandone, who is the Chief Operating Officer, I believe.

3 Q Yes, sir. But you had no discussions with  
4 Mr. Mancuso, is that correct?

5 A I have had subsequent to writing the May 22nd,  
6 1984 letter, I have had discussions with Mr. Mancuso.

7 Q Were those discussions prior to the June 14,  
8 1984 letter?

9 A They were.

10 Q Could you tell me the substance of those  
11 discussions?

12 A The substance was primarily my letter of May 22.  
13 I discussed with Mr. Mancuso previous discussions I held  
14 with Mr. Grandone regarding whether or not the State of  
15 Connecticut would, indeed, take action to protect members  
16 of their public if there was an accident at the Shoreham  
17 nuclear power station, and his response was, of course.

18 Q And is it your understanding that the substance  
19 of these conversations with Mr. Mancuso are set forth in  
20 his letter of June 14, 1984?

21 A June 14th? Yes. I would say the first three  
22 paragraphs address the substance of our conversation.

23 Q The last paragraph of that letter, Mr. Renz,  
24 let me ask you then, you are talking about the paragraph  
25 that states: I don't believe it is the intent of NUREG 0654

1 to make utilities primarily responsible for municipal  
2 level preparedness .... and it goes on from there.

3 Is that the paragraph you are referring to?

4 A That is the paragraph I am referring to. That  
5 is the one I excluded, yes.

6 Q You did not have any discussions with Mr.  
7 Mancuso in this regard?

8 A No. As I recall, he had a desire not to get  
9 involved in the political situation down here.

10 Q Did you discuss the nature or substance of this  
11 paragraph with Mr. Grandone?

12 A I don't believe so, no.

13 Q So, to the best of your recollection, this  
14 paragraph when it came in on June 14th, had been unsolicited  
15 by you, correct?

16 A The only thing that was solicited by me was  
17 the request for the State of Connecticut to reaffirm what  
18 I believe through their December 15th letter of 1983, and  
19 through discussions I had with Mr. Grandone, to simply  
20 put those commitments into writing.

21 Q Were you surprised by this last paragraph?

22 A Not particularly.

23 Q Doctor Cordaro, have you had any discussions  
24 with anyone at the State of Connecticut regarding the  
25 matter set forth in Contention 24.R?

A (Witness Cordaro) Not in connection with these



1 letters. I have had discussions with people from Connecticut  
2 in years gone by regarding radiological matters and emergency  
3 planning, but that was some time ago, and didn't directly  
4 relate to the issues in 24.R.

5 Q Mr. Renz, let me go back to you for a minute.  
6 With respect to the first three letters now. Let's  
7 concentrate on those. The December 15, 1983 letter, and  
8 the March 30 and April 18, 1984 letters; is it fair to say  
9 that you were not involved in the preparation of these  
10 letters, nor have you had any discussions with the authors  
11 of the letters subsequent to the time the letters were  
12 prepared?

13 A (Witness Renz) I have had no discussions with  
14 anyone from New York State regarding the sequence of  
15 letters. I did talk -- I believe my first conversation  
16 with Mr. Grandone took place probably in the November 1983  
17 time frame, at which time I requested the State of  
18 Connecticut to put into writing what they -- what actions  
19 they would take if, in fact, there was an accident at  
20 Shoreham and they were notified of that accident.

21 Q I see. So the following year, the December 15th  
22 letter from Mr. Mancuso to New York State was the result  
23 of a conversation you had with Mr. Randone last year?

24 A I would say so, yes.

25 Q Are any of these letters contained in the LILCO

1 Plan, Mr. Renz? Any of these five letters?

2 A I believe the December 15th letter came in  
3 on or about the time Rev. 3 was issued. I don't believe  
4 it was contained in Appendix B , Rev. 3. I simply don't  
5 recall. I don't think it was, though.

6 However, I believe -- I am sorry, I would have  
7 to refer to Appendix B that was issued with Rev. 4, to  
8 ensure the correctness of my answer.

9 Q So, to your knowledge at this time, none of  
10 these letters are in the LILCO Plan, is that correct.

11 A No, that is not correct. I don't know.

12 Q You just don't recall.

13 A I believe that the -- that one or both of  
14 the December 15th and the June 14th letters are in Rev. 4,  
15 but I simply don't recall.

16 Q Is it fair to say, Mr. Renz, that there is no  
17 agreement from the State of New York relating to any  
18 agreement with the State of Connecticut in the LILCO Plan?

19 A Based on my understanding, I would say yes.  
20 Between New York State and the State of Connecticut, no,  
21 there is no formal agreement.

22 End 1  
23 Mary fols.  
24 548

24

25

#2-1--SueT<sub>1</sub>

Q There is no letter from New York State?

A (Witness Cordaro) There is no letter from New York State indicating their agreement which is contained in the plan.

Q Well, do you think, Dr. Cordaro, there is a letter from Connecticut that indicates an agreement with New York State of any kind?

A I think so. If the December 15th letter is in there, I would say yes.

Q Well, why don't you look at the December 15th letter and also the April 18th letter.

A Yes, I have them.

Q The December 15th letter states, this is the letter from Connecticut to New York State, says that: This letter serves as a letter of agreement between the State of Connecticut and the State of New York. And there is other discussion that goes on from there.

And there is a response, as we know, on March 30th, from New York State to Connecticut which basically I think it's fair to say says to the State of Connecticut, you have no agreement with the State of New York.

Would you agree with that?

MS. MC CLESKEY: Objection. First, to be discussing the December 15th letter in the context of the supplemental testimony is repetitive, because we have

#2-2-SueT 1

2 gone through the December 15th letter in some detail the  
3 first time around on 24.R. Second, the issue of whether  
4 there exists an agreement between New York State and  
5 Connecticut is irrelevant to the contention which alleges  
6 that there is no agreement from Connecticut to respond when  
7 LILCO is doing offsite planning.

8 MR. MILLER: Judge Laurenson, I am trying to do  
9 this as quickly as possible, but I think the December 15th  
10 letter, although previously discussed, is in issue here.  
11 And it's specifically mentioned by the supplemental testi-  
12 mony.

13 In fact, the supplemental testimony relies on  
14 the December 15th letter, taken in conjunction with the  
15 June letter to form the basis for LILCO's position regarding  
16 24.R.

17 JUDGE LAURENSEN: The point is, you are asking  
18 these witnesses what these letters say. And that's just  
19 generally not a proper method of interrogation of witnesses.  
20 The letters speak for themselves.

21 They are all in evidence, either as attachments  
22 to testimony or as separately admitted exhibits here. The  
23 general rule is that the documents speak for themselves. The  
24 witnesses are not to paraphrase what the letters say, or to  
25 read them back into the record.

I think you have the right to interrogate the



#2-3-SueT 1

2 witnesses concerning their involvement in the preparation  
3 of the letters or actions they took based upon the letters  
4 or any information as to how these letters impact upon  
5 their actions or the LILCO plan. But to just ask the  
6 witnesses say is not a proper basis for inquiry.

7 The objection is sustained.

8 BY MR. MILLER: (Continuing)

9 Q Dr. Cordaro, looking at the April 18th letter,  
10 do you see the statement from Mr. Mancuso of the State of  
11 Connecticut: My letter to Director Diveto -- and he is  
12 referring to the December 15th letter there -- does not  
13 purport to serve as a letter of agreement between the State  
14 of Connecticut and the State of New York concerning the  
15 Shoreham Nuclear Power Station.

16 Do you see that statement?

17 A Yes.

18 Q Do you have any basis of disagreement with that  
19 statement?

20 A I have basis of confusion, because -- I am  
21 obviously confused, because as I read the December 15th  
22 letter it is obviously a letter of agreement involving  
23 interstate radiological assistance related to the Shoreham  
24 Nuclear Power Plant. It says so right in the subject of  
25 that letter.

He is, in that statement, directly contradicting



#2-4-SueT

1 what is very, very obvious from the reading of the December  
2 1983 letter.

3 Q You would agree with me, Dr. Cordaro, that the  
4 last statement by Mr. Mancuso on behalf of the State of  
5 Connecticut in this regard, though, is that there is no  
6 letter of agreement between the State of Connecticut and  
7 the State of New York concerning Shoreham; isn't that  
8 correct?

9 A Well, I'm confused again there, because the next  
10 sentence right after that in the April 18th, 1984 letter,  
11 does say that -- the letter does suggest that we are meet-  
12 ing the requirements of NUREG 0654 which requires agree-  
13 ments for radiological assistance. In his opinion, I think  
14 he believes from what that statement says that he is meet-  
15 ing the requirements of 0654.

16 So, again I'm confused because of the apparent  
17 waffling that's going on here between the two letters and  
18 the obvious attempt to avoid political sensitivity.

19 (Witness Renz) It's my understanding from  
20 those two sentences that were just referred to that the  
21 prior is simply a statement by Connecticut saying -- those  
22 two sentences taken together, the second one is a statement  
23 saying: We are intending to meet the requirements of 0654.  
24 We will provide radiological assistance. If you wish not  
25 to have agreement with us, that's fine.

#2-5-SueT 1

Q That's your understanding, Mr. Renz?

2

A Yes, it is.

3

Q And what's the basis for your understanding?

4

A Conversations with -- primarily with Frank

5

Grandone of the Office of Civil Preparedness in Connecticut.

6

Q Let me ask you, who is Mr. Grandone exactly?

7

A According to the December 15th, 1983 letter, he

8

is the Chief of Plans and Operations of the Office of Civil

9

Preparedness for the State of Connecticut.

10

Q Does he speak on behalf of the State of Connecticut?

11

A He reports directly to Mr. Mancuso and is involved

12

intimately in probably most of these letters. He, I don't

13

believe, can speak for the State of Connecticut without the

14

approval of his superiors.

15

Q Now, Mr. Renz, to your knowledge, has Mr. Mancuso

16

ever reviewed the LILCO plan?

17

A Not to my knowledge, no.

18

Q And the June 14, 1984 letter, which is attached

19

to the supplemental testimony, that letter does not mention

20

the LILCO plan, does it?

21

A It does mention the LILCO plan specifically, no.

22

It makes reference to entities that may, however, be con-

23

tacting the State of Connecticut under the LILCO Transition

24

Plan.

25

Q Now, Mr. Renz, if you would look at the next to

#2-6-SueT

1 the last paragraph of the December 15th letter, it states  
2 that Connecticut will exchange information with New York;  
3 is that a fair statement of what is said there?

4 A In addition to other areas of collecting samples  
5 of food, water, milk, et cetera, yeah.

6 Q Now, looking at the June 14, 1984 letter, there  
7 is no statement that Connecticut will exchange information  
8 with LILCO, in the June 14th letter, is there?

9 A Not specifically. It does say that the Office  
10 of Civil Preparedness of the State of Connecticut would  
11 react to an emergency or preemergency at Shoreham and that  
12 it is incredible that anybody might think otherwise.

13 Q Yes, sir. But there is no statement in the  
14 June 14, 1984 letter that the State of Connecticut will  
15 exchange information with LILCO; isn't that correct?

16 A Those words are not in that letter. That's  
17 correct.

18 Q And, in fact, none of the letters in question  
19 here, these five letters, commits Connecticut to exchanging  
20 information with LILCO; isn't that correct?

21 And I'm talking in the context of an emergency  
22 at Shoreham, of course.

23 A These letters commit Connecticut to meeting the  
24 requirements or guidance set forth in NUREG 0654, FEMA-REP-1.  
25 They do not stipulate specifically every detail associated

#2-7-SueT1

2 with that response, including the interchange of information  
3 between LILCO and the State of Connecticut.

4 (Witness Cordaro) It would be impossible for  
5 them to implement their plans without exchanging informa-  
6 tion with LILCO in the event of an accident.

7 They would have to be aware of what the nature  
8 of the releases are, the projections. And there would  
9 have to be communication back and forth. I mean, it's  
10 just impossible for them to implement their plan as they  
11 say they would without this kind of communication and ex-  
12 change of information.

13 Q My point, Dr. Cordaro, is that the December 15,  
14 1983 letter, which at the time purported to be a letter  
15 of agreement between Connecticut and New York, specifically  
16 states that Connecticut will exchange information with New  
17 York.

18 Correct?

19 A Yes.

20 end #2  
21 Mary flws

22

23

24

25



Sim 3-1

1 Q And that statement regarding an exchange  
2 of information between Connecticut and LILCO with respect  
3 to an emergency at the Shoreham plant is nowhere made in  
4 any of the other letters we are talking about here, including  
5 the June 14, 1984 letter; isn't that correct?

6 A (Witness Cordaro) Those exact words, right,  
7 are not included in the other letters.

8 Q Well, not the exact words. There are no words  
9 that talk about an exchange of information between  
10 Connecticut and LILCO.

11 A In an emergency planning sense there is no  
12 need to explicitly spell out those words to understand  
13 that an exchange of information will have to take place.  
14 I view the December 15th letter more as a form letter and  
15 as a letter of agreement which includes several pat statements  
16 which are routinely included in these types of letters,  
17 and that is why that language is there.

18 I think if you look at the history of the  
19 exchange from that point on, there is a certain sensitivity  
20 expressed because of the political situation, and as such  
21 there has been a departure from what is a form letter as  
22 far as a letter of agreement is concerned, and that is why  
23 you don't see referenced that specific type of language  
24 directly addressing the exchange of information.

25 But, as I said earlier, there is no way



Sim 3-2

1 that Connecticut can institut their emergency plans to  
2 protect the health and safety of their residents without  
3 an exchange of information with Shoreham.

4 A (Witness Renz) In addition, if you will notice,  
5 the last sentence of the third paragraph of the May 22  
6 letter, which I authored, it refers to the contents of the  
7 December 15th letter.

8 Q Will you refer me where, Mr. Renz?

9 A The last sentence of the third paragraph of the  
10 May 22nd letter to Mr. Frank Mancuso which states  
11 "Although I believe your letter of December 15th, 1984  
12 states this position clearly, I would be grateful if  
13 you would send us a letter reconfirming this information."

14 Q And when the letter was sent in your terms  
15 reconfirming the information, there was no statement regarding  
16 the exchange of information between Connecticut and LILCO;  
17 isn't that correct?

18 A No written statement, that is correct.

19 Q And, Mr. Renz, isn't it correct that NUREG  
20 0654, element Roman II-A-3 discusses letters of agreement,  
21 correct?

22 A I don't recall.

23 Q Do you have a copy of NUREG 0654?

24 A Not before me.

25 Q Well, Mr. Renz, are you familiar with the

Sim 3-3

1 statement in that section of NUREG 0654 which says  
2 "Agreements shall identify the emergency measures to be  
3 provided and the mutually acceptable criteria for their  
4 implementation and specify the arrangements for exchange  
5 of information"?

6 A Those words sound familiar and I have no reason  
7 to doubt that they are where you stated. I think that all  
8 these letters taken together meet the intent of that  
9 guidance. If you take my letter, which refers to the  
10 December 15th letter which addresses the desire to meet  
11 654 and gives a few specifics in that regard, I have no  
12 reason to think otherwise, that the State of Connecticut  
13 would not indeed desire an exchange of information under  
14 emergency conditions at the Shoreham Nuclear Power Station.

15 Q Mr. Renz, let's see if we can't wrap this up.  
16 Would you agree with me that the June 14 letter does not  
17 specify the arrangements for exchange of information between  
18 Connecticut and LILCO?

19 MS. McCLESKEY: Objection, asked and answered.

20 JUDGE LAURENSEN: Overruled.

21 WITNESS RENZ: That letter taken alone does  
22 not spell it out, no.

23 BY MR. MILLER:

24 Q Now, Mr. Renz, during -- Dr. Cordaro, I had  
25 better you this I suppose.

Sim 3-4

1                   There was a question that was asked during  
2                   the original cross-examination of Contention 24(R) regarding  
3                   whether LILCO had submitted in this proceeding any plan  
4                   from the State of Connecticut , and the answer was that  
5                   LILCO had not done that since that time.

6                   Do you recall that testimony, Dr. Cordaro?

7                   A           (Witness Cordaro) I don't specifically  
8                   recall that, but I am not aware of any State plan that  
9                   has been submitted. Perhaps Mr. Renz might know more about  
10                  that, but I am not aware of a State plan for Connecticut  
11                  which has been submitted as part of the record in this  
12                  proceeding.

13                  Q           Mr. Renz, now keep in mind that we are talking  
14                  about a State plan on behalf of the State of Connecticut.

15                  My question is LILCO has not submitted in  
16                  this proceeding any emergency plan from the State of  
17                  Connecticut; isn't that true?

18                  A           (Witness Renz) No. With many of the support  
19                  organizations or external organizations that support the  
20                  LILCO transition plan, we have not submitted the State  
21                  of Connecticut plan, to my knowledge, into this proceeding.

22                  Q           And, Mr. Renz, I take it from the supplement  
23                  testimony that -- and I am looking at page 3 of your  
24                  supplemental testimony -- it is fair to say at this time  
25                  the only documents relied upon by LILCO are in response

Sim 3-5

1 to Contention 24-R are the December 15 and the June 14  
2 letters from Connecticut; is that true?

3 A With the purpose of supporting the plan, that  
4 is true. The reason I gave that answer is there are other  
5 correspondence here obviously from them, and whoever  
6 implements the LILCO transition plan would know not to  
7 contact New York State and have them contact the State of  
8 Connecticut. If there was ever any question in anybody's  
9 mind, I think the December 15th letter, taken together with  
10 the June 14th letter, states clearly the State of  
11 Connecticut's position and their support.

12 Q Now, Mr. Renz, looking at the June 14 letter,  
13 there is a statement that says "Connecticut will react  
14 to an accident at Shoreham or any other nearby facility  
15 by instituting existing emergency plans and resources  
16 to protect the health and safety of the residents of  
17 Connecticut."

18 Do you see that statement?

19 A Yes, I do.

20 Q Nowhere does it say that Connecticut will  
21 do these things as required by LILCO; isn't that correct?

22 A LILCO would not require their response. The  
23 nature of the accident would require their response.

24 Q So you are not saying that Connecticut will  
25 take any action as required by LILCO, are you?

Sim 3-6

1           A       The State of Connecticut is not subject to  
2 our requirements. The State of Connecticut will respond  
3 to an emergency at Shoreham, and that is all we are saying.

4           A       (Witness Cordaro) I believe the same case  
5 may exist even where they have an agreement with New York  
6 State regarding a facility. I can't see how New York  
7 State would make requests or provide advice to Connecticut,  
8 but Connecticut would take actions on the basis of its  
9 own plan. I don't think there is any way New York State  
10 can absolutely require Connecticut to take a specific  
11 action.

12          Q       Dr. Cordaro, maybe you can give me a yes  
13 or a no answer to this question. Is it fair to say that  
14 Connecticut has not agreed to implement protective action  
15 recommendations made by LILCO?

16          A       Obviously, no. There is never an agreement  
17 to implement protective action. Even if New York State  
18 made protective action recommendations for Connecticut,  
19 Connecticut would exercise their own independent judgment  
20 regarding those protective action recommendations. That  
21 is exactly what they are, recommendations.

22          A       (Witness Renz) That is to say if the State  
23 of Connecticut chooses to take protective actions without  
24 New York State or LERO or utilities within the State of  
25 Connecticut that have nuclear power plants or the



Sim 3-7

1 Power Authority of the State of New York of Consolidated  
2 Edison at Indian Point, if the State of Connecticut doesn't  
3 desire to take action when they are recommended to, or  
4 if they desire to take action prior to that recommendation  
5 coming to them, that is up to them.

6 Q To make sure we understand each other in your  
7 answer, maybe my question was not worded exactly right.

8 Are you saying Dr. Cordaro, that Connecticut  
9 has agreed to implement protective action recommendations  
10 made by LILCO?

11 A (Witness Cordaro) I don't believe there is  
12 a necessity of requirement for them to agree to implement  
13 protective action recommendations we make.

14 Q Has Connecticut agreed to do so?

15 A Obviously since there is no requirement, they  
16 haven't.

17 A (Witness Renz) They have simply agreed to  
18 protect their own citizens.

19  
20  
21  
22  
23  
24  
25  
end Sim  
Sue fols

1           Q       Mr. Renz, your May 22 letter, you talk in the  
2 first sentence about the opportunity to talk to Mr. Grandone.  
3 I take it that you made the opportunity to talk to Mr.  
4 Grandone, correct? You telephoned him; you contacted him?

5           A       (Witness Renz) Yes.

6           Q       Is it fair to say you contacted him in response  
7 to the March 30, 1984 letter, which is New York Exhibit 3?

8           A       Yes.

9           Q       In the second paragraph, Mr. Renz, of your letter  
10 of May 22, you say that LILCO has reached agreement or  
11 understanding with many external organizations needed to  
12 support a response at Shoreham.

13                   Do you see that statement?

14           A       Yes, I do.

15           Q       Do you distinguish between an agreement and  
16 reaching an understanding with an external response  
17 organization?

18           A       I do not draw as much a distinction between those  
19 two terms as many others do.

20           Q       What distinction do you draw?

21           A       I don't believe I draw much of any distinction.  
22 If you have an agreement with somebody or you have an  
23 understanding of what their actions -- what actions that  
24 they will be taking under a given circumstance.

25           Q       So, is it fair to say, Mr. Renz, that we could

1 interchange the two terms, and that as of now, in your  
2 opinion, LILCO has an understanding with the State of  
3 Connecticut?

4 A In my opinion, we have both an agreement and  
5 an understanding with the State of Connecticut. If I  
6 take another external organization, like the American  
7 Red Cross, I would say we have an agreement with them.  
8 We have an agreement with them for them to provide support  
9 to us.

10 I have an understanding of the State of Connecticut  
11 of what measures they will take to protect their own public.

12 However, they are not supporting our either  
13 plume exposure, EPZ response, or our own -- or our ingestion  
14 response external to the State of Connecticut, but they have  
15 agreed to protect their own general public, so I would say  
16 we have an agreement and an understanding with Connecticut.

17 Q Mr. Renz, did you help draft this June 14th  
18 letter?

19 A Did I help draft it? Not in any way, no.

20 Q Did you know the substance of the letter in  
21 advance of the receipt of the letter?

22 A I knew the substance in that I asked the  
23 question on two separate occasions; one to Mr. Grandone  
24 and one to Mr. Mancuso. If LILCO receives an operating  
25 license for Shoreham, and an emergency develops at the

1 Shoreham nuclear power station, would the State of  
2 Connecticut, indeed, take measures to protect the citizens  
3 of Connecticut?

4 And their response was, yes. That was my  
5 understanding of what that would be, the content of the  
6 June 14th letter.

7 Q And Mr. Renz, in the June 14th letter, that  
8 3rd paragraph, which says that Connecticut would react to  
9 an accident at Shoreham by instituting existing emergency  
10 plans; do you see that statement?

11 A Yes, I do.

12 Q Such plans as referred to in the June 14th  
13 letter do not include the LILCO Plan, isn't that correct?

14 A I think you are coming at it from the wrong side.  
15 The way the State of New York, from what I understand the  
16 State of Connecticut, is they have general response plans  
17 to support a radiological accident for ingestion pathway  
18 purposes out to 50 miles from those plants.

19 We have provided the State of Connecticut with  
20 50 ingestion pathway maps. As I recall, excerpts or  
21 procedures associated with ingestion pathway. I don't  
22 believe the State of Connecticut, the State of New York  
23 or any other State's emergency plans are detailed to the  
24 extent that a 10 mile plume exposure plan would be detailed.

25 I think their plans have the flexibility to focus

1 their resources in any area that they feel would be needed.

2 There are three operating plants inside of  
3 Connecticut. There are two operating plants in the State  
4 of New York now that fall within 50 miles of Connecticut.

5 I think their existing plans are more along  
6 the lines of how to respond in that context.

7 Q Mr. Renz, have you read the existing State of  
8 Connecticut plans?

9 A I have looked through the Connecticut State  
10 Plan. I can't say I have read the whole plan.

11 Q Let me go back to my original question, Mr. Renz.  
12 It is a very simple question, I think. In Mr. Mancuso's  
13 June 14th letter, when he refers to existing emergency  
14 plans, isn't it true that he is just referring to the State  
15 of Connecticut plans in that regard?

16 A He is referring to existing plans in the State  
17 of Connecticut, yes.

18 Q Let me try to wrap this issue up, gentlemen. If  
19 you will look at page 3 of your supplemental testimony,  
20 and where it says: Taken together, the December 15 and  
21 June 14 letters from Connecticut .... and it goes on.

22 Is it fair to say that your position is that  
23 the two letters of December 15th and June 14th constitute  
24 letters of agreement from Connecticut to protect the citizens  
25 of Connecticut?



1 A (Witness Cordaro) Yes.

2 Q And, Doctor Cordaro, you make that statement even  
3 though the December 15th letter was a letter of agreement  
4 between New York and Connecticut, in Connecticut's view?

5 A Yes.

6 Q And you make that statement even though in April  
7 Connecticut wrote to New York and said that there is no  
8 agreement between Connecticut and New York concerning the  
9 Shoreham plant?

10 A Well, you know, you are starting to characterize  
11 the letter. The letter speaks for itself as to what it  
12 says.

13 It clarifies the nature of the earlier December  
14 15th letter.

15 Q It clarifies it by contradicting it, isn't that  
16 correct?

17 A Obviously that is what I referred to earlier  
18 as responsible for the confusion I have in this concern.

19 It doesn't necessarily disavow aspects of that  
20 letter. It just says that it is not a formal letter of  
21 agreement. However it does suggest that the requirements  
22 of 0654 are being met, and it doesn't necessarily discount  
23 the fact that the State of Connecticut will collect samples,  
24 and interdict food and water and milk within the potentially  
25 affected areas of the Shoreham 50 mile EPZ.

1           As we say in the testimony, if you read them  
2 all together, it is very, very obvious that Connecticut  
3 is going to take the necessary steps to protect the citizens  
4 of Connecticut from potential accident at Shoreham.

5           Q       Let me ask you, Doctor Cordaro, is it fair  
6 to say that in your opinion the June 14th letter, standing  
7 alone, would not constitute a letter of agreement with  
8 Connecticut regarding the protection of Connecticut's  
9 citizens during an emergency at Shoreham?

10          A       I think even alone you could say that it does  
11 constitute an agreement.

12          Q       So, are you amending then your testimony on  
13 page 3 of the Supplemental Testimony?

14          A       No. I think the best way to view this is to  
15 look at all the letters together, and that is where more  
16 facts exist.

17                 However, in response to your question, if you  
18 read that letter and you look at the first paragraph  
19 especially, you can deduce that letter itself may serve  
20 as a letter of agreement.

21          Q       And Doctor Cordaro, are you familiar with NUREG  
22 0654?

23          A       Yes.

24          Q       And in your opinion, the June 14 letter, standing  
25 alone, would identify the emergency measures to be provided

1 and the mutually acceptable criteria for their implementation  
2 and specify the arrangements for the exchange of infor-  
3 mation, is that your testimony?

4 A No, not alone.

5 Q You need the December 15th letter?

6 Yes, those two letters.

7 Q Well, there seems to be a contradiction there,  
8 Doctor Cordaro, between your two statements. I will  
9 let it go at that.

10 MR. MILLER: Judge Laurenson, that completes  
11 the County's cross examination.

12 JUDGE LAURENSON : Mr. Zahnleuter?

13 CROSS EXAMINATION

14 BY MR. ZAHNLEUTER:

15 Q Mr. Renz, I have a question about the December 15th  
16 letter. I believe that you stated before that you spoke to  
17 Mr. Mancuso and asked that he write this letter. Is my  
18 memory correct?

19 A (Witness Renz) No.

20 Q Would you correct it?

21 A I was planning on it. I had discussions with Mr.  
22 Grandone, of Mr. Mancuso's office, in the latter part of  
23 last year in this regard.

24 Q Did you request that this letter be written?

25 A I requested a letter stating Connecticut's intent

1 in regard to emergency planning for Shoreham nuclear power  
2 station.

3 Q Did you request that the letter be addressed to  
4 the State of New York?

5 A I made no request either to the State of New  
6 York or to ourselves.

7 I simply asked if the State of Connecticut would  
8 respond, and would they put that in writing, and I believe  
9 they did in the December 15th letter.

10 Q Now, is it true based on your knowledge of this  
11 entire matter concerning Connecticut and the ingestion  
12 pathway zone, that no one associated with New York State  
13 has made any statement in this matter with the exception  
14 of the March 30th letter from Doctor Axelrod?

15 A Specifically addressing this matter, specifically  
16 addressing Shoreham, I would say so. I do know of  
17 correspondence between the State of Connecticut and the  
18 State of New York exchanging information on a planning  
19 basis on ingestion pathway, as I recall.

20 But other than the Axelrod letter to Connecticut,  
21 I think your statements are fair.

22 Q When I asked you about your knowledge, I intended  
23 to include in my question your knowledge based on letters  
24 that you have seen and also your knowledge based on  
25 conversations that you had with Mr. Grandone and Mr.

1 Mancuso, would your answer remain the same with that  
2 clarification of my question?

3 A I think so, yes.

4 Q Now, in the December 15th letter, in the third  
5 paragraph, there is the statement about the State of  
6 Connecticut exchanging information with the New York  
7 Department of Health. Did you suggest, or request, that  
8 such a statement be put in that letter?

9 A No, I didn't. As Mr. Mancuso's letter of  
10 April 18th suggests, the State of Connecticut was trying  
11 to meet the requirements of 654, and the easiest way to  
12 do that is to identify in your letter the detail to the  
13 extent that 654 requests.

14 I think that is what prompted that passage.

15 Q None of the -- well, in the first paragraph  
16 there is a reference to Section 2.A.3 of NUREG 0654, and  
17 none of the letters in the record concerning Contention 24.R  
18 deal with any other NUREG element besides 2.A.3, isn't that  
19 correct?

20 A I believe so, yeah. Yes.

21 Q Now, I am looking at your letter of May 22nd  
22 to Mr. Mancuso. And on the second page, you state that:  
23 Although I believe your letter of December 15th 1984, --  
24 which should be 1983, I take it -- states this position  
25 clearly, I would be grateful if you would send another



1 letter, et cetera.

2 My question is: If you believe that the letter  
3 stated a clear position, why did you ask for another letter?

4 A Simply because you know in your heart and mind  
5 that the State of Connecticut will respond. FEHA does not,  
6 necessarily believe that. They request that confirmation  
7 be performed in writing.

8 December 15th letter suggests that the State  
9 of Connecticut will respond in the event of an emergency  
10 at Shoreham. They offer to exchange information with New  
11 York. New York State's later letter in response to that  
12 some months later makes -- takes the option of simply not  
13 exchanging information; because Connecticut wishes to  
14 protect their own citizens, and since the December 15th  
15 letter was written to the State of New York, I simply  
16 wrote and requested a clarifying letter to ensure that  
17 this did not discourage the State of Connecticut's intention  
18 to respond to an accident at Shoreham.

19 Q Was it important to you that the letter be written  
20 to LILCO instead of the State of New York? Was that the  
21 main reason for your request for reconfirmation?

22 A By May 22nd, 1984, it was important to me, yes.

23 Q And the last paragraph of your letter, I believe  
24 we have established that there have been conversations  
25 between you and Mr. Mancuso after May 22nd. But in the

1 last paragraph you state that if you have need for further  
2 information.

3 Did Mr. Mancuso request further information?

4 A No. As I referred to earlier, we have sent  
5 them excerpts of our plans and procedures and maps associated  
6 with the 50 mile ingestion pathway zone. I have had no  
7 further correspondence or communication, other than his  
8 letter to me of June 14th.

9 Q Was that all that Mr. Mancuso requested of you?

10 A I am sorry?

11 Q The -- you said you provided him information  
12 such as the LILCC Plan and other OPIP's, I presume. Was  
13 that the only kind of information that he asked of you?

14 A I provided this in November 1983 time frame.  
15 I don't recall whether he requested it, or I offered  
16 it. Other than that information we provided, I don't  
17 believe we provided any other.

18 Q Okay. You referred to the November 1983 time  
19 fram, but I wish to clarify; what happened after your  
20 May 22nd letter with respect to conversations between you  
21 and Mr. Mancuso, or even Mr. Grandone? Could you explain  
22 if there were any communications after May 22nd besides,  
23 of course, the letter of June 14th?

24 A It was a discussion in regard to the letter of  
25 May 22nd. It did not extend beyond the content of that letter

1 as far as I recall. The subject of the conversation was  
2 that letter, so I am sure the content of the conversation  
3 did not extend beyond the content of that letter.

4 Q Well, that is what I am trying to get at. Did  
5 he make an inquiry concerning the State of New York's  
6 position?

7 A No, I think after New York State's March 30,  
8 1984 letter, I think he is pretty much aware of the position  
9 of New York State.

10 Q Can you specifically tell me which parts of your  
11 May 22nd letter he inquired about?

12 A I don't think he inquired. I think I inquired.  
13 I think I reiterated the question if there was an accident  
14 at Shoreham, and of course we had been granted a license  
15 prior to that, but if there was an accident at Shoreham,  
16 would he take measures to protect the public, the general  
17 public of the State of Connecticut, and his response was:  
18 Of course he would.

19 End 4.  
20 Sue Fols.

21

22

23

24

25

26

#5-1-SueT 1

2 Q Are you familiar with LILCO's proposals for its  
3 response with respect to the ingestion pathway in New York  
4 State?

5 A (Witness Renz) I am not as familiar as the panel  
6 that was up here yesterday, no.

7 Q Well, have you reviewed the portion of the plan  
8 that deals with that response?

9 A I would hesitate to say review. I've been  
10 through it, but I haven't reviewed it.

11 Q Would you say you are familiar with it?

12 A I have some knowledge of it.

13 Q Do you know if the State of Connecticut has  
14 anything in existence, any kind of plans in existence,  
15 that would be comparable to what you are familiar with?

16 A I don't know if anybody in this country has any-  
17 thing that is comparable to what I'm familiar with. We  
18 have a rather extensive plan from my understanding.

19 Q Do you know if the State of Connecticut has  
20 anything that approaches your plan?

21 A I don't know one way or the other.

22 Q Is it fair to say you have no idea?

23 A No. That's not a fair statement. I have some  
24 idea. As far as, considering Indian Point lies within  
25 fifty miles of Connecticut, considering there are three  
other plants that are operating in the State of Connecticut,

#5-2-SueT

1 and considering that all of those plants are operating, I  
2 have a pretty good idea that whatever existing plans in  
3 the State of Connecticut that are there are adequate to  
4 meet the needs that might arise under such conditions.

5 Q Your statement now is based on your general  
6 knowledge or assumption that because there is a nuclear  
7 power plant at Indian Point, therefore, Connecticut must  
8 have adequate plans; is that correct?

9 A Absolutely.

10 Q Now I am looking at the June 14th letter from  
11 Mr. Mancuso. In the third paragraph he makes a statement  
12 which is, "This office will react to an accident at  
13 Shoreham or any other nearby facility," et cetera. I'm  
14 concerned about the phrase "any other nearby facility."

15 Do you know what he meant by that?

16 A The two operating plants at Indian Point. I  
17 believe that statement might also include the two operating  
18 plants at Millstone and the one at Adams Neck.

19 Q Why do you think it would be necessary for him  
20 to include that kind of statement in this letter about  
21 Shoreham?

22 A If you refer to the second paragraph of that  
23 letter which states, "It is incredible that you assume  
24 we might not." And that I think refers to that we might  
25 assume that they might not respond, the third paragraph



#5-3-SueT<sub>1</sub>

2 simply refers to standard practice already in place in  
3 the State of Connecticut.

4 Q Okay. The fourth paragraph says, "I don't  
5 believe it is the intent of NUREG-0654/FEMA-REP-1 to  
6 make utilities primarily responsible for municipal level  
7 preparedness. This is a dangerous trend."

8 Do you have any idea why Mr. Mancuso thinks  
9 that is such a dangerous trend?

10 A (Witness Cordaro) It might put him out of a  
11 job.

12 (Laughter.)

13 (Witness Renz) I -- the original intent of  
14 0654 is obvious. It addresses licensees, states and  
15 localities. The intent of that document was to give  
16 guidance to all of the three entities I've just mentioned.  
17 To have, in his opinion, a utility perform not only the  
18 licensee functions but coordinate with external organiza-  
19 tions and field a local response organization to the extent  
20 that we have done, I don't think he is comfortable with  
21 that situation. As a rule.

22 (Witness Cordaro) There are many thing you  
23 could read into this as far as his reasons for including  
24 something like this. You know, another reason would be  
25 to sort of soften the blow or perceptions of New York  
State officials regarding his issuance of this letter, as

#5-4-SueT1

1 he has seemingly done in the other letter regarding the  
2 December 15th, where he clarifies the December 15th letter.

3 Q Okay. I understand that you may interpret these  
4 sentences in whatever way you wish. But based on your  
5 knowledge and your conversations and discussions and the  
6 letters with Mr. Mancuso or Mr. Grandone, is there any  
7 relevation about why such a situation would be dangerous?

8 A (Witness Renz) Absolutely not.

9 MR. ZAHNLEUTER: I have no other questions.

10 JUDGE LAURENSEN: Mr. Pirfo.

11 MR. PIRFO: Thank you, Judge Laurenson. I have  
12 no questions.

13 JUDGE LAURENSEN: Any redirect?

14 MS. MC CLESKEY: No, sir.

15 MR. MILLER: Judge Laurenson, I just have one  
16 question I would like to ask. I think it would clarify  
17 something.

18 CROSS EXAMINATION

19 BY MR. MILLER:

20 Q Mr. Renz, did you contact Mr. Mancuso following  
21 your May 22nd letter and prior to the June 14th letter, or  
22 did he contact you?

23 A (Witness Renz) I sent him -- I contacted him  
24 in regards to the May 22nd letter.

25 Q You sent the letter to him and then you followed

#5-5-SueT 1

it up by a telephone call?

2           A        I think I wrote it and I contacted him and  
3 discussed what I was going to be sending to him.

4           Q        You did that, although you had discussed the  
5 matter with Mr. Grandone?

6           A        Yes. It's Mr. Mancuso that makes the ultimate  
7 decisions as to what -- simply because I talked to a  
8 representative of the State of Connecticut and they assured  
9 me personally that they would respond in such an instance if  
10 notified by LILCO, that they would respond to protect the  
11 State of Connecticut residents, I don't think under the  
12 guidance provided by 0654 that that is sufficient.

13                    You need that type of understanding or commitment  
14 in writing.

15           Q        I understand that, Mr. Renz. But if you all  
16 along knew you were going to go to Mr. Mancuso and discuss  
17 this matter with Mr. Mancuso directly, why did you go to  
18 Mr. Grandone to begin with?

19           A        I didn't go to Mr. Grandone. I called Mr.  
20 Mancuso, and I don't recall the date at all, in this  
21 time frame. He was out for a number of days. I then asked  
22 to talk to Frank Grandone, who I had talked to on several  
23 occasions prior to that.

24                    I was transferred and I discussed it with Frank  
25 Grandone. Upon Mr. Mancuso's return, which was the following

#5-6-SueT1

Monday of whatever week that was, I called him again and discussed with him the contents of the letter.

Q I just want to make sure. I thought you had told me earlier that your May 22nd letter was sent and then subsequent to that time you had your discussion with Mr. Mancuso.

A No. I'm sorry if you got that impression. I wrote the letter, called them in reference to the letter, and I sent the letter.

Q Have you had any discussions with Mr. Mancuso since the time of your May 22nd letter?

A Since the time that they received the letter?

Q Since the time you sent the May 22nd letter?

A I don't believe so. No.

MR. MILLER: Thank you. No further questions.

JUDGE LAURENSEN: All right. That completes the supplemental testimony on Contention 24.R.

The panel of witnesses is excused.

(The witnesses stood aside.)

We will now turn to the LILCO panel of Dr. Cordaro and Mr. Weismantle on Contention 92, the State Emergency Plan.

Let's go off the record.

(Off-the-record discussion ensues.)

JUDGE LAURENSEN: We are back on the record.

#5-7-SueT1

MS. MC CLESKEY: Judge Laurenson, the witnesses,  
Dr. Cordaro and Mr. Weismantle, have resumed the stand.

Whereupon,

MATTHEW C. CORDARO

-and-

JOHN A. WEISMANTLE

were called as witnesses by and on behalf of Long Island  
Lighting Company and, having previously been duly sworn,  
were examined and testified as follows:

DIRECT EXAMINATION

BY MS. MC CLESKEY:

Q Will each of you please identify yourselves for  
the court reporter?

Gentlemen, would each of you please identify  
yourselves for the court reporter?

A (Witness Weismantle) John Weismantle.

(Witness Cordaro) Matthew C. Cordaro.

MS. MC CLESKEY: Judge Laurenson, both of these  
witnesses have been previously sworn I believe.

JUDGE LAURENSEN: That is correct. You are  
still under oath.

BY MS. MC CLESKEY: (Continuing)

Q Do each of you have before you a document  
consisting of ten pages plus attachments entitled,  
"Testimony of Matthew C. Cordaro and John A. Weismantle

INDEXXXX



#5-8-SueT 1

on Behalf of Long Island Lighting Company on Phase II  
Emergency Planning Contention 92 (State Emergency Plan)?"

2  
3 A (Witness Weismantle) Yes.

4 (Witness Cordaro) Yes.

5 Q Is this your testimony?

6 A (Witness Weismantle) It is.

7 (Witness Cordaro) Yes.

8 Q Was it prepared by you and under your super-  
9 vision?

10 A (Witness Cordaro) Yes.

11 (Witness Weismantle) Yes.

12 Q Is it true and correct to the best of your  
13 knowledge and belief?

14 A (Witness Weismantle) Yes.

15 (Witness Cordaro) Yes.

16 Q Do you have any changes to make to the  
17 testimony?

18 A (Witness Cordaro) No.

19 (Witness Weismantle) No.

20 MS. MC CLESKEY: Judge Laurenson, I move this  
21 testimony into evidence and ask that it be bound into the  
22 record as if read.

23 And I will note for the record that the copies  
24 provided to the court reporter have been marked with the  
25 testimony that was struck by the Board on previous rulings.

#5-9-SueT 1

MR. MC MURRAY: No objection.

2

MR. ZAHNLEUTER: No objection.

3

MR. PIRFO: No objection.

4

JUDGE LAURENSEN: The testimony will be received

5

and bound in the transcript following this page.

6

(The testimony follows.)

INDEXXXX

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

LILCO, March 2, 1984

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

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

TESTIMONY OF MATTHEW C. CORDARO AND JOHN A. WEISMANTLE  
ON BEHALF OF LONG ISLAND LIGHTING COMPANY ON PHASE II  
EMERGENCY PLANNING CONTENTION 92 (STATE EMERGENCY PLAN)

Hunton & Williams  
707 East Main Street  
Post Office Box 1535  
Richmond, VA 23219  
(804) 788-8200

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

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

TESTIMONY OF MATTHEW C. CORDARO AND JOHN A. WEISMANTLE  
ON BEHALF OF LONG ISLAND LIGHTING COMPANY ON PHASE II  
EMERGENCY PLANNING CONTENTION 92 (STATE EMERGENCY PLAN)

PURPOSE

A nine-volume New York State Radiological Emergency Response Plan exists. The Plan consists of general State plans showing the activities of New York State should there be an emergency, and appendices containing summaries of the plans for each of the counties in which nuclear power plants are operating in the State of New York. In addition, in one county, Rockland, the State has provided State personnel to compensate for the response of County personnel who were not planning to participate. No site-specific annex to the State Plan exists for Shoreham. At present, New York State is opposing the licensing of Shoreham on health and safety grounds in this operating license proceeding.

LILCO would welcome the participation of New York State in the planning process or during an actual emergency. The LILCO Transition Plan has been written to incorporate a response from State officials at the time of an emergency, even if the State does not participate in planning or drills at Shoreham. LILCO expects that the State of New York would participate in an emergency response were there an actual emergency at Shoreham.

ATTACHMENTS

- |            |   |   |
|------------|---|---|
| Attachment | 1 | Table of Contents of New York State Preparedness Plan Prepared by the Disaster Preparedness Commission of the State of New York |
| Attachment | 2 | Table of Contents of New York State Radiological Emergency Preparedness Plan (Including Site Specific Plans)                    |
| Attachment | 3 | Table of Contents of Monroe County Radiological Emergency Preparedness Plan   |
| Attachment | 4 | Table of Contents of Orange County Radiological Emergency Preparedness Plan   |
| Attachment | 5 | Table of Contents of Oswego County Radiological Emergency Preparedness Plan   |
| Attachment | 6 | Table of Contents of Putnam County Radiological Emergency Response Plan   |
| Attachment | 7 | Table of Contents of Radiological Emergency Response Interim Plan for Implementing Compensating Measures for Rockland County    |
| Attachment | 8 | Table of Contents for Wayne County Radiological Emergency Response Plan (Part One-Plan; Part Two-Procedures)                    |



- Attachment 9 Table of Contents of Westchester County Radiological Emergency Preparedness Plan
- Attachment 10 New York State Disaster Preparedness Plan, pages viii through ix, 1-3 through 1-18, and A-2 through A-24 A-2 through A-24.
- Attachment 11 Radiological Emergency Response Interim Plan for Implementing Compensating Measures for Rockland County, pages I-1,2
- Attachment 12 LILCO Transition Plan, Figure 4.1.3 and pages 4.1-1, 4.1-4
- Attachment 13 LILCO Transition Plan, pages 3.8-5, 6
- Attachment 14 LILCO Transition Plan, page 3.1-1 and OPIP 2.1.1 p. 5 of 79

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

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

TESTIMONY OF MATTHEW C. CORDARO AND JOHN A. WEISMANTLE  
ON BEHALF OF LONG ISLAND LIGHTING COMPANY ON PHASE II  
EMERGENCY PLANNING CONTENTION 92 (STATE EMERGENCY PLAN)

1. Q. Please state your names and business addresses.

A. [Cordaro] My name is Matthew C. Cordaro and my business address is Long Island Lighting Company, 175 East Old Country Road, Hicksville, New York, 11801.

[Weismantle] My name is John A. Weismantle and my business address is Long Island Lighting Company, 100 East Old Country Road, Hicksville, New York, 11801.

2. Q. Please summarize your professional qualifications and your role in emergency planning for the Shoreham Nuclear Power Station.

A. [Cordaro] I am Vice President of Engineering for LILCO and have held this position since the spring of 1978. My professional qualifications are being

offered into evidence as part of the document entitled "Professional Qualifications of LILCO Witnesses." I am sitting on this panel to provide the LILCO management perspective on emergency planning and to answer any questions pertinent to management. My role in emergency planning for Shoreham is to ensure that the needs and requirements of emergency planning are being met and that the technical direction and content of emergency planning are being conveyed to corporate management.

[Weismantle] I am Manager of the Local Response Implementing Organization for LILCO. My professional qualifications are being offered into evidence as part of the document entitled "Professional Qualifications of LILCO Witnesses." My familiarity with the issues surrounding Contention 92 stems from my work in developing and implementing the LILCO Transition Plan.

3. Q. What is Contention 92?

A. Contention 92 reads as follows:

Contention 92. There is no New York State emergency plan to deal with an emergency at the Shoreham plant before this board. (See Plan, at Attachment 1.4#2). In addition, the LILCO Plan fails to provide for coordination of LILCO's emergency response with that of

the State of New York (assuming, arguendo, such a response would be forthcoming). (See FEMA Report at 1.) In the absence of a State emergency plan for Shoreham, there can be no finding of compliance with 10 CFR Sections 50.47(a)(2), 50.47(b), or NUREG 0654, Section I.E, I.F, I.H or II. [Footnote omitted.]

4. Q. Does a New York State Emergency Plan for radiological emergencies exist?

A. Yes. A nine-volume set of the New York State Plan exists, containing the following:

New York State Disaster Preparedness Plan  
Prepared by the Disaster Preparedness  
Commission of the State of New York

New York State Radiological Emergency  
Preparedness Plan (Including Site Specific  
Plans)

Monroe County Radiological Emergency Pre-  
paredness Plan

Orange County Radiological Emergency Pre-  
paredness Plan

Oswego County Radiological Emergency Pre-  
paredness Plan

Putnam County Radiological Emergency Re-  
sponse Plan

Radiological Emergency Response Interim  
Plan for Implementing Compensating Mea-  
sures for Rockland County

Wayne County Radiological Emergency Re-  
sponse Plan (Part One-Plan; Part  
Two-Procedures)

Westchester County Radiological Emergency  
Preparedness Plan

The tables of contents of each of these volumes are

*Struck  
by Bd  
Order  
Tr. 5563  
3/30/84*

Attachments 1 through 9 to this testimony. As can be seen by the tables of contents of these documents, the two volumes that make up the generic State Plan are supplemented by site-specific volumes for each operating nuclear power plant site in the State of New York. The site-specific volumes are primarily detailed summaries of the local offsite emergency plans prepared by the counties.

5. Q. In the State Plan, is there a site-specific volume for Shoreham?

A. No.

6. Q. Does the LILCO Transition Plan rely upon a response from New York State in an emergency?

A. No.

7. Q. What is the State of New York's position with respect to the Shoreham plant?

At present, it is uncertain. Thus far Governor Cuomo has refused to let the State review the LILCO Transition Plan, and has urged the NRC to reject it, most recently through entering an appearance in December of 1983 in opposition to the plant in these operating license hearings.

The New York State laws covering emergency planning are detailed in the State Plan pages vii through



ix, 1-3 through 1-18, and A-2 through A-24. Those pages are Attachment 10 to this testimony. The summary of the New York State laws in the emergency plan describes the responsibilities of the State with regard to a radiological emergency. ~~These laws were implemented specifically for Rockland County in accordance with Article 2B, §21.3.b, f of the State Executive Law (Attachment 10 at A-5).~~ Under Article 2B, the State Disaster Preparedness Commission will "create, following the declaration of the state disaster emergency, a temporary organization in the disaster area to provide integration and cooperation of efforts among the various federal, state, municipal and private agencies involved" (Attachment 10 at A-5). ~~For Rockland County, the State Plan states at page I-1 (Attachment 11 to this testimony) the following:~~

*Struck  
by Bd  
Order 3/20/64  
Tr. 5-564*

~~The Executive Law, therefore, authorizes the Disaster Preparedness Commission, upon finding that the County is not prepared to implement an effective response action, and following a state declaration of emergency, to enter the County, and acting through the lieutenant governor to direct the County's emergency operations and utilize its resources to protect the public health and safety during the emergency.~~

*Struck  
by Bd  
Order  
3/20/64  
Tr. 5-564*

~~State employees have participated in drills for  
Rockland County to practice this involvement. At  
this time, it does not appear that the State is  
willing to perform the same duties for Shoreham.~~

Struck  
3/31/64  
T. 5584

8. Q. In light of the uncertainty over New York State's position regarding Shoreham, what has LILCO done to the plan for emergency response functions ordinarily performed by the State?

A. LILCO is planning for the Local Emergency Response Organization (LERO) to perform these functions. Leaving the State involvement in Rockland County aside, New York State personnel generally perform four functions in an emergency at a nuclear power plant: (1) dose projection based upon release data communicated to State officials; (2) ingestion pathway sampling in the 50-mile EPZ; (3) interdiction of contaminated foods; and (4) making protective action recommendations if a State of emergency has been declared. The LILCO Transition Plan uses LERO to compensate for the State on all four of these functions.

First, LERO is able to do dose projections using the same data that the State would use. In addition, LERO will be using field monitoring teams from the DOE-RAP team from the Brookhaven National Laboratory. New York State does not use field

teams. Second, as discussed in response to Contentions 78-82, LERO has provided personnel and procedures to sample the ingestion pathway 50-mile EPZ. Third, LERO plans to contact directly all the dairies within the ingestion pathway EPZ and ask them to withhold their milk from market should that become necessary. LERO will assure them that LILCO will compensate them for their loss. Finally, LERO will make protective action recommendations via radio station WALK and the local EBS network.

LILCO would welcome, however, any assistance from the State on these or other emergency response activities prior to or at the time of an emergency at Shoreham.

9. Q. Has New York State indicated whether it would respond were an emergency to occur at Shoreham?
- A. Yes. In a press release by Governor Mario Cuomo, dated December 20, 1983, the Governor stated that "[o]f course, if the plant were to be operated and a misadventure were to occur, both the State and County would help to the extent possible; no one suggests otherwise."

10. Q. How has LILCO provided for incorporation of the State's response during an actual emergency, should the State choose to respond?

A. The LILCO Transition Plan is flexible and allows for participation of New York State officials (and local officials) during an emergency. ~~in fact, as previously stated in testimony regarding role conflict and the "shadow phenomenon," it is LILCO's view that New York officials would certainly participate in a response to an actual emergency, as would the officials of any other affected state, such as Connecticut.~~ Therefore, LILCO has provided in the Transition Plan enough flexibility to incorporate State personnel if the State chooses to participate. This participation could be accomplished using existing communication systems already installed within the State. Those systems, described in the LILCO Transition Plan at Figure 4.1.3 and pages 4.1-1, 4.1-4 (Attachment 12 to this testimony), are to be used to notify the State of an emergency in any case, whether or not the State chooses to respond. In addition, space exists in the Emergency Operations Facility, the Emergency Operations Center and the Emergency News Center for use by State officials. LILCO Transition Plan at 3.8-5, 3.8-6 (Attachment 13 to this testimony). And, the

*Handwritten:*  
3/20/54  
T. 5-5-6



Director of Local Response is to take into account in making any protective action recommendations advice that may be received from local and State government officials. LILCO Transition Plan at 3.1-1 and OPIP 2.1.1 p. 5 of 79 (Attachment 14 to this testimony). Thus, if New York State officials should decide to participate, their involvement could easily be incorporated into the emergency response.

~~11. Q. Please summarize your testimony.~~

*Struck  
3/31/66  
11-5566*

~~A. A nine-volume New York State Radiological Emergency Response Plan exists. The Plan consists of general State plans showing the activities of New York State should there be an emergency, and appendices containing summaries of the plans for each of the counties in which nuclear power plants are operating in the State of New York. In addition, in one county, Rockland, the State has provided State personnel to compensate for the response of County personnel who were not planning to participate. No site-specific annex to the State Plan exists for Shoreham. At present, New York State is opposing the licensing of Shoreham on health and safety grounds in this operating license proceeding.~~



~~LILCO would welcome the participation of New York State in the planning process or during an actual emergency. The LILCO Transition Plan has been written to incorporate a response from State officials at the time of an emergency, even if the State does not participate in planning or drills at Shoreham. LILCO expects that the State of New York would participate in an emergency response were there an actual emergency at Shoreham.~~

*Struck*  
*3/30/94*  
*TR. 5366*

ATTACHMENT 1  
Att 1 - 9/11 struck  
3/30/84  
Tr 5566

# DISASTER NEW YORK STATE PREPAREDNESS YORK PLAN STATE



NEW YORK STATE DISASTER PREPAREDNESS COMMISSION

## CONTENTS

EXECUTIVE SUMMARY	i
CONTENTS	v
INTRODUCTION	VII
PART ONE: GENERAL ELEMENTS	
I Purpose	1-3
II Legal Authority	1-3
III Policy	1-3
IV Vulnerability	1-4
V Concept of Operations	1-4
VI Responsibilities	1-6
VII Direction and Control	1-11
VIII Radiological Accidents/Incidents	1-17
PART TWO: PREVENTION/MITIGATION	
I Background	2-3
II Purpose	2-3
III General	2-3
IV Roles	2-4
V State Function - General	2-5
VI State Function - Specified	2-8
VII Explanation of Activities	2-12
VIII State Agency Prevention/Mitigation Activities	2-61
PART THREE: RESPONSE SECTION	
I Introduction	3-3
II The Response Process	3-3
III Information Contracts and Requests for Assistance	3-8
IV Major Activities Taken in Response to Disaster Situations	3-10
V Response Organizational Structures	3-13
VI State Agency Response Activities	3-21
VII Federal Governmental Organizations Activities	3-96
VIII Voluntary/Private Agencies	3-104
PART FOUR: RECOVERY SECTION	
I Purpose	4-3
II Overview of the Processes	4-4
III Bridging the Policy with the Resources	4-13
IV State and Other Resources Available for Recovery Assistance	4-17
V The Role of the Disaster Preparedness Commission	4-44

APPENDICES:

A	Article 2-B of the New York State Executive Law	A-2
B	Definitions, Disaster Types	B-1
C	Definitions, Common Terms and Acronyms	C-1
D	Boundaries of Major Agencies and Organizations	D-1
E	Vulnerability Analysis	E-1



NEW YORK STATE  
RADIOLOGICAL EMERGENCY  
PREPAREDNESS PLAN  
(including Site Specific Plans)



WAYNE COUNTY

Reception and Congregate Care Centers

ATTACHMENT 8

RECEPTION CENTERS SERVING WAYNE COUNTY

<u>ERPA</u>	<u>Reception Center</u>	<u>Associated Congregate Care Center</u>	<u>CCC Capacity</u>
W-1 & W-2	Palmyra-Macedon Sr. HS 151 Hyde Parkway Palmyra, N.Y.	Palmyra-Macedon Sr. HD 151 Hyde Parkway Palmyra, N.Y. 315-597-6604	1470
		Palmyra-Macedon Middle School 163 Hyde Parkway Palmyra, N.Y. 315-597-6602	1049
		Palmyra Elementary School 210 Canandaigua St. Palmyra, N.Y. 315-597-6600	651
		Perkins Public School West Maple Ave. Newark, N.Y. 315-331-3832	493
		Lincoln Elementary School Main Street Newark, N.Y. 315-331-1464	338
		Newark Jr. High School 316 W. Miller St. Newark, N.Y. 315-331-1811	1103
W-3	Lyons Jr/Sr. H.S. Clyde Road Lyons, N.Y. 315-946-9010	Lyons Jr/Sr. H.S. Clyde Road Lyons, N.Y. 315-946-9010	841
		Newark Sr. High School 625 Pierson Ave. Newark, NY 315-331-2510	1728
		Norman R. Kelly Elementary School 701 Pierson Ave. Newark, N.Y. 315-331-6331	450

MONROE COUNTY  
RADIOLOGICAL EMERGENCY  
PREPAREDNESS PLAN

Rev. 3  
3/83

TABLE OF CONTENTS

PART I

	<u>PAGE</u>
SECTION A - INTRODUCTION	I-A-1
1. AUTHORITY	I-A-1
2. SITUATION	I-A-1
a. Description of the Robert E. Ginna Nuclear Power Station (GINNA) site.	I-A-1
(1) Site Location and Boundaries	I-A-2
(2) Site Authority and Control	I-A-2
(3) Regional Topography	I-A-2
(4) Plant Description	I-A-2
b. Description of Monroe County	I-A-3
(1) Monroe County Locale	I-A-3
(2) Monroe County Population	I-A-3
(3) Special Facilities and Institutions	I-A-3
3. ASSUMPTIONS	I-A-3
a. Background	I-A-3
b. Emergency Planning Basis	I-A-3
4. CONCEPT OF OPERATIONS	I-A-4
5. GENERAL RESPONSIBILITY	I-A-5
a. County Responsibility	I-A-5
b. State Responsibility	I-A-5
c. Nuclear Facility Operator Responsibility	I-A-5
d. Federal Government Responsibility	I-A-5
SECTION B - PREPAREDNESS	I-B-1
1. MISSION	I-B-1
2. PREPAREDNESS ACTIVITIES	I-B-1
a. Administration	I-B-1
b. Logistics	I-B-2
c. Exercises and Drills	I-B-2
d. Technical Assistance	I-B-2
e. Training	I-B-2
f. Public Education/Awareness	I-B-3
SECTION C - RESPONSE	I-C-1
1. MISSION	I-C-1
2. CONCEPT OF OPERATIONS	I-C-1



3. RESPONSE ACTIVITIES	I-C-1
a. Command and Control	I-C-2
b. Notification of Public	I-C-2
c. Protective Response Action	I-C-3
d. Reception/Congregate Care Centers	I-C-3
e. Communications	I-C-3
f. Public Health	I-C-4
g. Fire and Rescue Service	I-C-4
h. Law Enforcement and Traffic Control	I-C-5
i. Transportation (Roads & Bridges)	I-C-5
j. Public Education/Information	I-C-5
k. Emergency Medical Services	I-C-6
l. Transportation	I-C-6
m. Social Services	I-C-7
n. Accident Assessment	I-C-7
o. Protective Response Evaluation	I-C-8
p. Radiological Exposure Control	I-C-8
4. DIRECTION AND CONTROL	I-C-15
a. Direction	I-C-15
b. Control	I-C-15
5. EMERGENCY PERSONNEL RADIOLOGICAL EXPOSURE CONTROL	I-C-17
6. INITIATION	I-C-20
a. Notification	I-C-20
b. Activation	I-C-21
c. Verification	I-C-22
d. Preliminary Public Information Release	I-C-22
7. ASSESSMENT AND EVALUATION OF PROTECTIVE ACTION RESPONSE OPTIONS	I-C-23
a. Assessment	I-C-23
b. Evaluation	I-C-24
8. PROTECTIVE ACTION RESPONSE OPTIONS	I-C-31
a. Initial Precautionary Operations	I-C-31
b. Selective Sheltering	I-C-31
c. General Sheltering	I-C-32
d. Selective Evacuation	I-C-34
e. General Evacuation	I-C-34
f. Isolation of Ingestion Pathways and Sources	I-C-35
SECTION D - RECOVERY	I-D-1
1. MISSION	I-D-1
a. Short Term or Reentry Operations	I-D-1
b. Long Term Recovery Operations:	I-D-1
c. Decisions to Relax Protective Measures	I-D-1
2. RECOVERY/REENTRY OPERATIONS	I-D-2

FIGURES

C-1	Monroe County EOC Organizational Structure	I-C-11
C-2	Monroe County Radiological Emergency Response Notification Chart	I-C-13

TABLES

C-1	Emergency Response Activities	I-C-9
C-2	EPA Protective Action Guidelines	I-C-27
C-3	Example Implementation Sequence	I-C-29
C-4	Protective Action Guides for Contamination of Milk Products and Production	I-C-37
C-5	Protective Action Guides	I-C-39



PART II  
 GENERAL INFORMATION  
 RESPONSE IMPLEMENTATION PROCEDURES

SECTION A - GENERAL

<u>Section</u>	<u>Subject</u>	<u>Page</u>
1.	INTRODUCTION	II-A-1
2.	PURPOSE	II-A-1
3.	DEFINITION	II-A-1
4.	SCOPE	II-A-1
5.	OBJECTIVE	II-A-2
6.	LEGAL AUTHORITY	II-A-2
7.	PLANNING OBJECTIVES	II-A-2
8.	ADMINISTRATION	II-A-2

SECTION B - CONCEPT OF OPERATIONS

1.	MONROE COUNTY EMERGENCY EOC ORGANIZATION	II-B-1
	EOC ORGANIZATION	II-B-3
2.	COMMAND STRUCTURE	II-B-5
	RESPONSE NOTIFICATION CHART	II-B-7

SECTION C - COUNTY RESPONSE

1.	EMERGENCY ACTION LEVELS	II-C-1
2.	EMERGENCY RESPONSE PLANNING AREAS	II-C-1
3.	STUDENT CENTER LOCATION	II-C-3

SECTION D - PROTECTIVE ACTION RESPONSE OPTIONS

	OPTIONS DESCRIPTIONS	II-D-1
	EMERGENCY OPERATIONS CENTER	II-D-3
	FUNCTIONS AND COORDINATION	II-D-5

SECTION E - RECOVERY

1.	INTRODUCTION	II-E-1
2.	RADIOLOGICAL CONSIDERATIONS	II-E-1
3.	ORGANIZATION	II-E-2
4.	PLAN FOR RECOVERY ACTIVITIES	II-E-3
5.	SUB-COMMITTEE	II-E-3

PART III - PROCEDURES

TABLE OF CONTENTS

<u>Procedure</u>	<u>Title</u>	<u>PAGE</u>
A	Office of Emergency Preparedness	III-A-1
B	Law Enforcement and Traffic Control	III-B-1
C	Department of Health	III-C-1
D	Fire Coordinator	III-D-1
E	Communications	III-E-1
F	Public Information	III-F-1
G	Office of Physical Services	III-G-1
H	Reception, Congregate Care and Student Centers	III-H-1
I	Special Population and Facilities	III-I-1
J	U.S. Coast Guard Plan	III-J-1
K	Radiological Officer	III-K-1
L	Plan Maintenance and Distribution	III-L-1
M	Training, Drills and Exercises	III-M-1
N	Department of Social Services	III-N-1

PART IV  
MAP INDEX

	<u>PAGE</u>
Map 1: Monroe County EPZ by ERPA	IV-1
Map 2: Evacuation Routes to Reception/Congregate Care and Student Center	IV-5
Map 3: Traffic Control Points Within Monroe County EPZ	IV-9
Map 4: EPZ Access Control Points	IV-11
Map 5: Special Population and Facilities by ERPZ	IV-15
Map 6: Reception and Congregate Care Centers	IV-19
Map 7: Route A) Monroe County Radiological	IV-23
Map 8: Route B)----- Mobile Monitoring	IV-25
Map 9: Route C) Team Routes	IV-27

## TABLE OF CONTENTS

### PART I

	<u>PAGE</u>
SECTION A - INTRODUCTION	I-A-1
1. AUTHORITY	I-A-1
2. SITUATION	I-A-1
a. Description of the Robert E. Ginna Nuclear Power Station (GINNA) site.	I-A-1
(1) Site Location and Boundaries	I-A-1
(2) Site Authority and Control	I-A-2
(3) Regional Topography	I-A-2
(4) Plant Description	I-A-2
b. Description of Monroe County	I-A-3
(1) Monroe County Locale	I-A-3
(2) Monroe County Population	I-A-3
(3) Special Facilities and Institutions	I-A-3
3. ASSUMPTIONS	I-A-3
a. Background	I-A-3
b. Emergency Planning Basis	I-A-3
4. CONCEPT OF OPERATIONS	I-A-4
5. GENERAL RESPONSIBILITY	I-A-5
a. County Responsibility	I-A-5
b. State Responsibility	I-A-5
c. Nuclear Facility Operator Responsibility	I-A-5
d. Federal Government Responsibility	I-A-5
SECTION B - PREPAREDNESS	I-B-1
1. MISSION	I-B-1
2. PREPAREDNESS ACTIVITIES	I-B-1
a. Administration	I-B-1
b. Logistics	I-B-2
c. Exercises and Drills	I-B-2
d. Technical Assistance	I-B-2
e. Training	I-B-2
f. Public Education/Awareness	I-B-3
SECTION C - RESPONSE	I-C-1
1. MISSION	I-C-1
2. CONCEPT OF OPERATIONS	I-C-1

3. RESPONSE ACTIVITIES	I-C-1
a. Command and Control	I-C-2
b. Notification of Public	I-C-2
c. Protective Response Action	I-C-3
d. Reception/Congregate Care Centers	I-C-3
e. Communications	I-C-3
f. Public Health	I-C-4
g. Fire and Rescue Service	I-C-4
h. Law Enforcement and Traffic Control	I-C-5
i. Transportation (Roads & Bridges)	I-C-5
j. Public Education/Information	I-C-5
k. Emergency Medical Services	I-C-6
l. Transportation	I-C-6
m. Social Services	I-C-7
n. Accident Assessment	I-C-7
o. Protective Response Evaluation	I-C-8
p. Radiological Exposure Control	I-C-8
4. DIRECTION AND CONTROL	I-C-15
a. Direction	I-C-15
b. Control	I-C-15
5. EMERGENCY PERSONNEL RADIOLOGICAL EXPOSURE CONTROL	I-C-17
6. INITIATION	I-C-20
a. Notification	I-C-20
b. Activation	I-C-21
c. Verification	I-C-22
d. Preliminary Public Information Release	I-C-22
7. ASSESSMENT AND EVALUATION OF PROTECTIVE ACTION RESPONSE OPTIONS	I-C-23
a. Assessment	I-C-23
b. Evaluation	I-C-24
8. PROTECTIVE ACTION RESPONSE OPTIONS	I-C-31
a. Initial Precautionary Operations	I-C-31
b. Selective Sheltering	I-C-31
c. General Sheltering	I-C-32
d. Selective Evacuation	I-C-34
e. General Evacuation	I-C-34
f. Isolation of Ingestion Pathways and Sources	I-C-35
SECTION D - RECOVERY	I-D-1
1. MISSION	I-D-1
a. Short Term or Reentry Operations	I-D-1
b. Long Term Recovery Operations:	I-D-1
c. Decisions to Relax Protective Measures	I-D-1
2. RECOVERY/REENTRY OPERATIONS	I-D-2

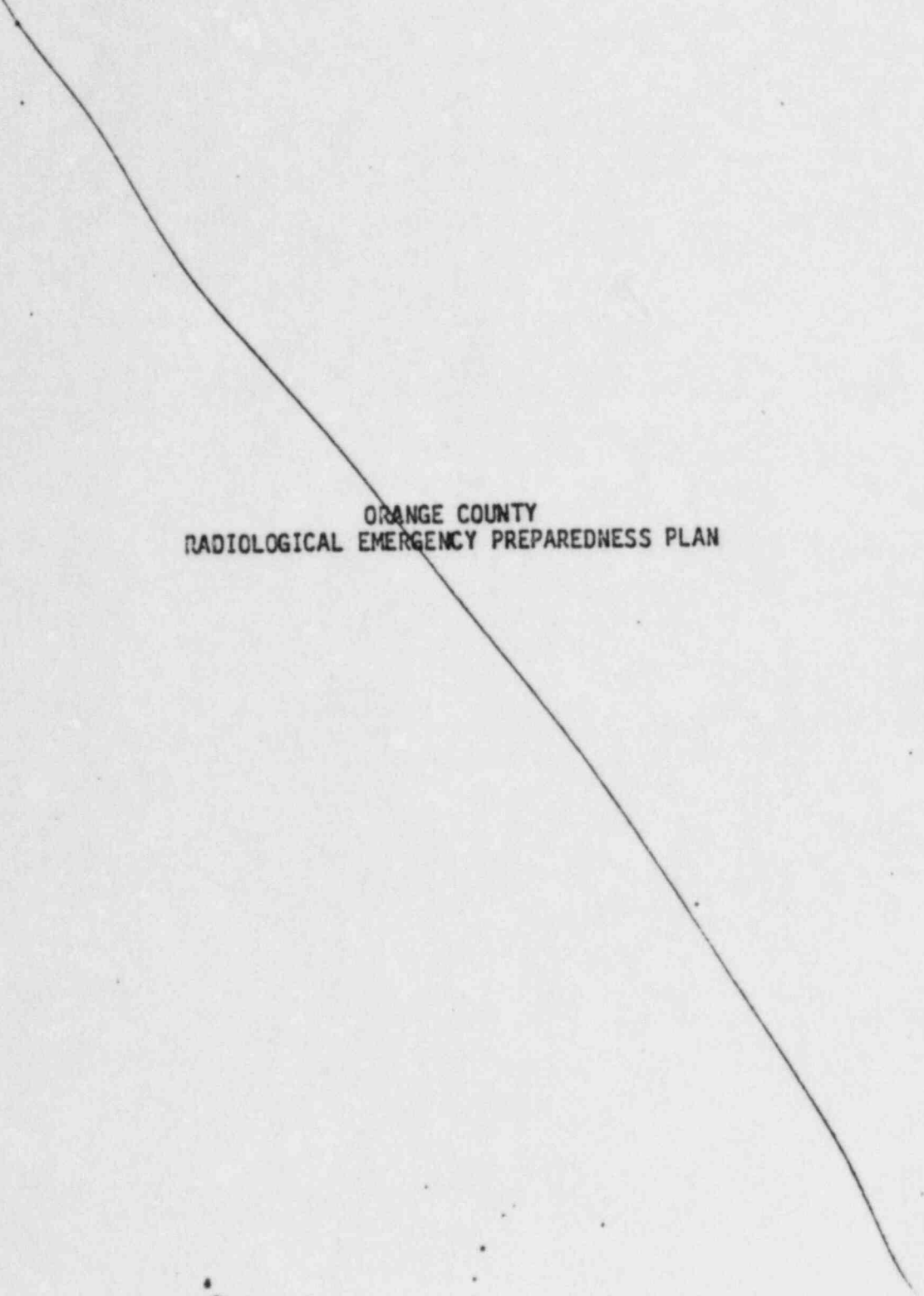


FIGURES

C-1	Monroe County EOC Organizational Structure	I-C-11
C-2	Monroe County Radiological Emergency Response Notification Chart	I-C-13

TABLES

C-1	Emergency Response Activities	I-C-9
C-2	EPA Protective Action Guidelines	I-C-27
C-3	Example Implementation Sequence	I-C-29
C-4	Protective Action Guides for Contamination of Milk Products and Production	I-C-37
C-5	Protective Action Guides	I-C-39



ORANGE COUNTY  
RADIOLOGICAL EMERGENCY PREPAREDNESS PLAN

ORANGE COUNTY  
RADIOLOGICAL EMERGENCY PREPAREDNESS PLAN

TABLE OF CONTENTS

Page

SECTION A

A. INTRODUCTION

1. Authority
2. Situation
  - a. Indian Point Nuclear Power Station Description
    - (1) Site Location
    - (2) Site Area Authority and Control
    - (3) Regional Topography
    - (4) Plant Description
  - b. Orange County Description
    - (1) Orange County Locale
    - (2) Orange County Population
    - (3) Public Facilities and Institutions
3. Assumptions
  - a. Background
  - b. Emergency Planning Basis
4. Concept of Operations
5. General Responsibilities
  - a. County Responsibility
  - b. State Responsibility
  - c. Nuclear Facility Operators Responsibility
  - d. Federal Government Responsibility

SECTION B

B. PREPAREDNESS

1. Mission
2. Preparedness Activities
  - a. Administration
  - b. Logistics
  - c. Exercises and Drills
  - d. Technical Assistance
  - e. Training
  - f. Public Education/Awareness

SECTION C

C. RESPONSE

1. Mission
2. Concept of Operations
3. Response Activities
  - a. Command and Control
  - b. Notification of Public
  - c. Evacuation
  - d. Reception/Congregate Care Centers
  - e. Communications
  - f. Public Health
  - g. Fire and Rescue
  - h. Law Enforcement and Traffic Control

Table of Contents  
(continued)

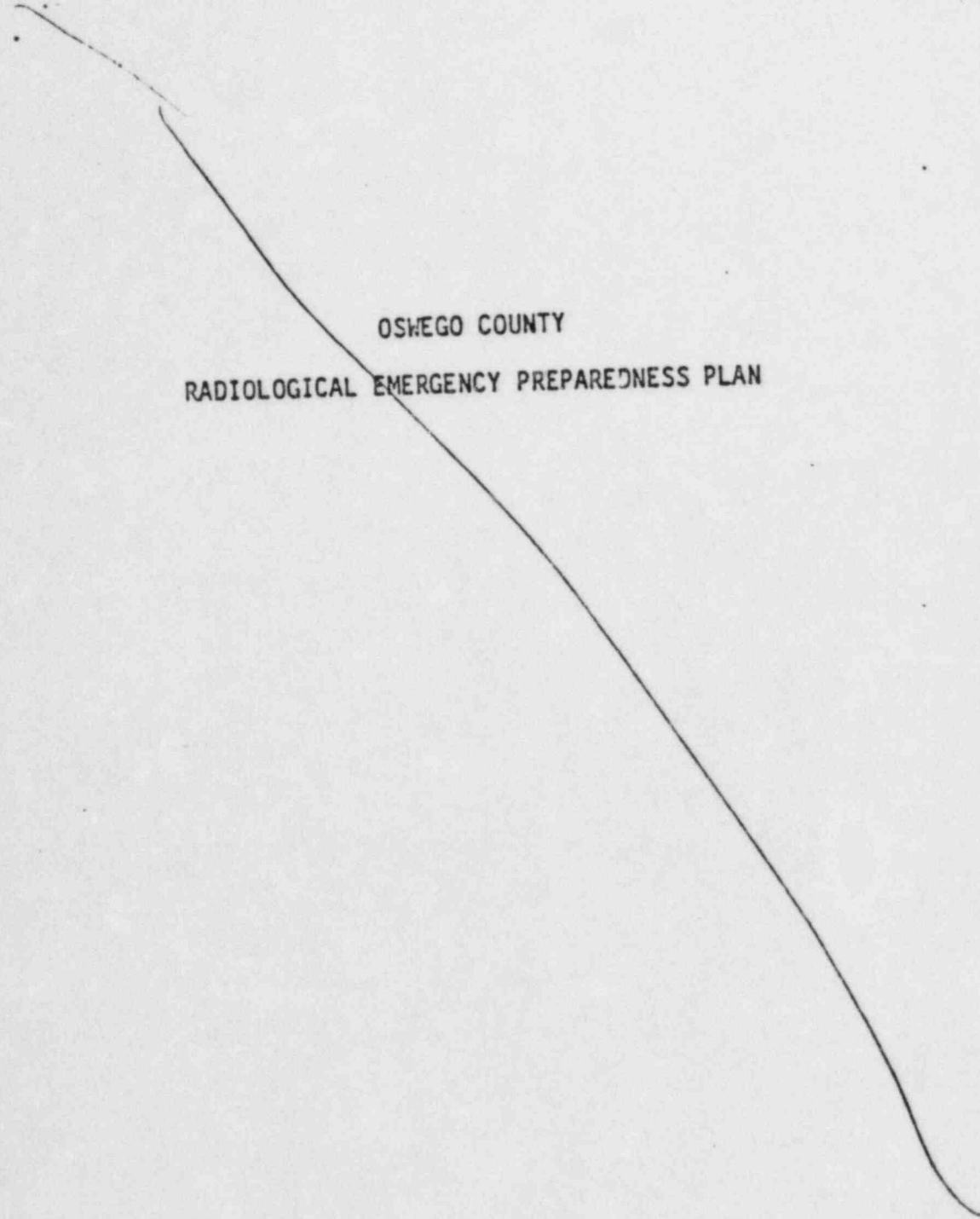
SECTION C (cont.)

- i. Public Works (Engineering)
- j. Public Education/Information
- k. Emergency Medical Services
- l. Transportation
- m. Social Services
- n. Accident Assessment
- o. Protective Response Evaluation
- p. Radiological Exposure Control
4. Direction and Control
  - a. Direction
  - b. Control
    - (1) Orange County Emergency Operations Center
    - (2) Orange County Emergency Communications Network
    - (3) Release of Public Information
    - (4) Rumor Control
5. Emergency Personnel Radiological Exposure Control
6. Initiation
  - a. Notification
    - (1) Nuclear Facility Operators Notification Plan
    - (2) County Notification Plan
  - b. Activation
    - (1) County Personnel Reporting to the CEOC
    - (2) County Personnel Reporting to the NFO/EOF
  - c. Verification
  - d. Preliminary Public Information Release
7. Assessment and Evaluation of Protective Action Response Options
  - a. Assessment
    - (1) Previously Developed Data
    - (2) Relayed Meteorological and Radiological Data
    - (3) Incident Diagnosis and Prognosis
  - b. Evaluation
    - (1) Input Parameters and Boundary Conditions
    - (2) Critical Time Frames
    - (3) Projected Doses
    - (4) Decision Process
8. Protective Action Response Options
  - a. Initial Precautionary Operations
  - b. Selective Sheltering
  - c. General Sheltering
  - d. Selective Evacuation
  - e. General Evacuation
  - f. Isolation of Ingestion Pathways and Sources

SECTION D

D. RECOVERY

1. Mission
  - a. Short Term Reentry Operations
  - b. Long Term Recovery Operations
2. Recovery/Reentry Operations
3. Long Term Recovery



OSWEGO COUNTY  
RADIOLOGICAL EMERGENCY PREPAREDNESS PLAN



OSWEGO COUNTY  
RADIOLOGICAL EMERGENCY PREPAREDNESS PLAN

TABLE OF CONTENTS

PART I

	<u>Page</u>
SECTION A	
A. INTRODUCTION	A-1
1. Authority	A-1
2. Situation	A-2
a. Nine Mile Point Nuclear Power Site Description	A-4
b. Oswego County Description	A-5
3. Assumptions	A-5
a. Background	A-5
b. Emergency Planning Basis	A-6
4. Concept of Operations	A-6
5. General Responsibilities	A-6
a. County Responsibility	A-6
b. State Responsibility	A-7
c. Nuclear Facility Operators Responsibility	A-7
d. Federal Government Responsibility	A-7
SECTION B	
B. PREPAREDNESS	B-1
1. Mission	B-1
2. Preparedness Activities	B-1
a. Administration	B-1
b. Logistics	B-2
c. Exercises and Drills	B-2
d. Technical Assistance	B-3
e. Training	B-3
f. Public Education/Awareness	B-4
SECTION C	
C. RESPONSE	C-1
1. Mission	C-1
2. Concept of Operations	C-1
3. Response Activities	C-1
a. Command and Control	C-2
b. Notification of Public	C-2
c. Evacuation	C-3
d. Reception/Congregate Care Center	C-3
e. Communications	C-4
f. Public Health	C-4
g. Fire and Rescue	C-5

Table of Contents  
(continued)

h.	Law Enforcement and Traffic Control	C-6
i.	Public Works	C-6
j.	Public Education/Information	C-6
k.	Emergency Medical Services	C-7
l.	Transportation	C-7
m.	Social Services	C-8
n.	Accident Assessment	C-8
o.	Protective Response Evaluation	C-9
p.	Radiological Exposure Control	C-9
4.	Direction and Control	C-11
a.	Direction	C-11
b.	Control	C-11
	(1) Oswego County Emergency Operations Center	C-11
	(2) Oswego County Emergency Communications Network	C-11
	(3) Release of Public Information	C-12
	(4) Rumor Control	C-13
5.	Emergency Personnel Radiological Exposure Control	C-13
6.	Initiation	C-15
a.	Notification	C-16
	(1) Nuclear Facility Operator Notification Plan	C-16
	(2) County Notification Plan	C-16
b.	Activation	C-16
	(1) County Personnel to CEOC	C-17
	(2) County Personnel to EOF	C-17
c.	Verification	C-17
d.	Preliminary Public Information Release	C-18
7.	Assessment and Evaluation of Protective Action Response Options	C-18
a.	Assessment	C-18
	(1) Previously Developed Data	C-18
	(2) Relayed Meteorological and Radiological Data	C-18
	(3) Incident Diagnosis and Prognosis	C-19
	(4) Assessment	C-19
b.	Evaluation	C-19
	(1) Input Parameters and Boundary Conditions	C-19
	(2) Critical Time Frames	C-19
	(3) Projected Doses	C-20
	(4) Decision Process	C-20
8.	Protective Action Response Options	C-24
a.	Initial Precautionary Operations	C-24
b.	Selective Sheltering	C-25
c.	General Sheltering	C-25
d.	Selective Evacuation	C-25
e.	General Evacuation	C-26
f.	Isolation of Ingestion Pathways and Sources	C-27

Table of Contents  
(continued)

SECTION D

D. RECOVERY

D-1

1. Mission

D-1

a. Short Term Reentry Operations

D-1

b. Long Term Recovery Operations

D-1

2. Recovery/Reentry Operations

D-2

3. Long Term Recovery

APPENDIX A

Evacuation Plan for Oswego County

APPENDIX B

Sample Public Warning Announcements

APPENDIX C

Not Used

APPENDIX D

Sheltering

APPENDIX E

Oswego County Emergency Communications Network

APPENDIX F

Oswego County Public Notification Plan

APPENDIX G

Population Data Site Vicinity

APPENDIX H

Listing of Special Facilities in Oswego County

APPENDIX I

Authorization Documentation

APPENDIX J

Radiological Monitoring and Assessment Resources

APPENDIX K

Emergency Response Planning Areas: Definition of Boundaries

APPENDIX L

Public Information

APPENDIX M

Site Evacuation

APPENDIX N

Letters of Agreement

APPENDIX O

0654-FEMA REP-1 Cross Reference List

APPENDIX P

Glossary of Terms

TABLE OF CONTENTS  
(continued)

PART II

PROCEDURES

- A Office of Emergency Preparedness/Civil Defense
- B Law Enforcement
- C Health and Radiological Officer
- D Schools
- E Transportation
- F Social Services
- G Highway Department
- H Fire and Rescue
- I Special Facilities
- J Document Control and Coordination
- K Drills and Exercises
- L Training
- M Radiological Survey Instruments and Dosimetry: Inventory, Maintenance and Calibration
- N Communications and Warning Equipment; Maintenance and Inventory
- O Field Team Coordinator (FTC)
- P Exposure Control Coordinator (ECC)

PUTNAM COUNTY  
RADIOLOGICAL EMERGENCY RESPONSE PLANTABLE OF CONTENTS

## GLOSSARY

CROSS REFERENCE INDEX NUREG-0654

I. INTRODUCTION

## A. BACKGROUND

1. Emergency Planning Basis
2. Concept of Operations

## B. GENERAL RESPONSIBILITIES

1. County Responsibilities
2. State Responsibilities
3. Nuclear Facility Operators
4. Federal Government Responsibility

## C. AUTHORITY

## D. SITUATION

1. Indian Point Nuclear Power Station Description
  - a. Site Location
  - b. Site Area Authority and Control
  - c. Regional Topography
  - d. Plant Description
2. Putnam County Description
  - a. Putnam County Locale
  - b. Putnam County Population
  - c. Public Institutions and Facilities

II. PREPAREDNESS

## A. MISSION

## B. PREPAREDNESS ACTIVITIES

1. Administration
2. Logistics
3. Exercises and Drills
4. Technical Assistance
5. Training
6. Public Education

III. RESPONSE

## A. MISSION

## B. CONCEPT OF OPERATIONS

## C. RESPONSE ACTIVITIES

1. Command and Control
2. Notification of Public
3. Evacuation



PUTNAM COUNTY  
RADIOLOGICAL EMERGENCY RESPONSE PLAN

TABLE OF CONTENTS  
(continued)

III. C. (cont.)

4. Reception/Congregate Care Centers
  5. Communications
  6. Public Health
  7. Fire and Rescue
  8. Law Enforcement and Traffic Control
  9. Public Works (Engineering)
  10. Public Information/Education
  11. Emergency Medical Services
  12. Transportation
  13. Social Services
  14. Accident Assessment
  15. Protective Response Evaluation
  16. Radiological Exposure Control
- D. Direction and Control
1. Direction
  2. Control
    - a. Putnam County Emergency Operations Center
    - b. Putnam County Emergency Communications Network
    - c. Release of Public Information
    - d. Rumor Control
- E. Emergency Personnel Radiological Exposure Control
- F. Initiation
1. Notification
    - a. Nuclear Facility Operators Notification Plan
    - b. County Notification Plan
  2. Activation
    - a. County Personnel Reporting to the CEOC
    - b. County Personnel Reporting to the NFO/EOF
  3. Verification
  4. Preliminary Public Information Release
- G. Assessment and Evaluation of Protective Action Response Options
1. Assessment
    - a. Previously Developed Data
    - b. Relayed Meteorological and Radiological Data
    - c. Incident Diagnosis and Prognosis
  2. Evaluation
    - a. Input Parameters and Boundary Conditions
    - b. Critical Time Frames
    - c. Projected Doses
    - d. Decision Process
- H. Protective Action Response Options
1. Initial Precautionary Operations
  2. Selective Sheltering
  3. General Sheltering

PUTNAM COUNTY  
RADIOLOGICAL EMERGENCY RESPONSE PLAN

TABLE OF CONTENTS  
(continued)

- III. H. (cont.)
4. Selective Evacuation
  5. General Evacuation
  6. Isolation of Ingestion Pathways and Sources

IV. RECOVERY

- A. Mission
  1. Short Term Reentry Operations
  2. Long Term Recovery Operations
- B. Recovery/Reentry Operations
- C. Long Term Recovery

List of Tables

Table

Title

III-1	Putnam County Emergency Response Activities
III-2	EPA Protective Action Guidelines
III-3	Protective Action Guides for Contamination of Milk Products and Production
III-4	Protective Action Guides for Contamination of Agricultural Products Other than Milk

List of Figures - Section I

Figure

Title

I-1	Plume Exposure Pathway EPZ
I-2	Ingestion Exposure Pathway EPZ
I-3	Indian Point - Near Site Vicinity
I-4	Indian Point - Site Plot Plan
I-5	Pressurized Water Reactor Schematic

List of Figures - Section III

Figure

Title

III-1	Putnam County Radiological Emergency Response Organization
III-2	Putnam County Radiological Emergency Response and Notification Chart

PUTNAM COUNTY  
RADIOLOGICAL EMERGENCY RESPONSE PLAN

TABLE OF CONTENTS

APPENDICES

A. EVACUATION PLAN FOR PUTNAM COUNTY, NEW YORK

- I. Introduction
- II. Evacuation Roadway Travel Time Estimates
- III. Description of the Evacuation Plan
  - A. Phase 1 - Mobilization
    - 1. Traffic Control
    - 2. Bus Mobilization
    - 3. Special Vehicle Mobilization
    - 4. Reception Centers, Congregate Care Centers and School Reception Centers
    - 5. Special Facilities
  - B. Phase 2 - Egress
    - 1. Traffic Control
    - 2. Bus Operations
    - 3. Special Vehicles
    - 4. Reception Centers, Congregate Care Centers and School Reception Centers
    - 5. Special Facilities
    - 6. General Population
  - C. Phase 3 - Maintenance
    - 1. Traffic Control and Security
    - 2. Bus Operations
    - 3. Congregate Care Centers
  - D. Phase 4 - Return
- Attachment 1 - Scenarios for Evacuation Planning
- Attachment 2 - Traffic Control
- Attachment 3 - Evacuation of the Transient-Dependent Population
- Attachment 4 - Operational Description: Reception Centers, Congregate Care Centers and School Reception Centers
- Attachment 5 - Evacuation Plans for Special Facilities

List of Tables

<u>Table</u>	<u>Title</u>
A-1	Indian Point Evacuation Paths (Listed by ERPA)
A-2	Traffic Zone Descriptions and Evacuation Paths - Listed by Town
A-3	Modal Split of Evacuees by Scenario
A-4	General Population Evacuation Time Estimates by ERPA
A-5	Special Facility and Transient Population Evacuation Time Estimates by ERPA

TABLE OF CONTENTS  
APPENDICES  
(continued)

- A-6 General Population Evacuation Time Estimates by  
ERPA - Adverse Weather Conditions
- A-7 Special Facility and Transient Population  
Evacuation Time Estimate by ERPA - Adverse  
Weather Conditions

B. SHELTERING

List of Tables

<u>Table</u>	<u>Title</u>
B-1	Respiratory Protection Provided by Common Household and Personal Items Against Aerosols of 1 to 5 Particle Size

C. PUTNAM COUNTY EMERGENCY COMMUNICATIONS NETWORK

- I. The New York State Radiological Emergency Communications System  
for the Indian Point Nuclear Power Station
  - A. Introduction
  - B. System Configuration
    - 1. Site Locations
    - 2. Layout
    - 3. Voice Recording
    - 4. Functional Operation
- II. Putnam County Emergency Communications Network
  - A. Fire Department/Civil Defense System
  - B. Highway System
  - C. Intercounty Frequency
  - D. Radio Amateur Civil Emergency Services (R.A.C.E.S.)

List of Tables

<u>Table</u>	<u>Title</u>
C-1	Emergency Equipment - Putnam County Fire Department

List of Figures

<u>Figure</u>	<u>Title</u>
C-1	Radiological Emergency Communications System Network Configuration

TABLE OF CONTENTS  
(continued)

- D. I. (cont.)
  - E. Public Information
  - F. Use of Sirens
- II. Public Notification Systems
  - A. Introduction
    - 1. Background
    - 2. Document Outline
  - B. System Configuration
    - 1. Alerting Device Distribution
    - 2. Control and Communication
  - C. Siren Placement Guidelines
  - D. Testing and Activation Requirements for Sirens
    - 1. Silent Test
    - 2. Growl Test
    - 3. Complete Cycle Test
  - E. Siren Layout for Indian Point EPZ
  - F. Public Information
- E. POPULATION DATA SITE VICINITY
- F. LISTING OF SPECIAL FACILITIES IN PUTNAM COUNTY, NEW YORK
- G. AUTHORIZATION DOCUMENTATION
- H. RADIOLOGICAL MONITORING AND ASSESSMENT RESOURCES
  - I. Nuclear Facility Operators
    - A. Atmospheric Release Advisory Capability
    - B. Meteorological Input Dose Assessment System
    - C. Nuclear Environmental Monitoring
    - D. Apple Mini-Computer System
    - E. Emergency Off-Site Monitoring Teams
  - II. The United States Government Department of Energy
    - A. Federal Radiological Monitoring Assistance Plan (FRMAP)

• List of Tables

<u>Table</u>	<u>Title</u>
H-1	Federal Radiological Monitoring Assistance Plan (FRMAP) Equipment Inventory



**RADIOLOGICAL EMERGENCY RESPONSE  
INTERIM PLAN FOR IMPLEMENTING  
COMPENSATING MEASURES FOR  
ROCKLAND COUNTY**

**(Revised)**

**June 30, 1983**



**New York State  
Disaster Preparedness Commission**

NEW YORK STATE  
RADIOLOGICAL EMERGENCY RESPONSE PLAN FOR IMPLEMENTING  
COMPENSATING MEASURES IN ROCKLAND COUNTY

TABLE OF CONTENTS

	<u>PAGE</u>
Section I - Basic Plan	
A. Situation and Assumptions	I-1
B. Purpose	I-2
C. Scope	I-2
D. Concept of Operations	I-3
Section II - Organizational Response Groups	
A. Command and Control	II-1
B. Public Information	II-1
C. Emergency Operations Center	II-2
D. Communications	II-2
E. Accident Assessment and Protective Response Evaluation	II-3
F. Radiological Exposure Control	II-4
G. Ambulance and Public Health Services	II-4
H. Hospital and Medical Facilities	II-4
I. Law Enforcement and Traffic Control	II-5
J. Fire	II-5
K. Highway	II-6
L. Transportation	II-6
M. Reception and Congregate Care Centers	II-7
N. Social Services	II-7
O. Schools	II-8
P. Parks	II-8
Section III - Response Activities	
A. Command and Control	III-1
B. Emergency Operations Center Activation	III-2
C. Public Information/Education	III-2
D. Communications	III-3
E. Notifications	III-4
F. Assessment and Evaluation	III-4
G. Radiological Exposure Control	III-6
H. Protective Actions	III-11
1. Initial Precautionary Operations	III-13
2. Isolation of Ingestion Pathways and Sources	III-14
3. Selective Sheltering	III-14
4. General Sheltering	III-17
5. Selective Evacuation	III-17
6. General Evacuation	III-18
7. General Evacuation	III-19
Section IV - Response Procedures	
A. The State Disaster Preparedness Commission	A-1
B. Office of Disaster Preparedness	B-1
C. New York State Police	C-1
D. Department of Transportation	D-1

Section IV - Response Agency Procedures (Con't)

E. Department of Health	E-1
F. Social Services	F-1
G. Office of Fire Prevention and Control	G-1
H. Schools	H-1
I. Public Information Officer	I-1
J. Hospitals and Medical Facilities	J-1
K. Parks	K-1

Section V - References and Authorities

A. Legal Authority	V-1
B. Glossary	V-3
C. Cross Index/Reference 0654	V-11
D. Rockland County Description	V-23
E. N.Y. State Policy on Distribution of Potassium Iodide (KI)	V-25
F. Attachments	V-39
G. Requirements of Federal Support Agencies	V-49

Section VI - Maintaining Emergency Preparedness VI-1



JAYNE COUNTY  
RADIOLOGICAL EMERGENCY  
RESPONSE PLAN

PART I - PLAN  
PART II - PROCEDURES

3/1/03

WAYNE COUNTY RADIOLOGICAL EMERGENCY RESPONSE PLAN

3/1/83

TABLE OF CONTENTS

<u>Section</u>	<u>Subject</u>	<u>Page</u>
PART I		
SECTION A - INTRODUCTION		
1.	AUTHORITY	1
2.	SITUATION	2
a.	Robert E. GINNA Nuclear Power Station Description	2
	(1) Site Location and Boundaries	2
	(2) Site Authority and Control	2
	(3) Regional Topography	3
	(4) Plant Description	3
b.	Description of Wayne County	3
	(1) Wayne County Locale	3
	(2) Wayne County Population	4
	(3) Special Facilities and Institutions	4
3.	ASSUMPTIONS	4
a.	Background	4
b.	Emergency Planning Basis	4
4.	CONCEPT OF OPERATIONS	5
5.	GENERAL RESPONSIBILITY	6
a.	County Responsibility	6
b.	State Responsibility	6
c.	Nuclear Facility Operator	6
d.	Federal Government Responsibility	6
	(1) Federal Emergency Management Agency	6
	(2) U.S. Nuclear Regulatory Commission	6
	(3) U.S. Department of Energy	6
	(4) U.S. Department of Agriculture	7
	Figure A-1 Map - 10 Mile EPZ	9
	Figure A-2 Map Ingestion Exposure Pathway 0-50 Mile	11
	Figure A-3 Map - GINNA Station Plot Plan	13
	Figure A-4 Pressurized Water Reactor Schematic	15
SECTION B PREPAREDNESS		
1.	MISSION	17
2.	PREPAREDNESS ACTIVITIES	17
a.	Administration	17
b.	Logistics	18
c.	Exercises and Drills	18
d.	Technical Assistance	18
e.	Training	18
f.	Public Education/Awareness	19



SECTION C	RESPONSE	21
1.	MISSION	21
2.	CONCEPT OF OPERATIONS	21
3.	RESPONSE ACTIVITIES	21
	a. Command and Control	22
	b. Notification of Public	22
	c. Protective Response Action	23
	d. Reception/Congregate Care Centers	23
	e. Communications	24
	f. Public Health	24
	g. Fire and Rescue Service	24
	h. Law Enforcement and Traffic Control	25
	i. Public Works (Engineering)	26
	j. Public Education/Information	26
	k. Emergency Medical Services	27
	l. Transportation	27
	m. Social Services	28
	n. Accident Assessment	28
	o. Protective Response Evaluation	29
	p. Radiological Exposure Control	29
	q. Schools Coordinator	30
4.	DIRECTION AND CONTROL	31
	a. Direction	31
	b. Control	31
	(1) Wayne County Emergency Operations Center	31
	(2) Wayne County Emergency Communications Network	32
	(3) Release of Public Information	32
5.	EMERGENCY PERSONNEL RADIOLOGICAL EXPOSURE CONTROL	33
6.	INITIATION	36
	a. Notification	36
	(1) Nuclear Facility Operators Notification Plan	36
	(2) County Notification Plan	37
	(3) County Personnel Reporting to the EOC	37
	(4) County Personnel Reporting to the NFO/EOF	38
	(5) County Personnel Reporting to the RG&E Consolidated News Media Center	38
	(6) NY State Personnel Reporting to the County EOC	38
	b. Verification	39
	c. Preliminary Public Information Release	39
7.	ASSESSMENT AND EVALUATION OF PROTECTIVE RESPONSE OPTIONS	39
	a. Assessment	39
	(1) Previously Developed Data	39
	(2) Incident Diagnosis and Prognosis	40
	b. Evaluation	40
	(1) Input Parameters and Boundary Conditions	40
	(2) Critical Time Frames	41
	(3) Projected Doses	41
	(4) Decision Process	42

8. PROTECTIVE ACTION RESPONSE OPTIONS	42
a. Initial Precautionary Operations	42
b. Selective Sheltering	43
c. General Sheltering	44
d. Selective Evacuation	45
e. General Evacuation	46
f. Isolation of Ingestion Pathways and Sources	47
Figure C-1 Wayne County Response Organization	49
Figure C-2 Wayne County Radiological Emergency Notification Chart	51
Figure C-3 Radiological Emergency Data Form	53
Table C-1 Emergency Response Activities	55
Table C-2 EPA Protective Action Guidelines	57
Table C-3 Example Implementation Sequence	59
Table C-4 Protective Action Guides for Contamination of Milk Products and Production	61
Table C-5 Protective Action Guides for Contamination of Agriculture Products other than Milk	63
Table C-6 Emergency Classification and Action Guide	65
SECTION D - RECOVERY	69
1. MISSION	69
a. Short Term or Reentry Operations	69
b. Long Term Recovery Operations	69
c. Decisions to Relax Protective Measures	69
2. Recovery/Reentry Operations	70
3. Long Term Recovery	70
Table D-1 Surface Contamination Action Guides	71
<u>APPENDICIES</u>	
APPENDIX A - EVACUATION PLAN FOR WAYNE COUNTY, N.Y.	A-1
APPENDIX B - Not used - Reserved for future use	B-1
APPENDIX C - U.S. Coast Guard Plan	C-1
APPENDIX D - Sheltering	D-1
APPENDIX E - Wayne County Emergency Communications Network	E-1
APPENDIX F - Wayne County Notification Plan	F-1
APPENDIX G - Population Data - Site Vicinity	G-1
APPENDIX H - Listing of Special Facilities	H-1
APPENDIX I - Authentication Document	I-1

APPENDICIES (continued)

APPENDIX J - Radiological Monitoring and Assessment Resources	J-1
APPENDIX K - ERPA Boundaries	K-1
APPENDIX L - Public Information	L-1
APPENDIX M - Site Evacuation Plan	M-1
APPENDIX N - Letters of Agreement/Memo of Understanding	N-1
APPENDIX O - Evaluation Criteria Cross-Reference Index	O-1
APPENDIX P - Glossary of Terms	P-1

PART II - LIST OF PROCEDURES

<u>Number</u>	<u>Title</u>	<u>Abbreviated Title</u>
-	Maps	M
1	Command and Control	CC
2	Law Enforcement	LE
3	Public Health	PH
4	Schools Coordinator	SC
5	Transportation and Public Works	TR
6	Social Services	SS
7	Ambulance/Emergency Medical Services	AMB
8	Fire and Rescue	FR
9	County Radiological Officer	CO
10	Public Information and Notification	PI
11	Drills and Exercises	DE
12	Training Procedures	TP
13	Radiological Equipment, Inventory, Maintenance and Calibration	RE
14	Communications and Warning Equipment Maintenance, and Inventory	CE
15	Document Control and Coordination	DC

WESTCHESTER COUNTY  
RADIOLOGICAL EMERGENCY PREPAREDNESS PLAN

## TABLE OF CONTENTS

	<u>PAGE</u>
A. <u>INTRODUCTION</u>	I-1
1. Authority	I-1
2. Situation	I-1
a. Indian Point Nuclear Power Site Description	I-1
(1) Site Location	I-1
(2) Site Area Authority and Control	I-2
(3) Regional Topography	I-2
(4) Plant Description	I-3
b. Westchester County Description	I-3
(1) Westchester County Locale	I-3
(2) Westchester County Population	I-4
(3) Public Facilities and Institutions	I-4
3. Assumptions	I-4
a. Background	I-4
b. Emergency Planning Basis	I-4
4. Concept of Operations	I-5
5. General Responsibilities	I-6
a. County Responsibility	I-6
b. State Responsibility	I-6
c. Nuclear Facility Operators Responsibility	I-6
d. Federal Government Responsibility	I-6

### List of Figures

<u>Figure</u>	<u>Title</u>	
I-1	IPNPS Plume Exposure Pathway Emergency Planning Zone	I-9
I-2	IPNPS Ingestion Exposure Pathway	I-11
I-3	IPNPS Near Site Vicinity	I-13
I-4	IPNPS Site Plot Plan	I-15
I-5	Pressurized Water Reactor Schematic	I-17

B. <u>PREPAREDNESS</u>		
1. Mission		II-1
2. Preparedness Activities		II-1
a. Administration		II-1
b. Logistics		II-1
c. Exercises and Drills		II-2
d. Technical Assistance		II-2
e. Training		II-2
f. Public Education/Awareness		II-3



TABLE OF CONTENTS  
(Continued)

C. <u>RESPONSE</u>	III-1
1. Mission	III-1
2. Concept of Operations	III-1
3. Response Activities	III-2
a. Command and Control	III-2
b. Notification of Public	III-2
c. Evacuation	III-3
d. Reception/Congregate Care Centers	III-3
e. Communications	III-4
f. Public Health	III-4
g. Fire and Rescue Service	III-4
h. Law Enforcement and Traffic Control	III-5
i. Public Works (Engineering)	III-5
j. Public Education/Information	III-6
k. Emergency Medical Services	III-7
l. Transportation	III-7
m. Social Services	III-7
n. Accident Assessment	III-8
o. Protective Response Evaluation	III-8
p. Radiological Exposure Control	III-9
4. DIRECTION AND CONTROL	III-9
a. Direction	III-9
b. Control	III-11
(1) Westchester County Emergency Operations Center	III-11
(2) County Emergency Communications Network	III-12
(3) Release of Public Information	III-13
(4) Rumor Control	III-13
5. EMERGENCY PERSONNEL RADIOLOGICAL EXPOSURE CONTROL	III-13
6. INITIATION	III-14
a. Notification	III-16
(1) Nuclear Facility Operators Notification Plan	III-16
(2) County Notification Plan	III-16
b. Activation	III-16
(1) County Personnel Reporting to the CEOC	III-16
(2) County Personnel Reporting to the NFO/EOF	III-17
(3) County Personnel Reporting to the Joint News Center	III-17
(4) Other Personnel Report to CEOC	III-17
c. Verification	III-17
d. Preliminary Public Information Release	III-17

TABLE OF CONTENTS  
(Continued)

7.	ASSESSMENT AND EVALUATION OF PROTECTIVE ACTION RESPONSE OPTIONS	III-18
a.	Assessment	III-18
(1)	Previously Developed Data	III-18
(2)	Relayed Meteorological and Radiological Data	III-18
(3)	Incident Diagnosis and Prognosis	III-18
b.	Evacuation	III-19
(1)	Input Parameters and Boundary Conditions	III-19
(2)	Critical Time Frames	III-19
(3)	Projected Doses	III-20
(4)	Decision Process	III-20
8.	PROTECTIVE ACTION RESPONSE OPTIONS	III-23
a.	Protective Actions	III-23
b.	Types of Protective Actions	III-23
(1)	Initial Precautionary Operations	III-23
(2)	Selective Sheltering	III-24
(3)	General Sheltering	III-24
(4)	Selective Evacuation	III-24
(5)	General Evacuation	III-25
(6)	Isolation of Ingestion Pathways and Sources	III-26

List of Tables

<u>Table</u>	<u>Title</u>	
III-1	Emergency Response Activities	III-10
III-2	EPA Protective Action Guidelines	III-21
III-3	Example Implementation Sequence	III-22
III-4	Protective Action Guides for Contamination of Milk Products and Production	III-28
III-5	Protective Action Guides for Contamination of Agricultural Products other than Milk	III-29

LIST OF FIGURES

<u>Figure</u>	<u>Title</u>	
III-1	Westchester County Radiological Emergency Response Force Organization	
III-2	Westchester County Emergency Personnel Notification Plan	

D. RECOVERY

1.	Mission	IV-1
a.	Short term reentry operations	IV-1
b.	Long term recovery operations	IV-1

TABLE OF CONTENTS  
(Continued)

D. Recovery

2. Recovery/Reentry Operations

IV-1

3. Long Term Recovery

IV-2

TABLE OF CONTENTS

APPENDICES

TABLE OF CONTENTS

	<u>PAGE</u>
A. <u>EVACUATION PLAN FOR WESTCHESTER COUNTY, NEW YORK</u>	A-1
1. Introduction	A-1
2. Evacuation Roadway Travel Time Estimates	A-2
3. Description of the Evacuation Plan	A-3
a. Phase 1 - Mobilization	A-3
(1) Traffic Control	A-4
(2) Bus and Train Mobilization	A-4
(3) Special Vehicle Mobilization	A-5
(4) Reception Centers, Congregate Care Centers, and School Reception Centers	A-5
(5) Special Facilities	A-6
b. Phase 2 - Egress	A-7
(1) Traffic Control	A-7
(2) Bus and Train Mobilization	A-8
(3) Special Vehicles	A-8
(4) Operational Description: Reception Centers, Congregate Care Centers, and School Reception Centers	A-8
(5) Special Facilities	A-9
(6) General Population	A-9
(7) Non-Institutionalized Mobility Impaired Persons	A-9
c. Phase 3 - Maintenance	A-10
(1) Traffic Control and Security	A-10
(2) Bus and Train Operations	A-10
(3) Congregate Care Centers	A-10
d. Phase 4 - Return	A-11

LIST OF ATTACHMENTS

<u>Attachment</u>	<u>Title</u>	<u>PAGE</u>
1	Scenarios for Evacuation Planning Traffic Control	A-13
2	Traffic Control	A-15
3	Evaluation of the Transit-Dependent Population	A-17
4	Reception Centers, Congregate Care Centers and School Reception Centers	A-21
5	Evacuation Plans for Special Facilities	A-25
6	OPLAN Radiological Emergency - Indian Point	A-29

LIST OF TABLES

<u>Table</u>	<u>Title</u>	<u>PAGE</u>
A-1	Indian Point Evacuation Paths Listed by ERPZ	A-35
A-2	Traffic Zone Descriptions and Evacuation Paths Listed by Town	A-43
A-3	Modal Split of Evacuees by Scenario	A-49
A-4	General Populations Evacuation Time Estimates by ERPA; Normal Weather Conditions	A-51
A-5	Special Facility and Transient Population Evacuation Time Estimates by ERPA; Normal Weather Conditions	A-52
A-6	General Population Evacuation Time Estimates by ERPA Adverse Weather Conditions	A-53
A-7	Special Facility and Transient Population Evacuation Times Estimates by ERPA Adverse Weather Conditions	A-54
B.	<u>Not used - Reserved for Future Use</u>	B-1
C.	<u>IODINE PROPHYLAXIS</u>	C-1
D.	<u>SHELTERING</u>	D-1
E.	<u>WESTCHESTER COUNTY EMERGENCY COMMUNICATIONS NETWORK</u>	E-1
	A. The New York State Radiological Emergency Communications System (RECS) for the Indian Point Nuclear Power Station	E-1
	1. Introduction	E-1
	2. System Configuration	E-1
	a. Site Locations	E-1
	b. Layout	E-4
	c. Voice Recording	E-4
	d. Functional Operation	E-4
	B. Westchester County Emergency Communications Network	E-5
	1. Department of Public Safety Communication Center	E-5
	2. Westchester County Fire Control Center (Fire Training Center, Valhalla, N.Y.)	E-5

List of Figure

<u>Figure</u>	<u>Title</u>
E-1	Radiological Emergency Communication System Configuration E-7



TABLE OF CONTENTS

APPENDICES

TABLE OF CONTENTS  
(Continued)

	<u>PAGE</u>
F. <u>WESTCHESTER COUNTY PUBLIC NOTIFICATION PLAN</u>	F-1
A. Public Notification Criteria	F-1
1. Responsibilities	F-1
a. Activation of Notification System	F-1
b. Assurance of Means for Implementation of System	F-1
2. Information to be Included in RERP's	F-1
3. Effectiveness of Notification	F-2
4. Assurance of Continued Notification Capability	F-2
5. Public Information	F-2
6. Use of Sirens	F-2
B. Public Notifications System	F-2
1. Introduction	F-2
a. Background	F-3
b. Document Outline	F-3
2. System Configuration	F-3
a. Alerting Device Distribution	F-3
b. Control and Communication	F-4
3. Siren Placement Guidelines	F-5
4. Testing and Activation Requirements for Sirens	F-5
a. Silent Test	F-5
b. Growl Test	F-5
c. Complete Cycle Test	F-5
5. Siren Layout for Indian Point EPZ	F-6
6. Public Information	F-6
G. <u>POPULATION DATA SITE VICINITY</u>	G-1

List of Tables

<u>Table</u>	<u>Title</u>	
G-1	Sector and Zone Designators	G-2
G-2	Sector A	G-3

TABLE OF CONTENTS

APPENDICES  
(Continued)

<u>Table</u>	<u>Title</u>	<u>PAGE</u>
G-3	Sector B	G-4
G-4	Sector C	G-5
G-5	Sector D	G-6
G-6	Sector E	G-7
G-7	Sector F	G-8
G-8	Sector G	G-9
G-9	Sector H	G-10
G-10	Sector J	G-11
G-11	Sector K	G-12
G-12	Sector L	G-13
G-13	Sector M	G-14
G-14	Sector N	G-15
G-15	Sector P	G-16
G-16	Sector Q	G-17
G-17	Sector R	G-18

List of Figures

<u>Figure</u>	<u>Title</u>	
G-1	Schematic Sector/Zone Diagram 0 to 50 Mile	G-19
G-2	IPNPS 50-Mile Region	G-20

H.	<u>LISTING OF SPECIAL FACILITIES IN WESTCHESTER COUNTY NEW YORK</u>	H-1
I.	<u>AUTHORIZATION DOCUMENTATION</u>	I-1
J.	<u>RADIOLOGICAL MONITORING AND ASSESSMENT RESOURCES</u>	J-1
A.	Nuclear Facility Operators	J-1
1.	Atmospheric Release Advisory Capability	J-1
2.	Meteorological Input Dose Assessment System	J-2
3.	Nuclear Environmental Monitoring	J-3
4.	Apple Mini-Computer System	J-4
5.	Emergency Off-Site Monitoring Teams	J-5
B.	The United States Government Department of Energy	J-5

List of Tables

<u>Table</u>	<u>Title</u>	
J-1	Radiation Assistance Program Equipment Inventory	J-7

TABLE OF CONTENTS

APPENDICES  
(Continued)

List of Figures

<u>Figure</u>	<u>Title</u>	
J-1	Wind Sector Map	J-15
K.	<u>EMERGENCY RESPONSE PLANNING AREAS</u>	K-1
L.	<u>NOT USED</u>	L-1
M.	<u>SITE EVACUATION</u>	M-1

**NEW YORK STATE  
DISASTER PREPAREDNESS PLAN**

prepared by

**THE DISASTER PREPAREDNESS COMMISSION**

**OF THE**

**STATE OF NEW YORK**

Hugh L. Carey, Governor

Revised September 1982

## Introduction

A wide variety of disasters, often caused or compounded by mankind's own acts, cause loss of life, property and income, disrupt the normal functions of government, communities and families, and cause great human suffering. The state must give leadership and direction to prevent, counteract, defend against, and recover from the dangers and problems arising from such situations.

Article 2-B of the New York State Executive Law creates the State Disaster Preparedness Commission to meet this need. The Commission is composed of heads of various state agencies named in the law, plus three additional members appointed by the Governor, two of whom are local chief executives. The Commission's chairman is designated by the Governor. The Chief of Staff to the Governor, head of the Division of Military and Naval Affairs, is designated by law to serve as Secretariat to the Commission and provide necessary staff services. In approving the legislation, the Governor indicated that the Division of Military and Naval Affairs shall act as the executive arm of the Commission. The Chief of Staff to the Governor has designated the Office of Disaster Preparedness within the Division of Military and Naval Affairs to perform these functions.

The Commission's powers and responsibilities are designed to develop a comprehensive system to prevent or react to emergencies or disasters within the state. The Commission also is charged with the responsibility to assist local governments in developing disaster preparedness plans, to direct state disaster operations and coordinate state operations with local disaster operations, and to provide for training to assure that responsible people are familiar with plans and procedures.

To fulfill these charges, the plan uses the concept of Comprehensive Emergency Management: comprehensive meaning all aspects of a situation, emergency meaning an extraordinary happening, and management meaning overall direction and control.

Comprehensive Emergency Management includes three interrelated critical phases:

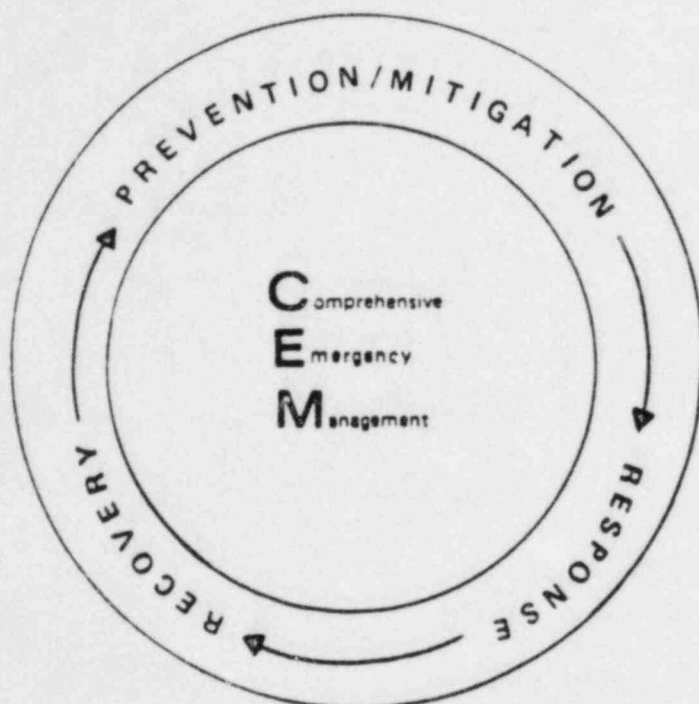
Prevention/Mitigation: Prevention refers to those short-or long-term activities which eliminate or reduce the number of occurrences of disaster. Mitigation refers to all activities which reduce the effects of disasters when they do occur. The latter includes preparedness measures such as the development of plans and the conduct of training to save lives and minimize disaster damage.

Response: Response activities follow the initial impact of an emergency or disaster. Generally, they are designed to minimize casualties and protect property to the extent possible through emergency assistance. They also seek to reduce the probability of secondary damage and to speed recovery operations.



Recovery: Recovery activities continue until all systems return to previous levels or better. Short-term recovery returns vital life support systems to minimum operating standards. Long-term recovery may continue for many years after a disaster. Recovery activities should include measures to prevent or mitigate a recurrence.

These phases interact in an ongoing cycle, one leading naturally into another.



This plan is based on the concept that operations in all three phases will begin at the level of government most appropriate to give effective action. Towns, villages, and cities should turn to their county government when needed actions exceed their capability. When needs exceed the capability of the county and its subdivisions, help may be requested from the state. Federal assistance is supplemental to that of the state and local governments and is available upon approval of a request by the Governor to the appropriate federal agency or the President. When federal assistance is provided, it will normally follow the same sequence in reverse, from federal, through state, to the local government(s) in need.

Part One of the plan provides a common basis for joint federal, state, and local government operations. Parts Two, Three, and Four outline collective activities of all pertinent state organizations for the three phases of disaster preparedness: prevention/mitigation, response, and recovery.

Traditionally, disaster plans have been primarily concerned with response activities. All agencies of government must assure that all their policies, programs and projects give maximum consideration to prevention or mitigation of emergencies and disasters. Recovery efforts following a disaster must be regarded as an opportunity to correct adverse conditions, to meet the actual needs of the community, not simply to replace what had previously existed. Both the prevention/mitigation and recovery phases are opportunities to protect and improve the quality of life in the state. They are as important as the response phase. They cannot be ignored or considered to cease at any given point in time.

## PART ONE - GENERAL ELEMENTS

### I. PURPOSE

The purpose of this plan is to minimize the effects of disasters by identifying measures to prevent or mitigate them, by developing mechanisms to coordinate the use of resources and manpower during and after disasters, and by providing for recovery and redevelopment following a disaster.

### II. LEGAL AUTHORITY

#### A. New York State

1. New York State Constitution
2. New York State Executive Law, Article 2-B (4/1/79), as amended
3. New York State Defense Emergency Act, (4/12/51) as amended
4. New York State Interstate Civil Defense and Disaster Compact, Chapter 674, (1951)

#### B. United States

1. Disaster Relief Act of 1974 (PL 93-288)
2. Disaster Relief Act of 1970 (PL 91-606)
3. Title 24, Chapter XIII, Part 2205, and other relevant parts of the Code of Federal Regulations
4. Presidential Executive Order 11795, dated July 11, 1974
5. Flood Disaster Protection Act of 1973 (PL 93-234)
6. Federal Civil Defense Act of 1950, as amended (PL 81-920)

### III. POLICY

It is the policy of the state to take actions to prevent or mitigate the effects of natural or man-made disasters, to be prepared, within its resources, to respond to an emergency or disaster, and to expedite recovery. Function and services of the state will be maintained in a high state of readiness to prevent or minimize damage, protect and save lives, and provide for the benefit of all citizens who are or may be threatened by an emergency or who become victims of any disaster. Particular attention must be given to the needs of the poor, the elderly, the handicapped, and other groups which may be especially affected. These services will be coordinated to the maximum extent with comparable activities of local governments, other states, the federal government, and voluntary/private agencies of many types.

Further, it is the policy of the state to give assistance to local governments in these activities wherever possible, particularly upon finding that local capability is not enough to cope with the situation or that the local resources have been severely depleted.

Nothing herein shall be construed as relieving any agency of its statutory responsibilities unless directed by executive order of the Governor during a declared State Disaster Emergency.

#### IV. VULNERABILITY

New York State is subject to many natural or man-made conditions which could result in an emergency or disaster. These conditions include but are not limited to: blight, civil disturbance or terrorism, air/water contamination, drought, earthquake or volcanic activity, energy emergency, epidemic, explosion, fire/forest fire, flood or high water, hazardous material accident, hurricane, tornado or windstorm, ice jam, ice storm, infestation, landslide or mudslide, oil spill, radiological accident or incident, snowstorm or blizzard, transportation accident, wave action, or other catastrophe.

The probability of occurrence of any one, or a combination, of these threats varies from area to area, season to season.

Analysis of the vulnerability of the state and its localities to potential disasters is important. A summary of the current analysis is contained in Appendix E.

#### V. CONCEPT OF OPERATIONS

- A. General: Prevention/mitigation, response, and recovery are general responsibilities of all levels of government but are dealt with at the lowest possible level of government. Local governments and emergency service organizations will continue in their essential role as the first line of defense. When an emergency or disaster is beyond their capability, incorporated villages, towns, and cities, except the city of New York, will request help through their respective county government. Counties and the City of New York will request State assistance through the appropriate district office of the Office of Disaster Preparedness. If it is necessary, in the opinion of the Governor, the state will request help from federal agencies or the President.



B. Local Governments:

1. Each county, except those contained within the city of New York and each city is authorized to prepare disaster preparedness plans. The Commission will provide help and advice for the development of such plans. These plans should:
  - a. Identify local and regional vulnerabilities to emergencies or disasters and the resources available to prevent or mitigate, response to, and recover from them.
  - b. Outline short-, medium-, and long-range measures for improving the jurisdiction's capabilities.
  - c. Provide that local governments will take necessary actions to prevent or mitigate the effects of disasters and be prepared to respond when an emergency or disaster occurs.
  - d. Provide for the utilization of all available resources to protect against and deal with an emergency or threatening situation.
  - e. Provide for the utilization and coordination of programs to assist victims of disasters with particular attention to the needs of the poor, the elderly, the handicapped, and other groups which may be especially affected.
  - f. Provide a single source for the dissemination of public information.
2. Local governments should establish supplementary agreements to interstate compacts or intergovernmental mutual aid agreements.
3. Local governments should establish and maintain records and reporting systems necessary to the accomplishment of the state and local plans as required by state and federal laws, rules, and regulations.

C. State Government:

1. The state will initiate and carry out prevention/mitigation measures for the protection of life and property and will help local governments in similar activities.
2. State help is supplemental to local efforts and is identified in the succeeding parts of this plan.
3. Direction and control of all state prevention/mitigation, response and recovery functions will be exercised by the Commission. All



activities outlined in this plan will normally be coordinated by the Office of Disaster Preparedness as the communications link to, and operating staff of, the Commission.

4. State agencies will establish supplementary agreements to interstate compacts, mutual aid, and intergovernmental agreements as necessary and authorized by state law.
5. Upon the occurrence of an emergency or disaster clearly beyond the capabilities and resources of state and local governments, the Governor may find that federal assistance is required and may request such assistance from the President or other officials of the federal government.

D. Federal Government: A wide variety of federal assistance is available, depending upon the severity and type of damage. This includes, but is not limited to, assistance under the Disaster Relief Act of 1974 (PL 93-288), programs of the Corps of Engineers, Small Business Administration, and the Department of Agriculture. NOTE: A list of such assistance will be maintained by the Office of Disaster Preparedness.

## VI. RESPONSIBILITIES

### A. Disaster Preparedness Commission:

1. Make recommendations to the Governor and Legislature on ways to improve state and local capabilities in all phases of disaster operations.
2. Where there is a need to perform a function in any phase of this plan that has not been assigned or assumed by a state agency or other organization, the Commission will make such assignment as it thinks appropriate.
3. If a state agency does not have enough funding to perform its required functions under this plan and, particularly where an agency incurs extraordinary expenses in responding to a disaster, the Commission will make specific recommendations to the Governor for sending to the Legislature and/or the Division of the Budget, as appropriate, for such additional funding as may be necessary.
4. State law assigns to the Department of Health the responsibility for planning for and responding to radiation accidents. Specific details concerning emergency response to accidents at fixed nuclear facilities are set forth in the New York State Radiological Emergency Preparedness Plan. Details for response to radiation accidents not involving fixed nuclear facilities are set forth in the Department of Health's Environmental Health Manual, item RAD 320. The Commission will coordinate

response to such accidents and assist the Department of Health with communications, warning and radiological monitoring.

5. The Commission is charged with a wide variety of other responsibilities. Among these are:

a. Prevention/Mitigation:

- (1) Study all aspects of man-made and natural disaster prevention, response, and recovery.
- (2) Prepare state disaster preparedness plans and review such plans at least annually.
- (3) Give help and advice to local governments in the preparation of disaster preparedness plans and recovery plans.
- (4) Prepare, keep current, and distribute an inventory of programs relevant to the prevention and mitigation of, response to, and recovery from disasters.
- (5) Give training to state personnel with disaster responsibilities, wherever possible, with the participation of local and federal personnel.

b. Response:

- (1) Direct state disaster operations and, through the Office of Disaster Preparedness, coordinate such operations with local disaster operations.
- (2) Establish a temporary organization in the disaster area to provide for the integration and coordination of efforts among the various federal, state, municipal and voluntary/private agencies involved, unless such an organization is thought to be unnecessary by the Commission.
- (3) With the approval of the Governor, direct that temporary organization to assume direction of the local disaster operations, subject to the supervision of the Commission, when a local government is unable to manage such operations.

c. Recovery:

- (1) Help coordinate federal recovery efforts and coordinate recovery assistance by state and voluntary/private agencies.
- (2) Prepare and send periodic reports to the Governor on recovery efforts.

- (3) Make studies and prepare reports on the effectiveness of state response activities during disaster operations and make recommendations for improvement.

B. Office of Disaster Preparedness: In providing staff services to the Commission, the Office of Disaster Preparedness will insure that the responsibilities of the Commission are properly carried out, initiate any and all other actions thought necessary for effective implementation of this plan, and will:

(1) Prevention/Mitigation:

- a. Help other state agencies and local governments in prevention/mitigation activities including, but not limited to, identifying potential disasters and disaster sites, planning, preparing public information programs, and conducting training and exercises.
- b. Help the Department of Health and local governments in preparing response plans for nuclear power plant accidents, including specific evacuation plans.
- c. Maintain and operate the State Emergency Operating Center in Albany and six District Emergency Operating Centers which will coordinate activities in their respective areas. See Appendix D.
- d. Provide a statewide system to ensure timely warning to county and city government officials.
- e. Establish, maintain, and encourage local participation in a statewide communications system for disaster operations.
- f. Advise state agencies, local governments, and the public on available state and federal prevention/mitigation, disaster assistance, and recovery programs.
- g. Encourage mutual aid agreements with federal agencies, other states, private business/industry and voluntary/private agencies, and between local governments.
- h. Maintain inventories of equipment, a library of agency procedures, directories of agency emergency contacts, and lists of federal assistance programs.

(2) Response:

- a. Maintain surveillance of potentially threatening conditions to and in the state, direct appropriate warning, and recommend preparedness actions.
- b. Review local requests for assistance and recommend appropriate state response.
- c. Advise the Commission, state agencies, local government officials, private agencies and organizations, and appropriate federal agencies of the severity and magnitude of the emergency or disaster situation.
- d. Establish, maintain, and operate temporary control centers or field offices in anticipation of or in response to a disaster.
- e. Help in the coordination and execution of this plan to the maximum extent with the emergency activities of local governments, state agencies, other state governments, voluntary/private agencies, and the federal government.
- f. Coordinate damage assessment activities of state and local governments and their agencies.
- g. Prepare text and supporting data for the Governor's use in requesting federal aid under PL 93-288 and other appropriate authorities.
- h. Provide staff services to the State Coordinating Officer.

(3) Recovery:

- a. Establish, staff, and maintain Disaster Assistance Centers.
- b. Coordinate federal assistance.
- c. Give staff services to any recovery organization that may be established by the Commission following a disaster.

C. State Agencies: In cooperation with the Disaster Preparedness Commission and, where applicable, under its coordination, state agencies will:

1. Prevention/Mitigation:

- a. Carry out all existing disaster prevention or mitigation programs and projects.
- b. Review all existing or proposed policies, programs, and projects for their potential to prevent or mitigate disasters and, wherever possible, adopt such measures as may be necessary to improve or achieve that potential.



- c. Make recommendations to the Commission for new or improved prevention or mitigation programs or projects.
- d. Prepare operating procedures which set forth the manner in which their respective state functions will be integrated with this plan in the prevention/mitigation, response, and recovery phases. These procedures will be reviewed and updated as frequently as necessary, but at least annually. Updated copies of such procedures shall be filed with the Commission within 15 days of completion.
- e. Appoint an agency official to act as liaison to the Commission as the single point of contact for disaster related activities. Give the Office of Disaster Preparedness the business and home telephone numbers of this liaison and promptly report any changes in same.
- f. Appoint personnel as required to help in maintaining this plan and to assure the development and maintenance of emergency procedures and manuals appropriate to the agency's responsibilities under this plan.
- g. Preassign personnel to augment the State and/or District Emergency Operating Centers during emergencies in accordance with needs set forth by the Commission. Such personnel shall be familiar with the agency's resources and how they can be utilized in helping the Commission in fulfilling its responsibilities.
- h. Give training to personnel assigned functions in the agency's emergency procedures and, where appropriate, to people of other state agencies, local agencies, voluntary/private agencies, and the public.
- i. Maintain a 24-hour response capability in agency headquarters and a capability for rapidly alerting field personnel.
- j. Maintain a capability for the emergency procurement of supplies and equipment required and not otherwise available.
- k. Promptly advise the Office of Disaster Preparedness of any threatening conditions that might require actions beyond the agency's capability and/or require the assistance of other agencies.

2. Response:

- a. Coordinate emergency operations with other
  - state agencies, local governments and/or voluntary/private agencies.



- b. Comply with Section 29 of Article 2-B of the Executive Law which describes the extraordinary powers of the Governor during a declared State Disaster Emergency.
- c. Assign experienced people to participate in damage assessment teams during and after a disaster as requested by the Commission.
- d. Be prepared to help federal representatives provide emergency response or disaster assistance within the affected areas.

3. Recovery:

- a. Analyze proposed or existing agency projects and programs in the affected area to determine how they may be modified or applied to assist recovery.
- b. If indicated, assign a higher priority to programs in an area that is recovering from a disaster.
- c. Make agency expertise and information available to assist all levels of government during the pre- and post-disaster phases of recovery.

VII. DIRECTION AND CONTROL

A. General:

- 1. Direction and control will be provided by the Disaster Preparedness Commission.
- 2. The Commission will exercise the functions, powers, and responsibilities delegated to it by Article 2-B of the Executive Law and other applicable laws. The Office of Disaster Preparedness will carry out the Commission's routine functions.
- 3. Procedures for handling instructions, reports, information, and coordination are detailed in Parts Two, Three, and Four of this plan.
- 4. Agency heads will retain direction and control of the activities of their respective agencies with coordination of multi-agency operations being exercised by the Commission.
- 5. Local government's first line of contact with the State for emergency operations and reports is the appropriate district office of the Office of Disaster Preparedness. The district office shall take such actions as are within its authority to resolve situations at the local level, keeping the main Office of Disaster Preparedness informed at all times.

B. Communications:

1. Commercial telephone will be the primary means of communication. It must be recognized, however, that in larger disaster situations telephone lines are often disrupted and alternate means of communication are vital.
2. Many state agencies have communication systems developed to meet their own particular needs. These systems will be integrated whenever possible to support emergency operations during disaster situations.
3. The State Emergency Operating Center has capability for direct radio and teletype contact with the federal government and direct contact with the ODP district offices, the Emergency Broadcasting System, and certain state agency radio contact with the local governments and the major state agencies within its jurisdictions. All of these systems are equipped for automatic emergency power generation.
4. A complete study of the communications systems available to the state for emergency operations and the improvements required will not be a subject of this plan but will be contained in a separate document.

C. Warning:

1. The National Warning System (NAWAS) is primarily designed for warning of impending enemy attack but is used for warning of potentially dangerous situations of all sorts. It is a nationwide system providing voice communications using dedicated telephone lines.
2. The State Warning Point is the control point for NAWAS within the state and is located in the State Emergency Operating Center, with remote capability in the communications unit at State Police headquarters to ensure 24-hour coverage.
3. There are 168 NAWAS outlets in the state, including:
  - a. At least one in each county, and in each of 14 cities, at a location where 24-hour coverage is provided by the police, sheriff, or fire dispatcher.
  - b. In the EOC of each county and city civil defense jurisdiction.
  - c. In each ODP district office, with the capability for the district to control the circuits within its jurisdictions.
  - d. In all of the National Weather Service installations in the state.

- e. In the U.S. Department of Energy offices at Brookhaven National Laboratory and Knolls Atomic Power Laboratory.
- f. In the Indian Point Number 2 and 3 and the Shoreham Nuclear Power Plants.
- 4. The National Weather Service will use NAWAS to disseminate information on adverse weather conditions, severe weather watches, and warnings at its discretion.
- 5. NAWAS may be used by local governments to report important information to district or state levels of ODP.
- 6. Upon receipt of warning information via NAWAS or any other means, local officials should use every means possible to ensure timely and accurate dissemination to other concerned officials and, where necessary, to the public.

D. Public Information:

1. Assumptions:

- a. During and following disasters, people both inside and outside the emergency area will seek information concerning the situation.
- b. Upon the onset of a disaster, local public information officers will begin disseminating emergency information, operating from the local Emergency Operating Center.
- c. The news media will fill an active role in disseminating disaster information.
- d. An efficient and effective means of disseminating emergency information and instructions can be achieved by a cooperative program between government and the news media.

2. Prevention/Mitigation:

- a. With the help of other agencies and the Commission and under the coordination of the Office of Disaster Preparedness, public information briefings, news releases and all information possible on the prevention and mitigation of disasters will be generated by the focal agency for that particular type of disaster, as outlined in Part Two of this plan. The focal agency will ensure appropriate dissemination of such information.
- b. When it appears that conditions which could result in a disaster situation are present or probable, information will be disseminated to lessen or mitigate the effects of the pending disaster. Such information should include a specific definition of the threat, its unique



characteristics, identification of evacuation routes if appropriate, and location of access routes to predesignated disaster assistance facilities. Involved agencies will coordinate information output to avoid contradictory instructions. Copies of all public information releases will be forwarded to the Office of Disaster Preparedness.

- c. The Governor's Press Office will be kept fully informed of the situation and of actions being taken to mitigate its effects.

3. Response:

- a. When it becomes apparent that conditions are certain to result in a disaster, and during disaster operations, it is essential that accurate, reliable information be provided to the public. For this reason all public information briefings, news releases, and emergency information relative to the response to a disaster and the short-term recovery therefrom will be provided principally through the Governor's Press Office, the Public Information Office for the Office of Disaster Preparedness, or the Public Information Office of another state agency as designated by the Commission. The appropriate Public Information Office will be the principal source of official information and will coordinate with concerned local Public Information Offices and any Public Information Office established by the federal government.
- b. Information provided during this stage will focus on actions essential to the survival, health and safety of the population within the disaster area, secondary area hazards and locations of medical, health and congregate care facilities.
- c. Information relative to the saving of lives will receive top priority at all times.

4. Recovery:

- a. When emergency operations terminate, the need for recovery and rehabilitation information will continue.
- b. Information disseminated during this period will be coordinated by the Office of Disaster Preparedness and include announcements concerning designation of unsafe structures,

location of one-stop disaster assistance centers, and the availability of various disaster relief programs such as temporary housing, employment opportunities, and financial assistance.

- c. Information regarding longer term recovery includes scheduled planning, reorganization and rebuilding meetings or public hearings, and other information necessary to ensure a well-planned and coordinated effort.

E. Damage Assessment:

1. Damage Assessment Teams are groups of individuals from one or more agencies with particular expertise to:
  - a. Provide technical assistance to local governments in determining and combating the effects of a disaster.
  - b. Gather information and report to the Office of Disaster Preparedness on the type, extent, and impact of damage.
  - c. Conduct damage surveys to assist in recovery and in determining the amount of federal assistance required, if any.
2. State Damage Assessment Teams will be dispatched to the scene of an emergency or disaster when it becomes apparent that state assistance might become required. These teams will be composed of individuals assigned from various agencies, depending upon the type of emergency or disaster and expertise required.
3. Information gathered on the type and extent of damage will be reported promptly to the Office of Disaster Preparedness to be used by the Commission in directing and coordinating appropriate state assistance for the localities affected and for determining if a recommendation should be made to the Governor to request federal assistance.
4. Information gathered during emergency operations that might be used to prevent or mitigate damage will be reported immediately and directly to the responsible state agency field representative or local governmental authority for action, prior to reporting to the Office of Disaster Preparedness.
5. To insure rapid response, designated state agencies will preassign personnel on a regional basis to participate in damage assessment teams.
6. With the cooperation and assistance of state agencies, the Office of Disaster Preparedness will conduct training for qualified employees in the forms, methods, and procedures to be used in making damage assessment surveys.



F. Evacuation:

1. The hazard causing an evacuation, the direction and distance of movement necessary, weather conditions, availability of routes, transport and housing, and many other considerations will vary with the type and location of the emergency or disaster. Such a wide variety of variables preclude detailed, specific evacuation plans in almost all incidents. Guidelines detailing responsibilities and functions need to be made in any case.
2. Where there is known to be the danger of an emergency or disaster of a specific type at an established location, the state will help local governments prepare detailed evacuation plans in advance, with provision for variables such as weather conditions that cannot be predicted.
3. In accordance with Section 24.1.b. of the Executive Law, following the proclamation of a local state of emergency, the chief executive of a county, city, town or village may designate specific zones within which the occupancy and use of buildings and the ingress and egress of vehicles and persons may be prohibited or regulated.
4. Evacuation is, by its nature, a localized operation and will normally be conducted at the local government level with state support when necessary. The state, through the Commission, may make expert advice available to the local chief executive regarding evacuation.
5. In an evacuation of any size or duration, housing is a serious consideration. Crossing county or state boundaries may be required. Where possible, local mutual aid agreements should be entered into in advance for both circumstances.

G. Training and Education:

1. The Commission has the responsibility to provide training and education in prevention/mitigation, response, and recovery measures. In meeting this responsibility, every effort will be made to involve government officials who have disaster related functions.
2. The Office of Disaster Preparedness will conduct an active training and education program for state and local agencies, voluntary/private agencies, and the public. This program will include:
  - a. Distribution of information on the prevention and mitigation of disasters;
  - b. Assistance in developing state agency plans and procedures;
  - c. Assistance in developing local disaster plans;

- d. Training of damage assessment personnel;
  - e. Training courses and exercises designed to improve prevention/mitigation, response and recovery skills; and
  - f. Developing and conducting specialized training courses and exercises.
3. State agencies have a responsibility to:
- a. Participate in Commission training courses and exercises and assist in their conduct when requested;
  - b. Train agency employees as appropriate to assure an awareness of the hazards common in the state and of their duties and responsibilities in the prevention/mitigation of, response to, and recovery from disaster; and
  - c. Conduct workshops and/or seminars to provide information regarding new and current operating procedures and available resources for all governmental and voluntary/private agency personnel participating in the implementation of agency's assigned emergency functions.

#### VIII. RADIOLOGICAL ACCIDENTS/INCIDENTS

New York State has continually addressed the matter of the safety of its citizens in regard to nuclear radiation, and the New York State Department of Health is the lead agency in this particular area.

The New York State Radiological Emergency Preparedness Plan and county radiological emergency preparedness plans have been developed to provide a coordinated effort by federal, state, and local agencies to prevent or minimize hazards to life and health in the event of a radiation accident.

In addition, each nuclear facility is required to develop, maintain, and update its emergency or site contingency plans which are reviewed periodically.

Both the state plans and the facility plans are subject to federal requirements and approvals. There are two federal agencies which play a significant role in radiological emergency response planning matters. One, the Federal Emergency Management Agency (FEMA), has the lead responsibility for all offsite nuclear emergency planning and response.

The second agency, the Nuclear Regulatory Commission (NRC), by law, can grant licenses for nuclear power plants only if the health and safety of the public is adequately protected.

Since the NRC has lead responsibility for the development of emergency preparedness guidance for licensees, and FEMA has a similar responsibility for state and local agencies, the need for joint participation in the review, assessment, and concurrence with regard to state and local radiological emergency plans led to a Memorandum of Understanding with both the NRC and FEMA as signatories to the document.

Under the direction of the State Disaster Preparedness Commission, state health and other involved state agency officials have an on-going working relationship with the federal agencies and nuclear facility operators in the effort to improve, update, and be in compliance with radiological emergency preparedness plan requirements to insure the safety and health of state residents.

Specifically, New York State designates to the Department of Health the responsibility for response to radiation accidents. Details concerning emergency response to accidents at fixed nuclear facilities are set forth in the New York State Radiological Emergency Preparedness Plan. Details for radiation accidents not involved in fixed nuclear facilities are set forth in the Department of Health's Environmental Health Manual, item RAD 320. The Commission will provide support in responding to such accidents including, but not limited to, communications, warning, radiological monitoring, and coordination.

APPENDIX A

EXECUTIVE LAW - ARTICLE 2-B

"The legislature finds that the state must give leadership and direction to this important task of establishing an emergency disaster preparedness program for the protection of each person in the state.

"The legislature finds that a mutual benefit can be derived by the state and its political subdivisions by the integration of their natural disaster and peacetime emergency response functions with the civil defense program, thus utilizing local government and emergency services organizations for response to both natural and man-made disaster and to attack.

"The legislature finds that local disaster preparedness plans are essential in order to minimize potential disasters and their effects, provide for effective local responses when disasters occur and facilitate local recovery. The legislature further finds that local plans constitute an essential part of the state-wide disaster preparedness program and that without local disaster planning, no state disaster program can be fully effective."

ARTICLE 2-B

STATE AND LOCAL NATURAL AND MAN-MADE DISASTER PREPAREDNESS

Sec.

20. Natural and man-made disasters; policy; definitions.
21. Disaster preparedness commission established; meetings; powers and duties.
22. State disaster preparedness plans.
23. Local disaster preparedness plans.
24. Local state of emergency; local emergency orders by chief executive.
25. Use of local government resources in a disaster.
26. Coordination of local disaster preparedness forces and local civil defense forces in disasters.
27. Continuity of local governments.
28. State declaration of disaster emergency.



CONTENTS

APPENDICES

A	Article 2-B of the New York State Executive Law	A-2
B	Definitions, Disaster Types	B-1
C	Definition, Common Terms and Acronyms	C-1
D	Geographical Boundaries of Major Agencies and Organizations Involved in Disasters	D-1
E	Vulnerability Analysis	E-1

ARTICLE 2-B (CONT'D)

- 28-a. Post disaster recovery planning.
- 29. Direction of state agency assistance in a disaster emergency.
- 29-a. Suspension of other laws.
- 29-b. Use of civil defense forces in disasters.

§20. Natural and man-made disasters; policy; definitions

- 1. It shall be the policy of the state that:
  - a. local government and emergency service organizations continue their essential role as the first line of defense in times of disaster, and that the state provide appropriate supportive services to the extent necessary;
  - b. local chief executives take an active and personal role in the development and implementation of disaster preparedness programs and be vested with authority and responsibility in order to insure the success of such programs;
  - c. state and local natural disaster and emergency response functions be coordinated in order to bring the fullest protection and benefit to the people;
  - d. state resources be organized and prepared for immediate effective response to disasters which are beyond the capability of local governments and emergency service organizations; and
  - e. state and local plans, organizational arrangements, and response capability required to execute the provisions of this article shall at all times be the most effective that current circumstances and existing resources allow.
- 2. As used in this article the following terms shall have the following meanings:
  - a. "disaster" means occurrence or imminent threat of wide spread or severe damage, injury, or loss of life or property resulting from any natural or man-made causes, including, but not limited to, fire, flood, earthquake, hurricane, tornado, high water, landslides, mudslide, wind, storm, wave action, volcanic activity, epidemic, air contamination, blight, drought, infestation, explosion, radiological accident or water contamination.
  - b. "state disaster emergency" means a period beginning with a declaration by the governor that a disaster exists and ending upon the termination thereof.

c. "municipality" means a public corporation as defined in division one of section sixty-six of the general construction law and a special district as defined in subdivision sixteen of section one hundred two of the real property tax law.

d. "commission" means the disaster preparedness commission created pursuant to section twenty-one of this article.

e. "emergency services organization" means a public or private agency, organization or group organized and functioning for the purpose of providing fire, medical, ambulance, rescue, housing, food or other services directed toward relieving human suffering, injury or loss of life or damage to property as a result of an emergency, including non-profit and governmentally-supported organizations, but excluding governmental agencies.

f. "chief executive" means:

(1) a county executive or manager of a county;

(2) in a county not having a county executive or manager, the chairman or other presiding officer of the county legislative body;

(3) a mayor of a city or village, except where a city or village has a manager, it shall mean such manager; and

a supervisor of a town, except where a town has a manager, it shall mean such manager.

§ 21. Disaster preparedness commission established; meetings; powers and duties

1. There is hereby created in the executive department a disaster preparedness commission consisting of the commissioners of transportation, health, state energy office, division of criminal justice services, education, social services, commerce, agriculture and markets, housing and community renewal, general services, and environmental conservation, the superintendent of state police, the secretary of state, the state fire administrator, the chairman of the public service commission, the industrial commissioner, the chief of staff to the governor, and three additional members, to be appointed by the governor, two of whom shall be chief executives. The governor shall designate the chairman of the commission. The members of the commission, except those who serve ex officio, shall be allowed their actual and necessary expenses incurred in the performance of their duties under this article but shall receive no additional compensation for services rendered pursuant to this article.

2. The commission, on call of the chairman, shall meet at least once each year and at such other times as may be necessary. The agenda and meeting place of all regular meetings shall be made

available to the public in advance of such meetings and all such meetings shall be open to the public. The commission shall establish quorum requirements and other rules and procedures regarding conduct of its meetings and other affairs. The chief of staff to the governor shall serve as secretariat to the commission and provide such staff services as may be necessary.

3. The commission shall have the following powers and responsibilities:

a. study all aspects of man-made or natural disaster prevention, response and recovery;

b. request and obtain from any state or local officer or agency any information necessary to the commission for the exercise of its responsibilities;

c. prepare state disaster preparedness plans, to be approved by the governor, and review such plans and report thereon by March thirty-first of each year to the governor and the legislature. In preparing such plans, the commission shall consult with federal and local officials, emergency service organizations, and the public as it deems appropriate;

d. prepare, keep current and distribute to chief executives and others an inventory of programs directly relevant to prevention, minimization of damage, readiness, operations during disasters, and recovery following disasters;

e. direct state disaster operations and coordinate state disaster operations with local disaster operations following the declaration of a state disaster emergency;

f. unless it deems it unnecessary, create, following the declaration of a state disaster emergency, a temporary organization in the disaster area to provide for integration and coordination of efforts among the various federal, state, municipal and private agencies involved. The commission, upon a finding that a municipality is unable to manage local disaster operations, may, with the approval of the governor, direct the temporary organization to assume direction of the local disaster operations of such municipality, for a specified period of time, and in such cases such temporary organization shall assume direction of such local disaster operations, subject to the supervision of the commission. In such event, such temporary organization may utilize such municipality's local resources, provided, however, that the state shall not be liable for any expenses incurred in using such municipality's resources.

g. assist in the coordination of federal recovery efforts and coordinate recovery assistance by state and private agencies.



b. provide for periodic briefings, drills, exercises or other means to assure that all state personnel with direct responsibilities in the event of a disaster are fully familiar with response and recovery plans and the manner in which they shall carry out their responsibilities, and coordinate with federal, local or other state personnel. Such activities may take place on a regional or county bases, and local and federal participation shall be invited and encouraged.

i. submit to the governor and the legislature by March thirty-first of each year an annual report which shall include but need not be limited to:

(1) a summary of commission and state agency activities for the year and plans for the ensuing year with respect to the duties and responsibilities of the commission;

(2) recommendations on ways to improve state and local capability to prevent, prepare for, respond to and recover from disasters;

(3) the status of the state and local plans for disaster preparedness and response, including the name of any locality which has failed or refused to develop and implement its own disaster preparedness plan and program, and

j. coordinate and, to the extent possible and feasible, integrate commission activities, responsibilities and duties with those of the civil defense commission.

## § 22. State disaster preparedness plans

1. The commission shall prepare a state disaster preparedness plan and submit such plan to the governor for approval no later than one year following the effective date of this act. The governor shall act upon such plan by July first of that year. The commission shall review such plans annually.

2. The purpose of such plans shall be to minimize the effects of disasters by: (i) identifying appropriate measures to prevent disasters, (ii) developing mechanisms to coordinate the use of resources and manpower for service during and after disaster emergencies and the delivery of services to aid citizens and reduce human suffering resulting from a disaster, and (iii) provide for recovery and redevelopment after disaster emergencies.

3. Such plans shall be prepared with such assistance from other agencies as the commission deems necessary, and shall include, but not be limited to:

a. Disaster prevention. Plans to prevent and minimize the effects of disasters shall include, but not be limited to:

- (1) identification of potential disasters and disaster sites;
- (2) recommended disaster prevention projects, policies, priorities and programs, with suggested implementation schedules, which outline federal, state and local roles;
- (3) suggested revisions and additions to building and safety codes, and zoning and other land use programs;
- (4) suggested ways in which state agencies can provide technical assistance to municipalities in the development of local disaster prevention plans and programs;
- (5) such other measures as reasonable can be taken to prevent disasters or mitigate their impact.

b. Disaster response. Plans to coordinate the use of resources and manpower for service during and after disaster emergencies and to deliver services to aid citizens and reduce human suffering resulting from a disaster emergency shall include, but not be limited to:

- (1) centralized coordination of resources, manpower and services, utilizing existing organizations and lines of authority and centralized direction of requests for assistance;
- (2) the location, procurement, construction, processing, transportation, storing, maintenance, renovation, distribution or use of materials, facilities and services;
- (3) a system for warning populations who are or may be endangered;
- (4) arrangements for activating state, municipal and volunteer forces, through normal chains of command so far as possible and for continued communication and reporting;
- (5) a specific plan for rapid and efficient communication, and for the integration of state communication facilities during a state disaster emergency, including the assignment of responsibilities and the establishment of communication priorities, and liaison with municipal, private and federal communication facilities;
- (6) a plan for coordinated evacuation procedures, including the establishment of temporary housing and other necessary facilities;
- (7) criteria for establishing priorities with respect to the restoration of vital services and debris removal;
- (8) a plan for the continued effective operation of the criminal justice system;

- (9) provisions for training state and local government personnel volunteers in disaster response operations;
- (10) providing information to the public;
- (11) care for the injured and needy and identification and disposition of the dead;
- (12) utilization and coordination of programs to assist victims of disasters, with particular attention to the needs of the poor, the elderly, the handicapped, and other groups which may be especially affected;
- (13) control of ingress and egress to and from a disaster area;
- (14) arrangements to administer federal disaster assistance; and
- (15) a system for obtaining and coordinating disaster information including the centralized assessment of disaster effects and resultant needs.

c. Recovery. Plans to provide for recovery and redevelopment after disaster emergencies shall include, but not be limited to:

- (1) measures to coordinate state agency assistance in recovery efforts;
- (2) arrangements to administer federal recovery assistance; and
- (3) such other measures as reasonably can be taken to assist in the development and implementation of local disaster recovery plans.

#### § 23. Local disaster preparedness plans

1. Each county, except those contained within the city of New York, and each city is authorized to prepare disaster preparedness plans. The disaster preparedness commission shall provide assistance and advice for the development of such plans.
2. The purpose of such plans shall be to minimize the effect of disasters by (i) identifying appropriate local measures to prevent disasters, (ii) developing mechanisms to coordinate the use of local resources and manpower for service during and after disasters and the delivery of services to aid citizens and reduce human suffering resulting from a disaster, and (iii) providing for recovery and redevelopment after disasters.
3. Plans for coordination of resources, manpower and services shall provide for a centralized coordination and direction of requests for assistance.

4. Plans for coordination of assistance shall provide for utilization of existing organizations and lines of authority.

5. In preparing such plans, cooperation, advice and assistance shall be sought from local government officials, regional and local planning agencies, policy agencies, fire departments and fire companies, local civil defense agencies, commercial and volunteer ambulance services, health and social services officials, community action agencies, organizations for the elderly and the handicapped, other interested groups and the general public. Such advice and assistance may be obtained through public hearings held on public notice, or through other appropriate methods.

6. All plans for disaster preparedness developed by local governments or any revisions thereto shall be submitted to the commission by December thirty-first of each year to facilitate state coordination of disaster operations.

7. Such plans shall include, but not be limited to:

a. Disaster prevention. Plans to prevent and minimize the effects of disasters shall include, but not be limited to:

(1) identification of potential disasters and disaster sites;

(2) recommended disaster prevention projects, policies, priorities and programs, with suggested implementation schedules, which outline federal, state and local roles;

(3) suggested revisions and additions to building and safety codes and zoning and other land use programs;

(4) such other measures as reasonably can be taken to prevent disasters or mitigate their impact.

b. Disaster response. Plans to coordinate the use of resources and manpower for service during and after disasters and to deliver services to aid citizens and reduce human suffering resulting from a disaster shall include, but not be limited to:

(1) centralized coordination of resources, manpower and services, utilizing existing organizations and lines of authority and centralized direction of requests for assistance;

(2) the location, procurement, construction, processing, transportation, storing, maintenance, renovation, distribution or use of materials, facilities and services which may be required in time of disaster;

(3) a system for warning populations who are or may be endangered;



- (4) arrangements for activating municipal and volunteer forces, through normal chains of command so far as possible, and for continued communication and reporting;
- (5) a specific plan for rapid and efficient communication and for the integration of local communication facilities during a disaster including the assignment of responsibilities and the establishment of communication priorities and liaison with municipal, private, state and federal communication facilities;
- (6) a plan for coordination evacuation procedures including the establishment of temporary housing and other necessary facilities;
- (7) criteria for establishing priorities with respect to the restoration of vital services and debris removal;
- (8) a plan for the continued effective operation of the criminal justice system;
- (9) provisions for training local government personnel and volunteers in disaster response operations;
- (10) providing information to the public;
- (11) care for the injured and needy and identification and disposition of the dead;
- (12) utilization and coordination of programs to assist victims of disasters, with particular attention to the needs of the poor, the elderly, the handicapped, and other groups which may be especially affected;
- (13) control of ingress and egress to and from a disaster area;
- (14) arrangements to administer state and federal disaster assistance;
- (15) procedures under which the county, city, town, village or other political subdivision and emergency organization personnel and resources will be used in the event of a disaster;
- (16) a system for obtaining and coordinating disaster information including the centralized assessment of local disaster effects and resultant needs; and
- (17) continued operation of governments of political subdivisions.

c. Recovery. Local plans to provide for recovery and redevelopment after disasters shall include, but not be limited to:

- (1) recommendations for replacement, reconstruction, removal or relocation of damaged or destroyed public or private facilities, proposed new or amendments to zoning, subdivision, building, sanitary or fire prevention regulations and recommendations for

economic development and community development in order to minimize the impact of any potential future disasters on the community.

(2) provision for cooperation with state and federal agencies in recovery efforts.

(3) provisions for training and educating local disaster officials or organizations in the preparation of applications for federal and state disaster recovery assistance.

§ 24. Local state of emergency; local emergency orders by chief executive

I. Notwithstanding any inconsistent provision of law, general or special, in the event of a disaster, rioting, catastrophe, or similar public emergency within the territorial limits of any county, city, town or village, or in the event of reasonable apprehension of immediate danger thereof, and upon a finding by the chief executive thereof that the public safety is imperiled thereby, such chief executive may proclaim a local state of emergency within any part or all of the territorial limits of such local government; provided, however, that in the event of a radiological accident as defined in section twenty-nine-c of this article, such chief executive may request of the governor a declaration of disaster emergency. Following such proclamation and during the continuance of such local state of emergency, the chief executive may promulgate local emergency orders to protect life and property or to bring the emergency situation under control. Such orders, may, within any part or all of the territorial limits of such local government, provide for:

a. the establishment of a curfew and the prohibition and control of pedestrian and vehicular traffic, except essential emergency vehicles and personnel;

b. the designation of specific zones within which the occupancy and use of buildings and the ingress and egress of vehicles and persons may be prohibited or regulated;

c. the regulation and closing of places of amusement and assembly;

d. the suspension or limitation of the sale, dispensing, use or transportation of alcoholic beverages, firearms, explosives, and flammable materials and liquids;

e. the prohibition and control of the presence of persons on public streets and places;

f. the suspension within any part or all of its territorial limits of any of its local laws, ordinances or regulations, or parts thereof subject to federal and state constitutional, statu-

tory and regulatory limitations, which may prevent, hinder, or delay necessary action in coping with a disaster or recovery therefrom whenever (1) a request has been made pursuant to subdivision seven of this section, or (2) whenever the governor has declared a state disaster emergency pursuant to section twenty-eight of this article. Suspension of any local law, ordinance or regulation pursuant to this paragraph shall be subject to the following standards and limits:

(i) no suspension shall be made for a period in excess of five days, provided, however, that upon reconsideration of all the relevant facts and circumstances, a suspension may be extended for additional periods not to exceed five days each during the pendency of the state of emergency;

(ii) no suspension shall be made which does not safeguard the health and welfare of the public and which is not reasonably necessary to the disaster effort;

(iii) any such suspension order shall specify the local law, ordinance or regulation, or part thereof suspended and the terms and conditions of the suspension;

(iv) the order may provide for such suspension only under particular circumstances, and may provide for the alteration or modification of the requirements of such local law, ordinance or regulation suspended, and may include other terms and conditions;

(v) any such suspension order shall provide for the minimum deviation from the requirements of the local law, ordinance or regulation suspended consistent with the disaster action deemed necessary; and

(vi) when practicable, specialists shall be assigned to assist with the related emergency actions to avoid adverse effects resulting from such suspension.

2. a local emergency order shall be effective from the time and in the manner prescribed in the order and shall be published as soon as practicable in a newspaper of general circulation in the area affected by such order and transmitted to the radio and television media for publication and broadcast. Such orders may be amended, modified and rescinded by the chief executive during the pendency or existence of the state of emergency.

Such orders shall cease to be in effect five days after promulgation or upon declaration by the chief executive that the state of emergency no longer exists, whichever occurs sooner. The chief executive nevertheless, may extend such orders for additional periods not to exceed five days each during the pendency of the local state of emergency.

3. The local emergency orders of a chief executive of a county shall be executed in triplicate and shall be filed within seventy-two hours or as soon thereafter as practicable in the office of the clerk of the governing board of the county, the office of the county clerk and the office of the secretary of state. The local emergency orders of a chief executive of a city, town or village shall be executed in triplicate and shall be filed within seventy-two hours or as soon thereafter as practicable in the office of the clerk of such municipal corporation, the office of the county clerk and the office of the secretary of state.

4. Nothing in this section shall be deemed to limit the power of any local government to confer upon its chief executive any additional duties or responsibilities deemed appropriate.

5. Any person who knowingly violates any local emergency order of a chief executive promulgated pursuant to this section is guilty of a class B misdemeanor.

6. Whenever a local state of emergency is declared by the chief executive of a local government pursuant to this section, the chief executive of the county in which such local state of emergency is declared, or where a county is wholly contained within a city, the mayor of such city, may request the governor to remove all or any number of sentenced inmates from institutions maintained by such county in accordance with section ninety-three of the correction law.

7. Whenever a local state of emergency has been declared pursuant to this section, the chief executive of the county in which the local state of emergency has been declared, or where a county is wholly contained within a city, the chief executive of the city, may request the governor to provide assistance under this chapter, provided that such chief executive determines that the disaster is beyond the capacity of local government to meet adequately and state assistance is necessary to supplement local efforts to save lives and protect property, public health and safety, or to avert or lessen the threat of a disaster.

8. The legislature may terminate by concurrent resolution, such emergency orders at any time.

§ 25. Use of local government resources in a disaster

1. Upon the threat or occurrence of a disaster, the chief executive of any political subdivision is hereby authorized and empowered to and shall use any and all facilities, equipment, supplies, personnel and other resources of his political subdivision in such manner as may be necessary or appropriate to cope with the disaster or any emergency resulting therefrom.



2. Upon the threat or occurrence of a disaster, a chief executive may request and accept assistance which is coordinated and directed by the county chief executive as provided in section twenty-six of this article.

3. A chief executive may also request and accept assistance from any other political subdivision and may receive therefrom and utilize any real or personal property or the service of any personnel thereof on such terms and conditions as may be mutually agreed to by the chief executives of the requesting and assisting political subdivisions.

4. Upon the receipt of a request for assistance made pursuant to subdivision two or three of this section, the chief executive of any political subdivision may give, lend or lease, on such terms and conditions as he may deem necessary to promote the public welfare and protect the interests of such political subdivision, any services, equipment, facilities, supplies or other resources of his political subdivision. Any lease or loan of real or personal property pursuant to this subdivision, or any transfer of personnel pursuant thereto, shall be only for the purpose of assisting a political subdivision in emergency relief, reconstruction, or rehabilitation made necessary by the disaster.

5. A political subdivision shall not be liable for any claim based upon the exercise or performance or the failure to exercise or perform a discretionary function or duty on the part of any officer or employee in carrying out the provisions of this section.

6. The chief executive, when requesting assistance pursuant to this section may request assistance from the civil defense and disaster preparedness forces of any other political subdivision, but only if the civil defense and disaster preparedness forces of the type being requested have already been activated within the political subdivisions requesting assistance. The chief executive of any political subdivision receiving such a request is hereby authorized and empowered, subject to the provisions of section twenty-six of this article, to respond thereto.

7. Any power or authority conferred upon any political subdivision by this section shall be in addition to and not in substitution for or limitation of any powers or authority otherwise vested in such subdivision or any officer thereof.

§ 26. Coordination of local disaster preparedness forces and local civil defense in disasters

1. Upon the threat or occurrence of a disaster, the chief executive of a county may coordinate responses for requests for assistance made by the chief executive of any political subdivision within the county.

2. Coordination of assistance shall utilize existing organizations and lines of authority and shall utilize any disaster preparedness or civil defense plans prepared by the affected municipality.

3. A chief executive or any elected or appointed county, city, town or village official shall not be held responsible for acts or omissions of disasters preparedness forces or civil defense forces when performing disaster assistance.

§ 27. Continuity of local governments

1. Every county, except those wholly contained within a city, every city, every town and every village shall have power to provide by local law, and every other public corporation, district corporation or public benefit corporation shall have power to provide by resolution, for its continuity and that of its elective and appointive officers, including members of its legislative or governing body when, in the event of a disaster and the emergency conditions caused thereby, any of such officers is unable to discharge the powers and duties of his office or is absent from the political subdivision. In any such local law or resolution, provision may be made that the removal of a disability or the termination of an absence from the political subdivision of an officer higher on a list or order of succession provided therein to an office shall not terminate the service in such office of an individual lower on such list or order of succession who is temporarily filling such office. Notwithstanding the provisions of any general or special law or city or village charter, a local law or resolution adopted pursuant to this section may be made effective without approval at a mandatory or permissive referendum but in no case shall such local law or resolution become effective until one certified copy thereof has been filed with the clerk of the political subdivision or other appropriate official designated for such purpose by the respective legislative or governing body, one certified copy thereof has been filed in the office of the state comptroller and three certified copies thereof have been filed in the office of the secretary of state.

No provision of this subdivision shall be construed or interpreted as affecting the validity of any ordinance, local law or resolution enacted prior to April first, nineteen hundred seventy-nine or actions taken thereunder by the government of any county, city, town or village.

2. The provisions of this section shall not be applicable in any case where the continuity of the government of a political subdivision or that of any of its elective or appointive officers is otherwise provided for by or pursuant to law.

3. This section shall be construed liberally. The powers herein granted shall be in addition to and not in substitution of any power granted, procedure provided or provision made in any other law.

§ 28. State declaration of disaster emergency

1. Whenever the governor, on his own initiative or pursuant to a request from one or more chief executives, finds that a disaster has occurred or may be imminent for which local governments are unable to respond adequately, he shall declare a disaster emergency by executive order.

2. Upon declaration of a disaster arising from a radiological accident, the governor or his designee, shall direct one or more chief executives and emergency services organizations to:

- (a) notify the public that an emergency exists; and
- (b) take appropriate protective actions pursuant to the radiological emergency preparedness plan approved pursuant to sections twenty-two and twenty-three of this article. The governor, or his designee, shall also have authority to direct that other actions be taken by such chief executives pursuant to their authority under section twenty-four of this article.

3. The executive order shall include a description of the disaster, and the affected area. Such order or orders shall remain in effect for a period not to exceed six months or until rescinded by the governor, whichever occurs first. The governor may issue additional orders to extend the state disaster emergency for additional periods not to exceed six months.

4. Whenever the governor shall find that a disaster is of such severity and magnitude that effective response is beyond the capabilities of the state and the affected jurisdictions, he shall make an appropriate request for federal assistance available under federal law, and may make available out of any funds provided under the governmental emergency fund or such other funds as may be available, sufficient funds to provide the required state share of grants made under any federal program for meeting disaster related expenses including those available to individuals and families.

§ 28-a. Post disaster recovery planning

1. Whenever a state disaster emergency has been declared, any county, city, town or village included in such disaster area shall prepare a local recovery and redevelopment plan, unless the legislative body of the municipality shall determine such plan to be unnecessary or impractical. Prior to making such determination, the municipality shall notify the commission of its intent to forego preparation and provide an opportunity to comment to the commission. Within fifteen days after the declaration of a state



disaster, any county, city, town or village included in such disaster area shall report to the commission whether the preparation of a recovery and redevelopment plan has been commenced, and if not, the reasons for not preparing such plan. Within sixty days after the declaration of a state disaster, the commission shall report to the governor and the legislature the status of local recovery and redevelopment plans, including the name of any municipality which has failed or refused to commence the development of a recovery and redevelopment plan.

2. The commission shall provide technical assistance in the development of such plans upon the request of such county, city, town or village.

3. A local recovery and redevelopment plan shall include, but need not be limited to: plans for replacement, reconstruction, removal or relocation of damaged or destroyed facilities; proposed new or amended regulations such as zoning, subdivision, building or sanitary ordinances and codes; and plans for economic recovery and community development. Such plans shall take into account and to the extent practicable incorporate relevant existing plans and policies and such plans shall take into account the need to minimize the potential impact of any future disasters on the community.

4. Proposed plans shall be presented at a public hearing upon five days notice published in a newspaper of general circulation in the area affected and transmitted to the radio and television media for publication and broadcast. Such notice shall state the time and place of the hearing and indicate where copies of the proposed plan may be inspected or obtained. Any county, city, town, or village preparing a recovery and redevelopment plan pursuant to this subdivision may, upon mutual agreement with any other county, city, town or village, hold a joint hearing to consider such recovery and redevelopment plan.

5. Such plans shall be prepared within forty-five days after the declaration of a state disaster and shall be transmitted to the commission. The commission shall provide its comments on the plan within ten days after receiving such plan.

6. A plan shall be adopted by such county, city, town or village within ten days after receiving the comments of the commission. The adopted plan may be amended at any time in the same manner as originally prepared, revised and adopted.

7. The adopted plan shall be the official policy for recovery and redevelopment within the municipality.

8. Nothing in this section shall preclude any municipality from applying for or accepting and receiving any federal funds.



§ 29. Direction of state agency assistance in a disaster emergency

Upon the declaration of a state disaster emergency the governor may direct any and all agencies of the state government to provide assistance under the coordination of the disaster preparedness commission. Such state assistance may include: (1) utilizing, lending, or giving to political subdivisions, with or without compensation therefor, equipment, supplies, facilities, services of state personnel, and other resources, other than the extension of credit; (2) distributing medicine, medical supplies, food and other consumable supplies through any public or private agency authorized to distribute the same; (3) performing on public or private lands temporary emergency work essential for the protection of public health and safety, clearing debris and wreckage, making emergency repairs to and temporary replacements of public facilities of political subdivisions damaged or destroyed as a result of such disaster; and (4) making such other use of their facilities, equipment, supplies and personnel as may be necessary to assist in coping with the disaster or any emergency resulting therefrom.

§ 29-a. Suspension of other laws

1. Subject to the state constitution, the federal constitution and federal statutes and regulations, and after seeking the advice of the commission, the governor may by executive order temporarily suspend specific provisions of any statute, local law, ordinance, or orders, rules or regulations, or parts thereof, of any agency during a state disaster emergency, if compliance with such provisions would prevent, hinder, or delay action necessary to cope with the disaster.

2. Suspensions pursuant to subdivision one of this section shall be subject to the following standards and limits:

a. no suspension shall be made for a period in excess of thirty days, provided, however, that upon reconsideration of all of the relevant facts and circumstances, the governor may extend the suspension for additional periods not to exceed thirty days each;

b. no suspension shall be made which does not safeguard the health and welfare of the public and which is not reasonably necessary to the disaster effort;

c. any such suspension order shall specify the statute, local law, ordinance, order, rule or regulation or part thereof to be suspended and the terms and conditions of the suspension;

d. the order may provide for such suspension only under particular circumstances, and may provide for the alteration or modification of the requirements of such statute, local law, ordinance, order, rule or regulation suspended, and may include other terms and conditions;

e. any such suspension order shall provide for the minimum deviation from the requirements of the statute, local law, ordinance, order, rule or regulation suspended consistent with the disaster action deemed necessary; and

f. when practicable, specialists shall be assigned to assist with the related emergency actions to avoid needless adverse effects resulting from such suspension.

3. Such suspensions shall be effective from the time and in the manner prescribed in such orders and shall be published as soon as practicable in the state bulletin.

4. The legislature may terminate by concurrent resolution executive orders issued under this section at any time.

§ 29-b. Use of civil defense forces in disasters

1. The governor may, in his discretion, direct the state civil defense commission to conduct a civil defense drill, under its direction, in which all or any of the civil defense forces of the state may be utilized to perform the duties assigned to them in a civil defense emergency, for the purpose of protecting and preserving human life or property in a disaster. In such event, civil defense forces in the state shall operate under the direction and command of the state director of civil defense, and shall possess the same powers, duties, rights, privileges and immunities as are applicable in a civil defense drill held at the direction of the state civil defense commission under the provisions of the New York state defense emergency act.

2. Local use of civil defense forces. a. Upon the threat or occurrence of a disaster, and during and immediately following the same, and except as otherwise provided in paragraph d of this subdivision, the county chief executive may direct the civil defense director of a county to assist in the protection and preservation of human life or property by holding a civil defense drill and training exercise at the scene of the disaster and at any other appropriate places within the county, in which all or any civil defense forces may be called upon to perform the civil defense duties assigned to them.

b. The civil defense forces of the county shall be regarded as a reserve disaster force to be activated, in whole in<sup>1</sup> in part, by the county civil defense director upon the direction of the county chief executive when the county chief executive, in his discretion, is convinced that the personnel and resources of local municipal and private agencies normally available for disaster assistance are insufficient adequately to cope with the disaster.

c. Except as provided in paragraph d of this subdivision, the county chief executive may exercise the power conferred upon him in paragraph a of this subdivision, or may deactivate the civil

defense forces of the county in whole or in part, on his own motion or upon the request of the chief executive officer of a village, town or city located within the county of which he is an officer.

d. Where the local office of civil defense in a city is independent of the county office of civil defense and is not consolidated therewith, the county chief executive may direct the civil defense director of the county to render assistance within such city only when the chief executive officer of such city has certified to him that the civil defense forces of the city have been activated pursuant to the provisions of subdivision three of this section and that all resources available locally are insufficient adequately to cope with the disaster.

e. When performing disaster assistance pursuant to this section, county civil defense forces shall operate under the direction and command of the county civil defense director and his duly authorized deputies, and shall possess the same powers, duties, rights, privileges and immunities they would possess when performing their duties in a locally sponsored civil defense drill or training exercise in the civil or political subdivision in which they are enrolled, employed or assigned civil defense responsibilities.

f. The chief executive officer of a city shall be responsible for the conduct of disaster operations within the city, including the operations directed by the county civil defense director when rendering disaster assistance within a city pursuant to this section.

g. Outside of a city, the sheriff of the county, and in Nassau county the commissioner of police of the county of Nassau, shall supervise the operations of the civil defense director when rendering peace officer duties incident to disaster assistance. The sheriff and such commissioner may delegate such supervisory power to an elected or appointed town or village official in the area affected.

h. Neither the chief executive officer of a city, nor the county chief executive, nor any elected or appointed town or village official to whom the county chief executive has delegated supervisory power as aforesaid shall be held responsible for acts or omissions of civil defense forces when performing disaster assistance.

3. City use of civil defense forces. a. Upon the threat or occurrence of a disaster, and during and immediately following the same, and except as otherwise provided in paragraph d of this subdivision, the chief executive of a city may direct the civil defense director of the city to assist in the protection and preservation of human life or property by holding a civil defense drill and training exercise at the scene of the disaster and at any other appropriate places within the city, in which all or any



civil defense forces may be called upon to perform the civil defense duties assigned to them.

b. The civil defense forces of the city shall be regarded as a reserve disaster force to be activated, in whole or part, by the city civil defense director upon the direction of the chief executive officer of the city when the latter, in his discretion, is convinced that the personnel and resources of local municipal and private agencies normally available for disaster assistance are insufficient adequately to cope with the disaster.

c. Except as provided in paragraph d of this subdivision, the chief executive officer of a city may exercise the power conferred upon him in paragraph a of this subdivision, or may deactivate the civil defense forces of the city in whole or in part, on his own motion or upon the request of the head of the city police force.

d. Where the local office of civil defense in a city is under the jurisdiction of a consolidated county office of civil defense as provided in the New York state defense emergency act, the chief executive officer of such city seeking the assistance of civil defense forces in the protection and preservation of human life or property within such city because of such disaster, must request the same from the county chief executive in which such city is located, in the same manner as provided for assistance to towns and villages in subdivision two of this section.

e. When performing disaster assistance pursuant to this subdivision, city civil defense forces shall operate under the direction and command of the city civil defense director and his duly authorized deputies, and shall possess the same powers, duties, rights, privileges, and immunities they would possess when performing their duties in a locally sponsored civil defense drill or training exercise in the city in which they are enrolled, employed or assigned civil defense responsibilities.

f. Where the city civil defense forces have been directed to assist in local disaster operations pursuant to paragraph a of this subdivision, and the chief executive officer of the city is convinced that the personnel and resources of local municipal and private agencies normally available for disaster assistance, including local civil defense forces, are insufficient adequately to cope with the disaster, he may certify that fact to the county chief executive and request the county chief executive to direct the county civil defense director to render assistance in the city, as provided in subdivision two of this section.

g. The chief executive officer of a city shall be responsible for the conduct of disaster operations within the city, including the operations directed by the county civil defense director, when rendering disaster assistance within a city pursuant to this subdivision.



h. Neither the chief executive officer of a city, nor the county chief executive, shall be held responsible for acts or omissions of civil defense forces when performing disaster assistance.

§ 29-c. Radiological preparedness 1. The commission:

(a) may monitor directly and record the off-site presence of radioactive material in the vicinity of nuclear electric generating facilities located in the state of New York;

(b) shall obtain from the licensees, United States nuclear regulatory commission-required high range radiation, temperature and pressure levels in the containment buildings and in the containment building vents of nuclear electric generating facilities located in the state of New York; and,

(c) shall obtain, subject to the approval of the United States nuclear regulatory commission, any reactor data provided by the licensee to the United States nuclear regulatory commission, which the disaster preparedness commission determines, as a result of the report issued pursuant to section twenty-nine-d of this article, to be a reliable indicator of a possible radiological accident.

Upon the occurrence of a radiological accident, the commission shall promptly provide appropriate and available radioactivity monitoring data to any chief executive who requests it. For the purpose of this section, the term "radiological accident" shall be limited to a radiological accident occurring at a nuclear electric generating facility.

2. (a) Any licensee of the United States nuclear regulatory commission for a nuclear electric generating facility shall be liable for an annual fee to support state and local governmental responsibilities under accepted radiological emergency preparedness plans related to the facility operated by such licensee.

(b) The amount of such fee shall be determined annually by the commission taking into account the costs of such responsibilities not otherwise provided for and unexpended amounts of previous fees paid by any such licensee. In no event shall an annual fee for any facility exceed two hundred fifty thousand dollars. Such fee, which shall be payable to the commission on or before April first, shall be expended or distributed only by appropriation.

3. Such fees shall be expended by the commission for purposes of supporting state and local government responsibilities under accepted radiological emergency preparedness plans, including:

2. Any such recommendations shall be developed in consultation with all concerned public and private parties and shall:

- (a) take into account proven safety effectiveness;
- (b) outline any proposed costs and the means for meeting such costs;
- (c) consider related activities of the United States nuclear regulatory commission or others; and
- (d) when appropriate, discuss alternatives and various implementation stages.

---

1 in original

## SECTION I - BASIC PLAN

A. Situation and Assumptions

A radiological emergency may occur to which Rockland County may not be prepared to respond effectively.

This Plan assumes that the Chairman of the Disaster Preparedness Commission, upon the occurrence of such an incident has found that in fact the county is not prepared to implement effective response action. Upon such a finding the Disaster Preparedness Commission (in accordance with section 21 (3)(f) of Article 2-B of the State Executive Law) will "...create, following the declaration of a state disaster emergency, a temporary organization in the disaster area to provide for integration and coordination of efforts among the various federal, state, municipal and private agencies involved." Thereafter, the Commission may "...with the approval of the Governor, direct the temporary organization to assume direction of the local disaster operations of such municipality, for a specified period of time, and in such cases such temporary organization shall assume direction of such local disaster operations, subject to the supervision of the commission. In such event, such temporary organization may utilize such municipality's local resources..." (section 21 (3)(f) New York State Executive Law). The Lieutenant Governor will head this temporary organization in Rockland County.

The Executive Law, therefore, authorizes the Disaster Preparedness Commission, upon finding that the county is not prepared to implement an effective response action, and following a State Declaration of Emergency, to enter the county, and acting through the Lieutenant Governor to direct the county's emergency operations and utilize its resources to protect the public health and safety during the emergency.

The Plan provides for the State Civil Defense Commission to authorize the conduct of a civil defense drill in the county to permit the utilization of civil defense forces to perform emergency tasks. This action, as authorized by the New York State Defense Emergency Act, will provide civil defense forces with the authority and protection that is available to them during a civil defense emergency, or authorized drills conducted in preparation for such an emergency.

Among the potential radiological hazards that could pose a threat to the lives, health or safety of the residents of the County of Rockland are the nuclear power generating facilities located at Indian Point in Westchester County directly across the Hudson River from Tompkins Cove in the Town of Stony Point. These facilities are equipped with many rigidly enforced safety features associated with the handling of radioactive materials. Nevertheless, it is considered both prudent and appropriate for the State to plan a contingency plan to support Rockland County in order to insure that the offsite impact of a radiological occurrence is minimized through the effective use of available State, local and utility resources. These resources can be supplemented as necessary by assistance from other areas of the state, the federal government and private sector.

## B. Purpose

The purpose of this plan is to provide for measures that the State can take to eliminate or reduce the effects of an offsite release of radioactive material from the Indian Point site, or from any other source of radioactive material that could affect Rockland County.

## C. Scope

The plan provides for the early notification of responsible State, local and utility officials and agencies, the initiation of protective actions to safeguard life, health and property, the subsequent evaluation of the severity of the situation, the coordination by the State Disaster Preparedness Commission of assistance furnished by all levels of government and the Commission's interface with all outside agencies to accomplish the objectives of the plan.

Federal guidance for the preparation of radiological emergency response plans is provided in the document entitled, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (NUREG-0654/FEMA-REP-1, Rev. 1). This document is issued jointly by the Nuclear Regulatory Commission (NRC) and the Federal Emergency Management Agency (FEMA). It establishes 15 planning standards, 15 of which specify items to be addressed in State and local radiological emergency response plans. Items to be addressed by licensee response plans are similarly indicated.

Although this plan follows the federal guidance and evaluation criteria, the emphasis is placed on an ability to respond realistically and effectively.

Within the scope of the plan, there are two major Emergency Planning Zones (EPZs) which must be addressed. One is the plume exposure pathway and the other is the ingestion exposure pathway. The plume exposure pathway is that area around the reactor which is within approximately 10 miles of the Indian Point site. The guidance in NUREG-0654/FEMA-REP. 1 states "The principal exposure sources from this pathway are: (a) whole body external exposure to gamma radiation from the plume and from deposited material; and (b) inhalation exposure from the passing radioactive plume."

In the 10 mile radius within Rockland County 13 distinct planning areas generally bounded by streets or other easily recognized boundaries have been identified. These are referred to as Emergency Response Planning Areas (ERPA's).

The ingestion exposure pathway, on the other hand, is that area within a radius of approximately 50 miles from the nuclear reactor site. The principal exposure from this pathway would be from ingestion of contaminated water or foods such as milk, fresh vegetables, or fish.

The rationale for determining the two planning areas and defining their parameters can be found in NUREG-0396/EPA 520/1-78-016 entitled, "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants."





CHAPTER 4 - FACILITIES AND EQUIPMENT

4.1 Local EOC

The Local Emergency Operations Center (EOC) for the Shoreham Nuclear Power Station is located at the LILCO Brentwood Operations Facility. This facility is the permanent quarters of the Local Emergency Response Organization (LERO). On a day to day basis, the facility is operated 24 hours per day involved in LILCO business activities. During a radiological emergency, however, a portion of this facility will be utilized as the Local EOC.

The Local EOC will serve as the facility from which offsite response functions will be directed and controlled. To accomplish this, the EOC will contain the personnel and equipment necessary to effectively implement the emergency response.

Figure 4.1.1 depicts the basic layout of the Local Emergency Operations Center. Figure 4.1.2 is the Functional Layout of the facility with a corresponding index.

A. EOC Activation

Upon declaration of an Alert or higher classification, the EOC will be activated. As part of Procedure 3.3.2 - Notification of Emergency Response Personnel, the LILCO Customer Services communicators will notify all emergency personnel necessary to activate the Local EOC. These personnel will report directly to the Local EOC.

Activation of the EOC will be in accordance with Procedure 4.1.1, EOC Activation, and will be implemented as the response organization arrives. Upon arrival at the EOC, the staff will modify the telephone system to accommodate the emergency situation. Once the EOC is fully activated, the LILCO Emergency Operations Facility (EOF) and the NY State EOC will be notified.

B. EOC Chain of Command

Located at the Local EOC are two individuals with key roles in the command and control of offsite emergency

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49

o Television	1
o Copies of offsite plan and procedures.	2
o Gas Generator	3
o Portable Air Sampler.	4
o 24 Hour Clocks.	5
Communications Equipment (Figure 4.1.3)	6
o Dedicated telephone lines	7
EOC to ENC	8
EOC to WALK-FM	9
ENC to WALK-FM	10
EOC to EOF	11
EOC to DOE Region I	12
EOC to Brookhaven Substation	13
EOC to EOF Dose Assessment Staff	14
EOC to Brookhaven Area Office	15
EOC to Staging Areas	16
o Radio links	17
EOC to Road Crews/Evacuation Route	18
Spotters	19
EOC to Ambulance Department/Drivers	20
o Radiological Emergency Communications System	21
From the EOC, between DOE Region I, LILCO	22
Control Room, LILCO TSC, Suffolk County, N.Y.	23
State, LILCO Customer Service, LILCO EOF	24
o Centrex/Commercial telephone lines	25
Miscellaneous Equipment	26
o EOC Message Log	27
o Message form (Attachment 4.1.1)	28
o EOC identification cards	29
o Office supplies.	30

The briefing shall serve three purposes:

- o to provide accurate information on a timely basis
- o to ensure public and media confidence
- o to prevent misinformation and rumors

The Public Information Staff at the EOC aided by support staff at the EOC, is responsible for preparing press releases for media dissemination. When preparing such releases, the following shall occur:

- o once a press release is prepared, it must be approved by LERO Director.
- o after LERO Director approval, assign a staff member to distribute press release to LERO, government and Utility PIO's and obtain their acknowledgement by means of a sign off.
- o incorporate changes into a final press release.
- o distribute approved press release by appropriate means--telephone, telecopy, hand or mail as required by circumstances.

#### Correcting Misinformation

The Emergency News Center (ENC) will be the central location for rumor control. The public will contact the LILCO Customer Relations District Offices and the LILCO Customer Call Boards for information concerning the emergency response. LILCO personnel at these locations will be provided with updated press releases. If they cannot answer the inquiry they will call the ENC where a coordinated rumor control point will be manned by representatives from LERO and the Utility. Public Information and Rumor Control Procedures provide details of the emergency function of the CPI (See Procedure 3.8.1-Public Information).



Emergency Broadcast System

The Emergency Broadcast System is the vehicle through which officials from LERO can advise the public directly of the status of any emergency situation connected to the Shoreham Nuclear Power Station and of any protective actions that the public should be taking to ensure minimum risk of danger or exposure as a result of an emergency situation.

Transmission of messages to the public via the EBS must be carefully coordinated to ensure the following:

1. The substance of the EBS messages has been agreed upon by the LERO CPI and the Director of Local Response prior to release.
2. An EBS message is ready for broadcast before the siren notification system is first activated. (See Procedure 3.8.2 - Emergency Broadcast System Activation)
3. The EBS messages are concise, cohesive and comprehensible to the general public (See sample EBS messages, Procedure 3.8.2).

Press Conferences

Press conferences will be conducted periodically in the Press Conference Room of the ENC. Private and public agency/or organization representatives (i.e. American Red Cross, Suffolk County, FEMA, NRC, State officials, etc.) will be invited to join LERO workers at the ENC to participate as a panel in all press conferences to provide up-to-date information, respond to any rumor received, and answer any questions the media may have. Th's panel will also be invited to help disseminate any emergency announcements including accident termination ("ALL CLEAR") announcements.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42

CHAPTER 3 - CONCEPT OF OPERATION3.1 Command and Control

This section describes the management and coordination of the emergency response of the Local Emergency Response Organization (LERO). The Command and Control of the emergency will be conducted in accordance with Procedure 3.1.1 - Command of Emergency Operations.

The Director of Local Response is responsible for the command and control of the emergency response. As such, the Director is responsible for decision making and strategic controls and will decide upon the major responses to be made. The Director is also responsible for the execution of this Plan.

Should the County Executive or his designated representative choose to report to the Local EOC during a drill, exercise or emergency, the Director of Local Response will work in conjunction with the County Executive or his representative in responding to the emergency.

The Manager of Local Response, under the direction of the Director of Local Response, is responsible for the operational control of the emergency response. As such, the Manager is responsible for overall coordination of resources within the Local Emergency Response Organization and verification that individual actions are being performed or have been completed.

Under the direction of the Manager of Local Response are the functional coordinators who are responsible for implementing key response functions. These functional coordinators are also responsible for acting as liaisons between the EOC and field personnel.

## A - Decision Processes

The Director of Local Response will receive and review a constant flow of information as to event classification, escalation or de-escalation, actual

## POSITION DEFINITIONS

Emergency Position: Director of Local Response  
Activation Level: Unusual Event through General Emergency  
Response Location: Local EOC  
Responsible to: LILCO  
Responsibilities:

- a. Overall direction of the response activities of the LERO.
- b. Decision to notify the general public.
- c. Decision to implement protective actions for the general public.
- d. Identification and acquisition of additional federal resources.
- e. Providing updated information to state and local officials.
- f. Authorizing LERO personnel radiation exposures in excess of the PAGs.
- g. Decision to implement recovery/re-entry operations.

Representative  
Titles of Individuals  
Designated to Fill  
This Position:

LILCO Vice President - Transmission and Distribution

LILCO Vice President - Employee Relations

LILCO Vice President - Purchasing and Stores

#5-10-SueT

MS. MC CLESKEY: These witnesses are ready for  
cross examination.

JUDGE LAURENSEN: Mr. Mc Murray.

## CROSS EXAMINATION

BY MR. MC MURRAY:

Q Gentlemen, would you please refer to Page 7 of  
your testimony?

A (Witnesses complying.)

Q In answer to Question 9, you set forth a  
statement taken from a press release by Governor Mario  
Cuomo; is that correct?

A (Witness Weismantle) Yes.

(Witness Cordaro) Yes.

Q Do you have that press release with you?

A (Witness Weismantle) I don't have it here at  
the table.

Q Let me show you a copy of what I proffer to be  
the press release of December 20, 1983 of Governor Cuomo.

(Mr. McMurray hands the witnesses a document.)

Gentlemen, is that the document from which the  
quotation on Page 9 has been taken?

A (Witness Cordaro) Yes.

(Witness Weismantle) Yes.

Q That is a four page document, correct?

A (Witness Cordaro) Yeah.

INDEXXX



#5-11-SueT1

(Witness Weismantle) That's right.

2 Q The quotation is taken from the third paragraph  
3 on Page 2, correct?

4 A (Witness Cordaro) Yes.

5 Q The first sentence of that paragraph, correct?

6 A (Witness Weismantle) That's right.

7 (Witness Cordaro) Yes.

8 Q And you have put into your testimony just that  
9 one sentence out of all of these four pages of the press  
10 release, correct?

11 A (Witness Cordaro) Yes.

12 Q Gentlemen, isn't it true that in fact you  
13 selectively took out one sentence and, in fact, left out  
14 the bulk of the press release which shows that the State  
15 will not participate in emergency planning for Shoreham?

16 A I think from a reading of the press release  
17 it is obvious what we have done, and the position of  
18 New York State in this proceeding is very, very obvious.

19 The only reason for using this quote was to  
20 indicate that the Governor recognized that if the plant  
21 was licensed and an accident did occur that as a responsi-  
22 ble administrator of the State that the State would have to  
23 react.

24 Q The Governor did not say in this press release  
25 that the State would react according to any particular plan;

#5-12-Sue<sup>1</sup>

isn't that correct?

2

A No. He wasn't that specific.

3

Q And he did not state that he would react in accordance with the LILCO Transition Plan, correct?

4

A Yes, that's correct.

5

Q Isn't it true that, in fact, the Governor stated that the State does not have the resources by itself to supply the wherewithal that would be required to respond to an accident at Shoreham?

6

Didn't he say that in the second paragraph?

7

A There is a sentence in that second paragraph that says that.

8

Q Doesn't he also state that the State opposes the notion that this LILCO plan is approvable and that its -- that is LILCO's -- employees lack the capability and the legal power to implement it?

9

Does that state that there in the second paragraph?

10

(The witness shrugged.)

11

MS. MC CLESKEY: Judge Laurenson, I object. If Mr. McMurray is going to read portions of this into the record he might as well just enter it into the record as an exhibit and we won't have to sit and listen to him read it. It will take less time.

12

13

JUDGE LAURENSON: If there is some question about

#5-13-SueT1

2 the quotation being taken out of context, I submit that  
3 the proper way to deal with that is to submit the four  
4 page document into the record and then you won't be  
5 criticized for doing the same thing that you are criticizing  
6 them for, and that is taking matters out of context.

7 Does that present a problem of marking this as  
8 an exhibit and putting it in evidence?

9 MR. MC MURRAY: Judge Laurenson, we don't feel  
10 it is necessary to put in the record the State's position  
11 in opposition to LILCO. I will withdraw that question.

12 Judge Laurenson, I also would like to note that  
13 the witness motioned to counsel to object to the question,  
14 and I don't think that that is proper.

15 MS. MC CLESKEY: I object to that characteriza-  
16 tion. And I would like to state that it's entirely in-  
17 accurate. I wasn't even looking at the witnesses.

18 It's also incredibly improper.

19 MR. CHRISTMAN: And I would like to say that I  
20 didn't see any signal at all either.

21 MR. MC MURRAY: We saw it.

22 JUDGE LAURENSEN: You may have seen it. I didn't  
23 see any such signals. That's all I can say.

24 MR. PIRFO: Should I vote?

25 (Laughter.)

MR. ZAHNLEUTER: I saw a signal.

#5-14-SuET

MR. CHRISTMAN: You saw what you interpreted as  
a signal.

2

3

MR. ZAHNLEUTER: I saw a signal. It was clear.

end #5  
Mary flws

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25



Sim 6-1

1 JUDGE LAURENSEN: Do you have any further  
2 questions?

3 MR. McMURRAY: Yes, Judge Laurenson.

4 I don't have any further questions. I just  
5 want to state in light of the fact that the State's position  
6 is clear in its opposition to the LILCO plan and in its  
7 statement that it will not participate in emergency planning,  
8 we don't feel the need to go into this any further.

9 JUDGE LAURENSEN: Mr. Zahnleuter.

10 MR. ZAHNLEUTER: Yes. May I take one second  
11 to look at this.

12 (Pause.)

13 This press release deals by and large with  
14 the low-power issue, and I think that everything else  
15 concerning this proceeding has already been raised in this  
16 proceeding. So I would not wish to take any action and  
17 I have no other questions.

18 JUDGE LAURENSEN: Mr. Pirvo?

19 MR. PIRFO: I have no questions.

20 JUDGE LAURENSEN: Any redirect?

21 MS. McCLESKEY: Since there have been no  
22 questions asked, there is no redirect. And I was wondering  
23 why the County and the State asked us to provide these  
24 witnesses here at the hearings if they weren't going to  
25 ask any questions of them?

Sim 6-2

1 JUDGE LAURENSEN: There were questions  
2 asked. Mr. McMurray asked questions, some.

3 MS. McCLESKEY: I don't have any redirect.

4 JUDGE LAURENSEN: All right. This panel  
5 is excused.

6 (Panel excused.)

7 JUDGE LAURENSEN: This completes the testimony  
8 on LILCO Contention 92.

9 The next item on the schedule is the LILCO  
10 testimony on Contention 49.

11 I think this might be an appropriate time  
12 to take the morning recess, and we will do so.

13 (Mid-morning recess.)

14 JUDGE LAURENSEN: I believe we are now ready  
15 to hear LILCO's testimony on Contention 49, the Nomogram  
16 For Thyroid Dose.

17 MS. McCLESKEY: Judge Laurenson, the witnesses  
18 Cordaro, Watts and Daverio have resumed the stand.

19 Will each of you please identify yourselves  
20 for the court reporter.

21 WITNESS CORDARO: Matthew C. Cordaro.

22 WITNESS WATTS: Richard J. Watts.

23 WITNESS DAVERIO: Charles A. Daverio.

24 MS. McCLESKEY: Judge Laurenson, I believe  
25 each of these witnesses have been previously sworn.

Sim 6-3

1 JUDGE LAURENSEN: That is correct. You are  
2 still under oath.

3 Whereupon,

4 MATTHEW C. CORDARO

5 CHARLES A. DAVERIO

6 - and -

7 RICHARD J. WATTS

8 were recalled as witnesses for LILCO and, having been  
9 previously duly sworn, were further examined and testified  
10 as follows:

11 DIRECT EXAMINATION

12 BY MS. McCLESKEY:

13 Q Do each of you have before you a document  
14 consisting of 15 pages of testimony plus five attachments  
15 entitled "LILCO's Testimony On Contention 49 (Nomogram For  
16 Thyroid Dose"?

17 A (Witness Cordaro) Yes.

18 A (Witness Watts) Yes.

19 A (Witness Daverio) Yes.

20 Q Is this your testimony?

21 A (Witness Cordaro) Yes.

22 A (Witness Daverio) Yes

23 A (Witness Watts) Yes, it is.

24 Q Was it prepared by you under your supervision?

25 A (Witness Cordaro) Yes.

6-4

1 A (Witness Watts) Yes.

2 A (Witness Daverio) Yes.

3 Q Is it true and correct to the best of your  
4 knowledge and belief?

5 A (Witness Cordaro) Yes.

6 A (Witness Watts) Yes.

7 A (Witness Daverio) Yes.

8 Q Do you have any changes to make to the testimony  
9 or any changes to note?

10 A (Witness Daverio) The only change I have to  
11 note is my title has changed and it has been previously  
12 changed on the record and I won't change it in this piece  
13 of testimony.

14 A (Witness Watts) And also my title has changed  
15 somewhat, but that has been previously noted.

16 A (Witness Cordaro) My title changed about two  
17 or three months ago now, and I have neglected to reference  
18 it, but I don't think it makes any difference in this  
19 proceeding. My title now is Vice President of Engineering  
20 and Administration, and this administration function includes  
21 responsibility for computer operations, real estate,  
22 transportation, building operations and the purchasing  
23 function in the company. In addition, I still retain  
24 my earlier responsibilities in engineering.

25 MS. McCLESKEY: Judge Laurenson, with the



Sim 6-5

1 understanding of the changes in title that have been noted  
2 on the record, I move this testimony into evidence and  
3 ask that it be bound into the record as if read.

4 MR. McMURRAY: No objection.

5 MR. ZAHNLEUTER: No objection.

6 MR. PIRFG: No objections.

7 JUDGE LAURENSEN: The testimony will be  
8 received in evidence and bound in the transcript as  
9 indicated.

10 (The testimony of Messrs. Cordaro, Watts  
11 and Daverio entitled "LILCO's Testimony on Contention 49  
12 (Nomogram For Thyroid Dose)" follows:)

13

14

15

16

17

18

19

20

21

22

23

24

25

LILCO, May 8, 1984

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

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

LILCO'S TESTIMONY ON CONTENTION 49  
(NOMOGRAM FOR THYROID DOSE)

PURPOSE

This testimony shows that the procedures used in the LILCO Plan to calculate a thyroid dose provide a reliable basis for making protective action decisions. The assumptions and calculations used in the procedure are detailed for use in air sampling in documents published by the NRC, FEMA, and the Department of Health and Human Services. The nomogram used in the procedure is simply a mathematical tool to assist in the calculations.

The contention reflects two questions raised in the FEMA-RAC review. The first is that the nomogram is not always used to calculate the thyroid dose from radioactivity measured on the particulate filter paper. In response to this, the

procedure has been modified so that the thyroid dose from the radioactivity on the particulate filter paper is always calculated. The second question is whether the thyroid dose determination might not be accurate due to filtration, moisture in the containment, and other removal processes. As shown in the testimony, these effects only reduce the amount of radioactive material released, and the air samples taken in the field can be remeasured in laboratories where no assumptions concerning the release need be made.

Thus, the procedure and the included nomogram are an effective means of rapidly determining a thyroid dose so that protective actions may be implemented.

Attachments

- Attachment 1 LILCO Transition Plan OPIP 3.5.2,  
p. 56 of 56, Attachment 11, p. 1 of 1
- 2 FEMA-REP-2 Appendix B
- 3 LILCO Transition Plan OPIP 3.5.1  
Section 5.3.7
- 4 LILCO Transition Plan OPIP 3.5.2,  
pp. 18 and 54 of 56
- 5 FDA 83-8211 Appendix H-4

LILCO, May 8, 1984

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

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

LILCO'S TESTIMONY ON CONTENTION 49  
(NOMOGRAM FOR THYROID DOSE)

1. Q. Please identify yourselves.

A. My name is Matthew C. Cordaro. My address is Long Island Lighting Company, 1660 Walt Whitman Road, Melville, New York, 11747.

My name is Charles A. Daverio. My address is Long Island Lighting Company, 100 East Old Country Road, Hicksville, New York, 11801.

My name is Richard J. Watts. My address is Impell Corporation, 225 Broad Hollow Road, Melville, New York, 11747.



2. Q. Please state your professional qualifications.

A. [Cordaro] I am Vice President, Engineering, for LILCO. My professional qualifications are being offered into evidence as part of the document entitled "Professional Qualifications of LILCO Witnesses." I am sitting on this panel to provide the LILCO management perspective on emergency planning, and to answer any questions pertinent to management. My role in emergency planning for Shoreham is to ensure that the needs and requirements of emergency planning are being met, and that the technical direction and content of emergency planning are being conveyed to corporate management. I accomplish this by supervising the development and implementation of the offsite emergency response plan for Shoreham; the manager of the Local Emergency Response Implementing Organization (LERIO) reports directly to me.

[Daverio] I am employed by LILCO as Supervisor of Emergency Planning and Regulatory Services, and have been working on emergency planning for LILCO for over 4 years. I am also Assistant Manager of LILCO's Local Emergency Response Implementing Organization (LERIO). My professional qualifications are being offered into evidence as part of the document entitled "Professional Qualifications of LILCO

Witnesses." As Supervisor of Emergency Planning and Assistant Manager of LERIO, I am responsible for implementing LILCO's Local Emergency Response Plan. As such, I am familiar with the issues surrounding the calculation of thyroid dose using the nomogram which relates iodine to total fission products, as indicated in the LILCO Plan in OPIP 3.5.2, Attachment 11.

[Watts] I am the Health Physics Supervisor for the Radiological Services Section of Impell Corporation. My professional qualifications are being offered into evidence as part of the document entitled "Professional Qualifications of LILCO Witnesses." I have been retained by LILCO to serve as Radiation Health Coordinator of LERO and have participated in LERO drills in this capacity. As such, I am familiar with the nomogram which relates iodine to total fission products for the calculation of thyroid dose in OPIP 3.5.2, Attachment 11.

3. Q. What is Contention 49?
- A. As rewritten by the Licensing Board in its April 20, 1984 order ruling on LILCO's motion for summary disposition of Contentions 24.B, 33, 45, 46, and 49, Contention 49 reads as follows:

The nomogram which relates iodine to total fission products for the calculation of thyroid dose (OPIP 3.5.2 Attachment 11) is not realistic. Thus, there is no assurance that this procedure will provide reliable data for use in making protective action decisions. Accordingly, there is no compliance with 10 CFR Section 50.47(b)(9).

Q. 4. What is the legal standard cited in Contention 49?

A. The legal standard cited in Contention 49 is the following:

10 CFR Section 50.47(b)(9)

(b) The onsite and, except as provided in paragraph D of this section, offsite emergency response plans for nuclear power reactors must meet the following standards:

. . . .

(9) Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

5. Q. Does the FEMA RAC review to the NRC on the status of offsite emergency planning at Shoreham, dated March 15, 1984, discuss the nomogram that is the subject of Contention 49?

A. Yes. The FEMA RAC review found the following:

[T]he nomogram which relates iodine to total fission products for the calculation of thyroid dose (OPIP 3.5.2 Attachment 11) may not be realistic in this aspect [that "even without core damage, radioiodine may be collected on the particulate filter if the iodine is in elemental form. Therefore, one cannot rule out activity on the particulate filter as not being iodine.] Furthermore, the amount of fission products collected from a core damage accident are [sic] highly dependent on a number of parameters, such as moisture in containment, filtration of release, distance from the site, etc., and are [sic] not easily amenable to the nomogram assumptions.

FEMA Review at 29.

The Licensing Board in its April 20 order found that this comment from FEMA "clearly calls into question an important aspect of the entire system, viz, the reliability of the projected dose data available to decision makers when the calculations are being done in the manual backup mode."

6. Q. Where was this method for measuring radioactive iodine developed?
- A. The method used in OPIP 3.5.2 (see Attachments 1 and 4 to this testimony) is described in "Guidance on Offsite Emergency Radiation Measurement Systems," FEMA-REP-2, September 1980, in Appendix B, entitled "An Air Sampling System Developed by Brookhaven



National Laboratory for Evaluation of the Thyroid Dose Commitment Due to Fission Products Released from Reactor Containment" (Attachment 2 to this testimony).

7. Q. Then the equipment and formulas used in OPIP 3.5.2 are the same as those recommended by FEMA in the above document?

A. Yes. The nomogram used is only a mathematical tool which assists in doing the calculation when a calculator or computer is unavailable.

8. Q. What is the nomogram that relates iodine to total fission products for the calculation of thyroid dose?

A. This nomogram is contained in OPIP 3.5.2 Attachment 11 (Attachment 1 to this testimony) and is identified as "TCS Air Sampler Offsite Thyroid Dose Nomogram - Shoreham Station." This nomogram compensates for four different variables within the sampling process: (1) the iodine to total fission product; (2) decay of isotopes after reactor shutdown; (3) any exposure that has taken place to the public prior to the actual field measurement; and (4) duration of exposure (the amount of time that the population would be inhaling radioiodine from the plume, contributing to a thyroid dose.)

9. Q. How is the nomogram used in calculating expected doses?

A. A nomogram is a graphic representation that consists of several lines marked off to scale and arranged in such a way that, using a straight edge to connect known values on two lines, an unknown value can be read at the point of intersection with another line. It is essentially a mathematical tool that is of assistance when used in a calculation methodology.

To calculate doses under the LILCO Plan, personnel go to the field and take measurements as described in OPIP 3.5.1 Section 5.3.7 (Attachment 3 to this testimony), and in OPIP 3.5.2. These measurements are used in a calculation worksheet that directs the person performing the evaluation to the nomogram. The nomogram is used in making a series of calculations resulting in a total thyroid dose for the area in which the air sample was taken.

10. Q. What is meant in the FEMA RAC review and the contention by the statement that the nomogram is "unrealistic?"

A. The FEMA review noted two areas in which FEMA thought the nomogram was unrealistic. First, FEMA commented that without core damage, radioiodines may be

collected on the particulate filter if the iodine is in elemental form. Therefore, it is conceivable that the activity measured on a particulate filter may be iodine. The second question in the FEMA comment notes that the amount of fission products collected from the core damage accidents is highly dependent on a number of parameters such as moisture, containment filtration of release, and other removal mechanisms that are not easily amenable to the nomogram assumptions. It is for these reasons that the FEMA review questions whether the nomogram is realistic.

11. Q. As to the first concern, does the nomogram account for particulate iodine that may be collected on the particulate filter paper?

A. Yes, the nomogram does account for particulate iodine collected on the filter paper. A radioactive plume released during an emergency could consist of gaseous and particulate material. Both of these types of emissions could include radioactive iodine, which, when inhaled, would result in a dose to the thyroid. The TCS Air Sampler System used in the LILCO Plan consists of an air pump and a sampler canister which is filled with absorbent material and surrounded by a particulate filter. The outside filter is a very fine paper which is designed to trap particulate

material. Particulate material present in a release could consist of radioactive iodine and other non-iodine particulates. The inner canister contains an absorbent material that collects radioactive iodine only in gaseous form. Thus, when the air sample collection is completed, the amount of radioactive iodine collected in the inner absorbent material and on the outer particulate filter must be determined. This is done in the field by use of a radiation survey instrument, or in the laboratory using radiation analysis equipment. The absorbent material in the inner canister would contain only radioactive iodine. This measurement would require only correction for radioactive decay of the iodine from the time of reactor shutdown to the time of sampling.

However, the outer filter paper may contain both iodine and non-iodine particulate material. The nomogram procedure assumes a certain mixture of iodine and non-iodine particulate material to be present on the filter paper; the radioactivity of this mixture is further assumed to vary as a function of time. Thus, the nomogram allows one to calculate how much of the measured radioactivity on the filter paper is due to particulate iodine at various points in time.



The nomogram procedure then allows the total thyroid dose from gaseous and particulate iodine to be calculated. This is accomplished by determining the gaseous and particulate components of the thyroid dose separately, and then adding them.

12. Q. What was the origin of the FEMA RAC review comment?

A. The LERO procedure OPIP 3.5.2 states in notes on pages 18 of 56 and 54 of 56 (Attachment 4 to this testimony) that unless there is core melt or fuel damage it is not expected that there will be any iodine released in particulate form and therefore no iodine radioactivity will be found on the filter paper. Thus, it is not necessary to calculate a thyroid dose from the filter paper measurement but only from the inner canister. Pursuant to FEMA's comment that even without core melt or fuel damage, radioiodine may be released and collected on the particulate filter paper, the procedure will be modified in future revisions to the LILCO Plan to remove the notes on pages 18 and 54. Thus, the radioactivity measured on the filter paper will always be included in the thyroid dose calculation.

Q. 13. As to the second concern, is the nomogram realistic?

A. Yes. The determination of the radioiodine fraction of the fission product release was based upon an analysis of different release scenarios for BWR accidents. The procedure uses a most probable iodine/total fission product ratio for the accident scenarios analyzed.

14. Q. Is the ratio used in OPIP 3.5.2 the same ratio recommended in the FEMA REP-2 report?

A. Yes, it is.

15. Q. Can valid thyroid dose determinations be made using this methodology?

A. Yes. As discussed above in this testimony, the particulate component of any accidental release will be accounted for by the TCS sampler method by always checking for the presence of radioactivity on the outer filter paper following sample collection.

Because radioactive material detected on the filter paper is likely to include a mixture of iodine and non-iodine particulates that varies with time, the nomogram includes a correction step to account for this variation. The nomogram correction reflects the most probable ratio of particulate iodine to total

particulates as a function of time. When filter canisters are later reanalyzed by a laboratory, the specific particulate mixtures present will be determined.

It should also be noted that the nomogram correction for particulate mixtures was based upon BWR accident scenarios, which predict significant releases of radioactivity in particulate form (known as dry release cases). However, when other parameters are considered, such as containment moisture, filtration, and other physical chemistry conditions, these influences would have the effect of suppressing the release of particulate material. Little, if any, iodine or non-iodine particulate material would therefore be likely to be detectable in the field. Accordingly, the particulate iodine component of any computed downwind thyroid inhalation dose would be greatly decreased in magnitude. This would also diminish the significance of any uncertainty associated with the mixture of iodine and non-iodine particulates assumed to be present.

- Q. 16. Is this method (supported by the equipment, procedures, and calculations used in the LILCO Plan) recommended by any agency other than FEMA?

A. Yes, the same methodology and assumptions are detailed in Appendix H-4 of "Preparedness and Response in Radiation Accidents: U.S. Department of Health and Human Services," FDA 83-8211 (August 1983) (Attachment 5 to this testimony).

Q. 17. Will this method provide reliable data for use in making protective action decisions?

A. Yes. The method identified will provide an accurate and dependable means of determining the thyroid dose to the exposed population during the early stages of an emergency when the determination and implementation of protective actions are most critical. In a slowly developing emergency where there is the potential for a release or where a radiological release takes place over a given period of time after the reactor shutdown, protective actions would be recommended based upon factors that include plant conditions, in-plant radionuclide measurements, and environmental survey measurements.



Attachment 1



Attachment 2

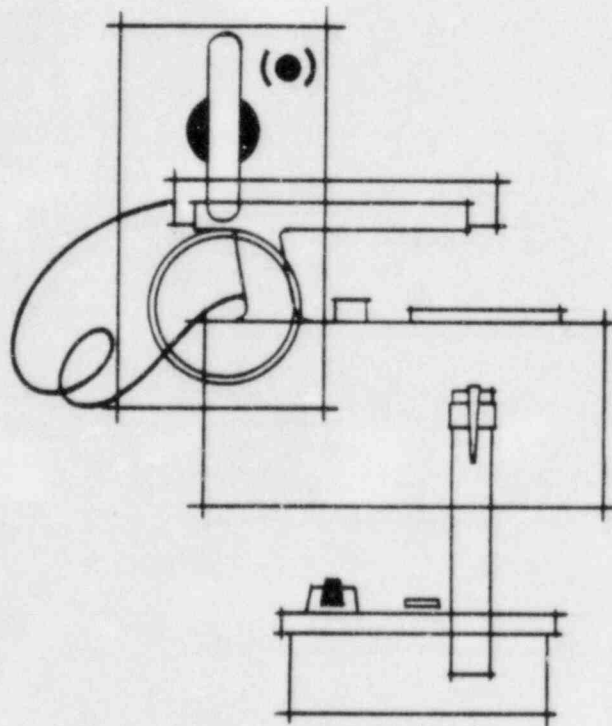
~~2-17-87~~

---

# GUIDANCE ON OFFSITE EMERGENCY RADIATION MEASUREMENT SYSTEMS

Phase 1 - Airborne Release

---



---

Federal Emergency Management Agency



APPENDIX B  
AN AIR SAMPLING SYSTEM DEVELOPED  
BY BROOKHAVEN NATIONAL LABORATORY  
FOR EVALUATION THE THYROID DOSE COMMITMENT  
DUE TO FISSION PRODUCTS RELEASED  
FROM REACTOR CONTAINMENT

B.1 Introduction

Inhalation of radioiodines is expected to be the most important initial pathway of human exposure in the event of a release of radioactivity during a nuclear power reactor incident. The thyroid gland will therefore be the critical organ and will receive the largest dose should an accident occur. Consequently, a method for monitoring for radioiodines, in the presence of fission gases (e.g.,  $^{133}\text{Xe}$ ), which would be released in much larger quantities than radioiodines and particulate fission products must be developed to provide a data base for exposure control.

Costly measurement methods using gamma analysis can be avoided by developing a sampler specifically for iodine, thereby permitting any beta or gamma detector to be used for measurement (Figure B-1). Particulate fission products include dozens of noniodine radionuclides. Use of a prefilter (Figure B-2) before the adsorber bed separates the activity into gaseous and particulate fractions, and allows a determination of gaseous radioiodine.



Figure B.1 Canister evaluation with a CD V-700 GM counter.

Figure B.2

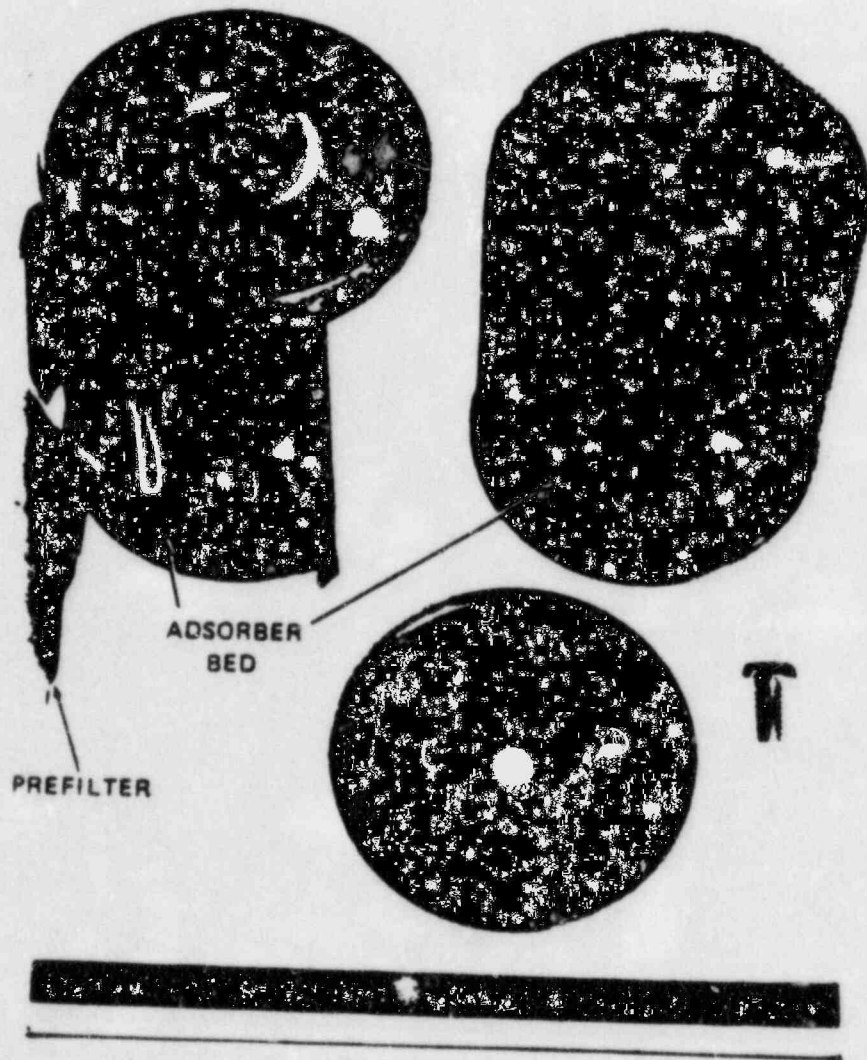


Figure B.2 Canister assembly.

Adsorption of fission gases relative to iodine can be reduced by using an appropriate inorganic adsorber. Several commercial inorganic adsorbers were tested, but were too expensive or inefficient for the organic or hypoiodous acid forms of iodine. A silver impregnated silica gel adsorber was developed that has over 90% efficiency for collection of radioiodine for sampling times of several minutes. The material provides corresponding xenon efficiencies of less than 0.04% at temperatures above 7°C.

The air sample size needed for reliable detection of a given air concentration depends on detector sensitivity, flow rate, and sampling time. Field monitoring under accident conditions requires prompt measurements for proper use of time, equipment, and operator exposure. For these reasons, the Federal Interagency Task Force on Offsite Emergency Instrumentation for Nuclear Incidents set a maximum of 5 minutes for air collection. Two degrees of freedom remain: detector sensitivity and flow rate.

Flow rate is governed, in part, by the power available for air movement. Air sampling away from power lines requires portable generators or power derived from automotive electrical systems. Battery power supplies are inappropriate due to excessive weight and expense. As mentioned earlier, the desirable solution is a significant number of inexpensive air sampling apparatus. Thus, use of automotive electrical systems is the least expensive solution (Figure B-3). Two power connections to automotive batteries are economically possible: direct clamping or use of cigar lighter sockets. The safer and generally better solution is the latter.



FIGURE B-3



Figure B.3 Sample collection utilizing 12V d.c. power from an automobile cigar lighter socket.

Factory installed wiring limits this source to about 150 watts. Vacuum motors of this size can move 4 to 7 cfm through the pressure drop of an adsorber-filter thereby setting the flow rate at 5 cfm.

For operational flexibility, the air sampler can also be used on standard 110V a.c. power. Air flow regulation and control assures a uniform sampling rate for either power source.

The remaining variable is detector sensitivity. Economy and long-term calibration stability make Geiger-Mueller detectors desirable. GM detectors are known for high beta and low photon efficiency. However, photon sensitivity can be increased by changing the standard GM tubes, with stainless steel cathodes, to ones with higher Z cathodes. Therefore, a CD V-700 GM instrument, used with a high Z cathode Victoreen 6306 tube, may be used to provide the sensitivity desired for this sampling system.

## B.2 The Air Mover

The air mover housing, shown on Figures B-4 and B-5, consists of a tubular support structure, a front and back plate, and a perforated motor impeller safety guard. The tubular structure contains a handle, two plate mounting rings and a switch mounting hole.

The front plate is shown on the lower right on Figure B-4. The filter adsorber canister is placed on the central suction tube and retained with

FIGURE B-4

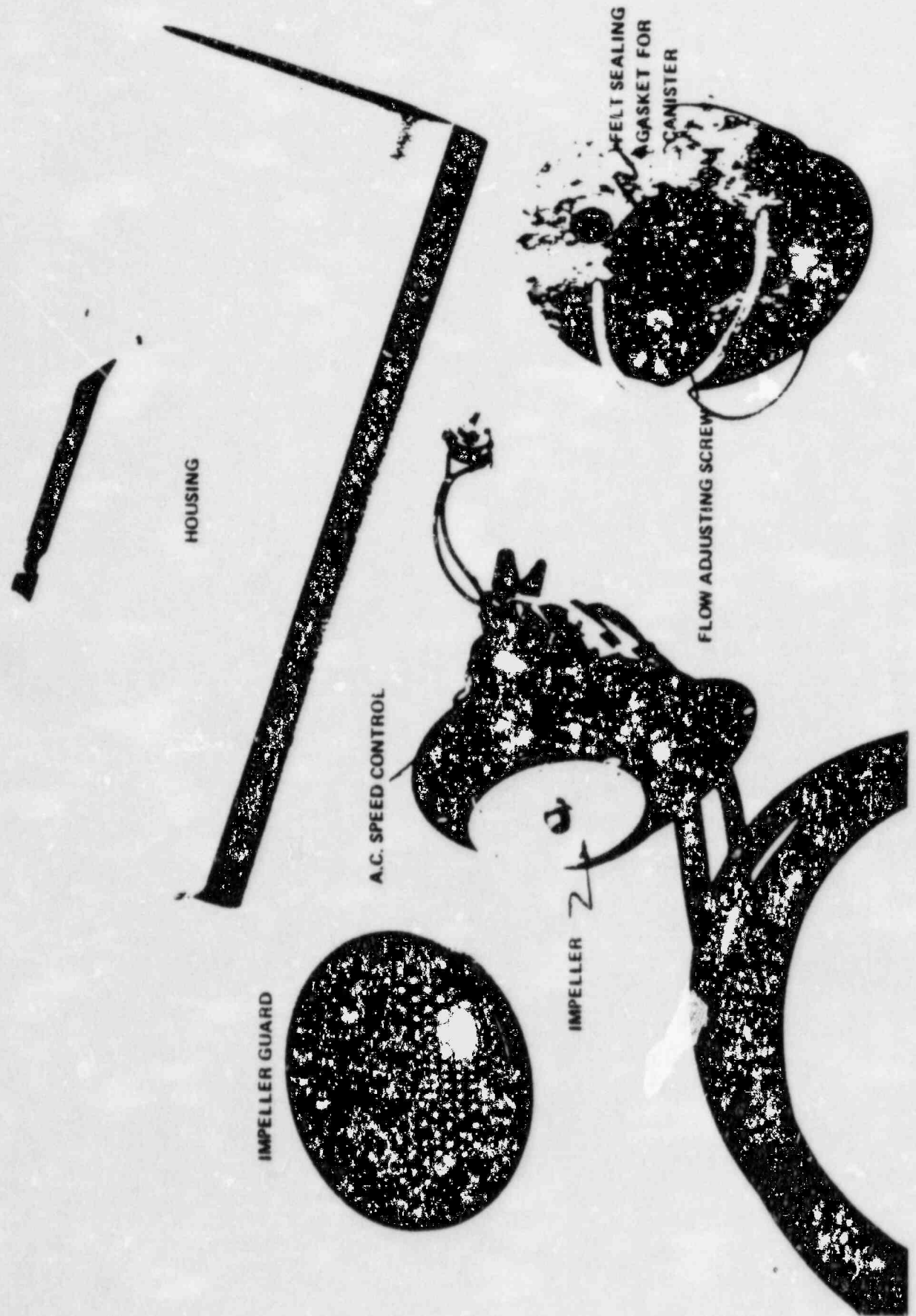


Figure B.4 Air mover components: Exterior view vacuum bulkheads.

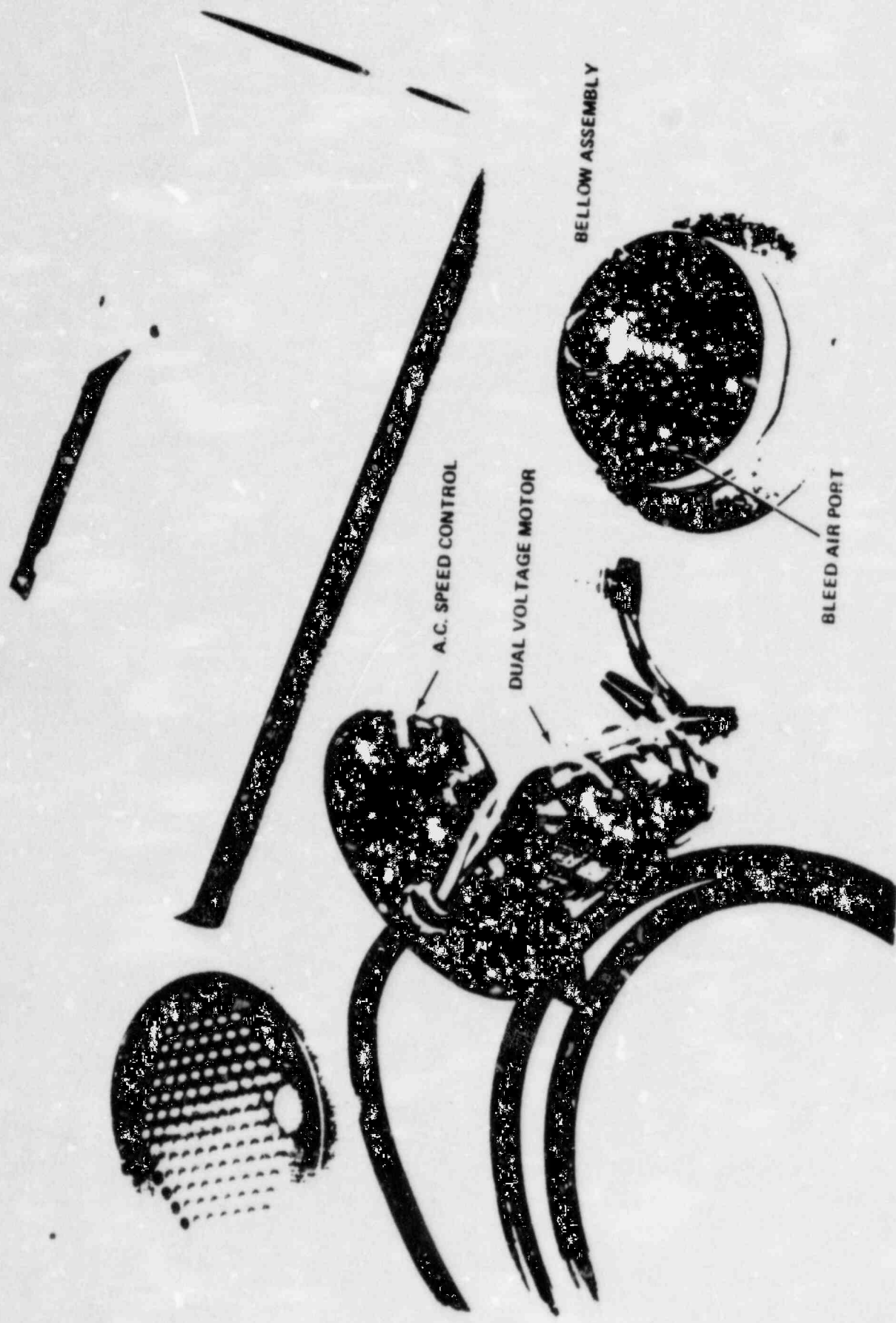


Figure B.5 Air mover components: Interior view of vacuum bulkheads.



the rubber cord. The flow rate control screw is located in the central suction tube and is used to adjust spring tension on the bellows. The remaining two holes ventilate the interior of the bellows to maintain normal atmospheric pressure within the bellows. A rear view of the bellows is shown on Figure B-5. The bellows consist of two metal cups, one attached to the front plate and the other capable of longitudinal movement. The flow rate control screw is used to adjust the spring loading. This tends to direct the movable bellows half toward the front plate, closing the air bleed port shown to the left of the spring. During motor operation, the reduction in atmospheric pressure will counteract the loading spring, opening this port. Thus, spring adjustment controls the pressure inside the air mover. The difference between ambient pressure and pressure in the air mover governs the flow rate through the filter adsorber. Dust loading is not a problem for the 5 minute, 5 cfm sample.

The rear plate serves as a vacuum bulkhead and as a mounting plate for the dual voltage motor and a.c. speed control. The impeller and a.c. speed control adjusting stub are shown in Figure B-4. The remaining perforated plate protects the operator.

The dual voltage motor is designed for about 240 watts on alternating current, nearly double the d.c. power value. A 600 watt household lamp dimmer is used to reduce the a.c. power for the proper flow rate.

Direct current power is derived from the cigar lighter socket of any 12 V vehicle. An adapter plug provides for d.c. operation.

### B.2.1 Initial and Periodic Flow Rate Adjustment

The air mover is operated at 12.8 V d.c. measured at the cigar lighter socket. A filter canister is connected to a venturi flow rate meter which in turn is connected to the air mover suction tube with Tygon tubing. A venturi flow meter is a straight through flow device that operates with an acceptable pressure drop of about 0.25 inches of water. The flow rate is adjusted to 5 cfm by alternately disconnecting, adjusting the flow adjusting screw shown on Figure B-4, and reconnecting the Tygon tubing to the air mover suction tube.

The dual voltage motor develops about twice as much power on a.c. as it does on d.c. For proper balance the a.c. voltage must be reduced.

After d.c. adjustment, the adaptor plug is removed and the air mover is operated on 110  $\pm$ 1 volt a.c. power. The a.c. speed control stub shown on Figure B-4 is turned to provide an indicated flow of 5 cfm.

Air flow control characteristics for a.c. and d.c. power are shown on Figure B-6. The regulated d.c. flow rate change is less than 0.4% per 1% voltage change, while the regulated a.c. flow rate change is about 0.8% per 1% voltage change.

### B.3 An Inorganic Adsorber with Low Noble Gas Retention

A silver loaded silica gel has been developed as an adsorber for air monitoring subsequent to a release from containment power reactor accident.

FIGURE B-6

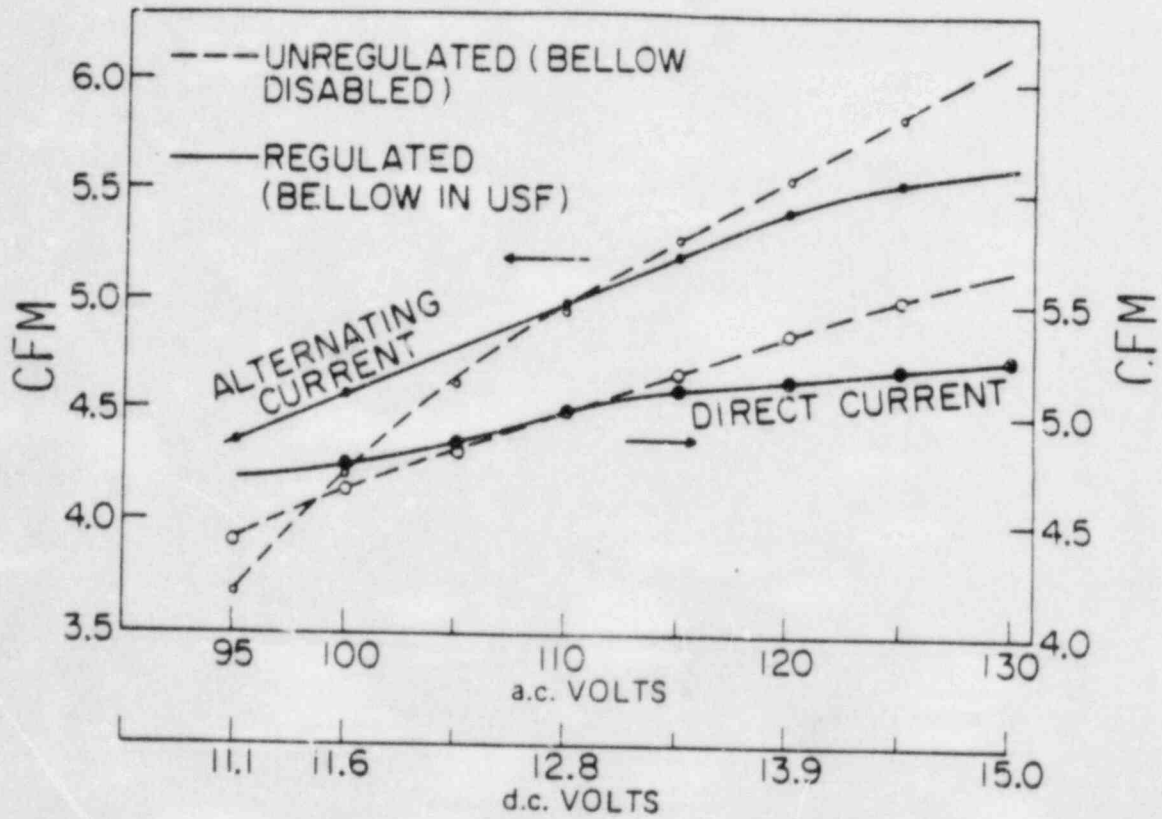


Figure E.6 Flow rate regulation.

Requirements of high efficiency for known radioiodine species under wide ambient conditions of humidity and temperature and low noble gas adsorption efficiency are satisfied by the material.

Silver loadings from 2 to 24% by adsorber weight have been tested against organic radioiodine, hypiodous acid, elemental radioiodine, and noble fission gases. Relative humidity was varied between 5 and 99%, and stay times of 0.11, 0.073, and 0.055 seconds were used.

Silver loading requirements depend on sampling duration and relative humidity. Environmental monitoring requires about 25 ft<sup>3</sup> of air be sampled and analyzed for a dose projection. The proposed analysis system consists of an air mover, an adsorber and a civil defense readout instrument fitted with a special 6306 probe which is discussed in Section 4. This combination provides adequate sensitivity for dose predictions. A silica gel adsorber can be used with a 4% silver loading for an efficiency of better than 93% with a 0.11 second stay time, and for all ambient conditions tested. Similar tests using 4% silver loaded 13X molecular sieve or about 60% silver zeolite yielded lower efficiencies.

Xenon adsorption was less than  $5 \times 10^{-3}\%$  at 55°C with no post-release flushing. This value was about 1/20 of the value for charcoal under the same conditions.



#### B.4 High Photon Sensitivity GM Tubes

Geiger-Mueller detectors are sensitive to ionizing events initiated by energetic charged particles within the active volume.

To increase photon sensitivity, GM detectors should have high Z materials within the active volumes. Bismuth is the optimum material since it is the highest Z non-radioactive element.

Victoreen 6306 GM detectors contain bismuth coated wire mesh screens positioned around the cathodes. Wire screening is used to increase the cathode surface to volume ratio and thereby increase sensitivity. Organic quenching must be used due to the chemical reactivity of bismuth with the halogens.

TGM Detectors, Inc. supplied a number of halogen quenched counters with platinum plated cathodes. Type NP 358 detectors, with an inside diameter of 15.2 mm, were shortened by TGM to 9.8 cm. All of the GM tubes were operated with a standard CD V-700 instrument adjusted to 900 volts.

#### B.5 Energy Response Measurements

GM detector energy responses were measured with heavily filtered x-rays and isotope sources. Some of the isotope sources used to determine detector energy response were  $^{131}\text{I}$  (365 keV),  $^{137}\text{Cs}$  (662 keV) and  $^{60}\text{Co}$  (1250 keV). X-rays from 74 to 200 keV effective energy were also used.

The measured energy responses of four bare Victoreen detectors are shown in Figure B-7. Good agreement between measurements and sales literature exists below 365 keV, while a sensitivity more constant with energy was measured above. GM detector filter calculations were made to design a shield to attenuate the principal xenon decay photons more than the iodine, where the calculated and measured response is shown in Figure B-7 for a two element concentric filter of 0.127 cm Pb adjacent to the GM tube followed by 0.08 cm Cu. The shield and 6306 tube are shown in Figure B-8. A comparison of the bare tube  $^{135}\text{Xe}$  to  $^{131}\text{I}$  ratio of  $350/185 \cong 1.9$  to the filtered tube ratio of  $123/125 \cong 1$  indicates that the shielding reduced the xenon to iodine response ratio by a factor of approximately 1.9. The remaining xenon isotopes have lower energy decay gamma rays and are reduced by much larger factors.

Air sampling for iodine involves adsorption of gases and filtration of particles on a cylindrical canister. Readout requires the insertion of a shielded GM detector into the axial suction hole in the canister, as shown in Figure B-2. The energy response of the 6306 probe within a canister with 4% by weight silver loaded on silica gel is shown in Figure B-9. Calculations indicate that approximately 50% of the adsorbed organic iodine is in the first 0.4 cm of adsorber. To better account for photon attenuation, a 0.4 cm void is placed in the periphery of the adsorber bed and oriented normal to the photon beam.

FIGURE B-7

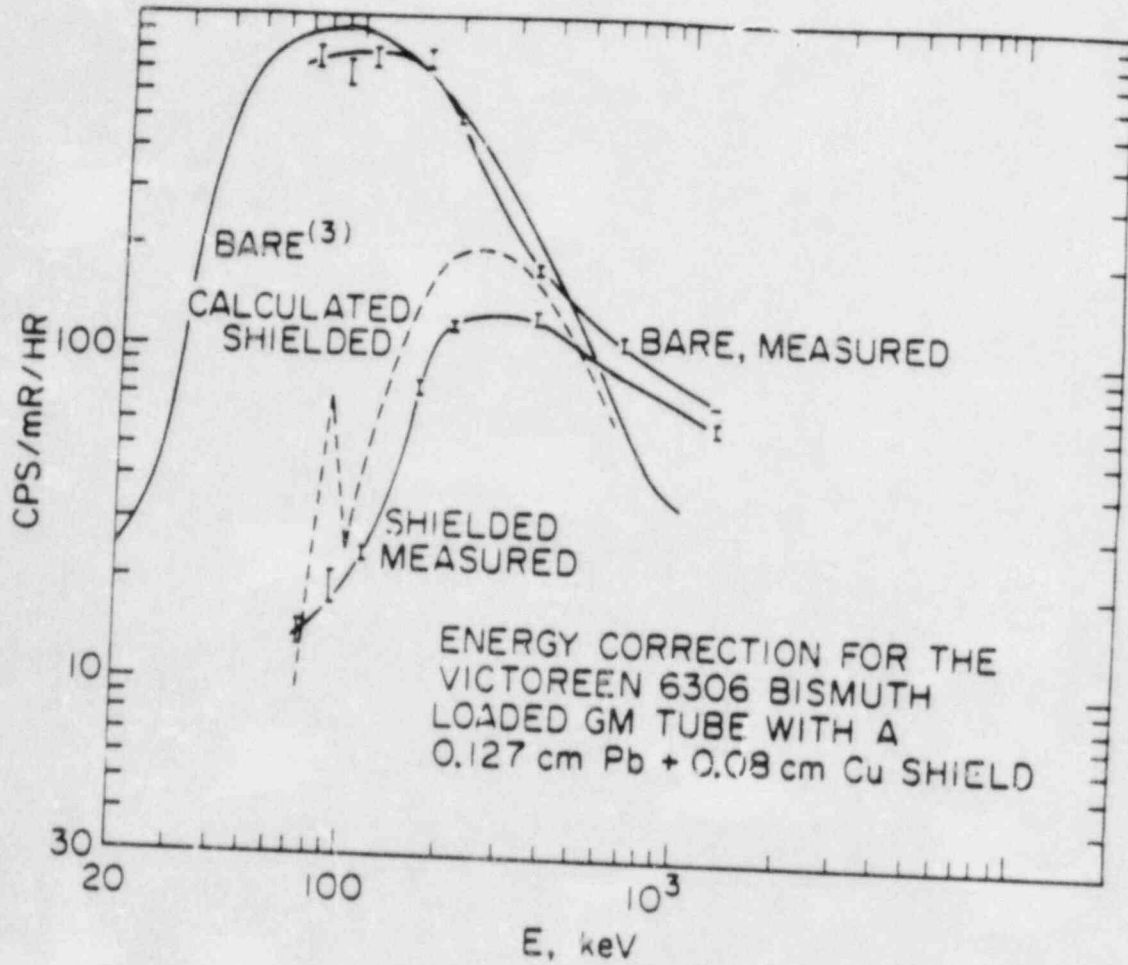


Figure B.7 Energy response of bare and shielded 6306 GM detectors.

FIGURE B-8



Figure B.8 6306 GM detector and shield assembly.



FIGURE B-9

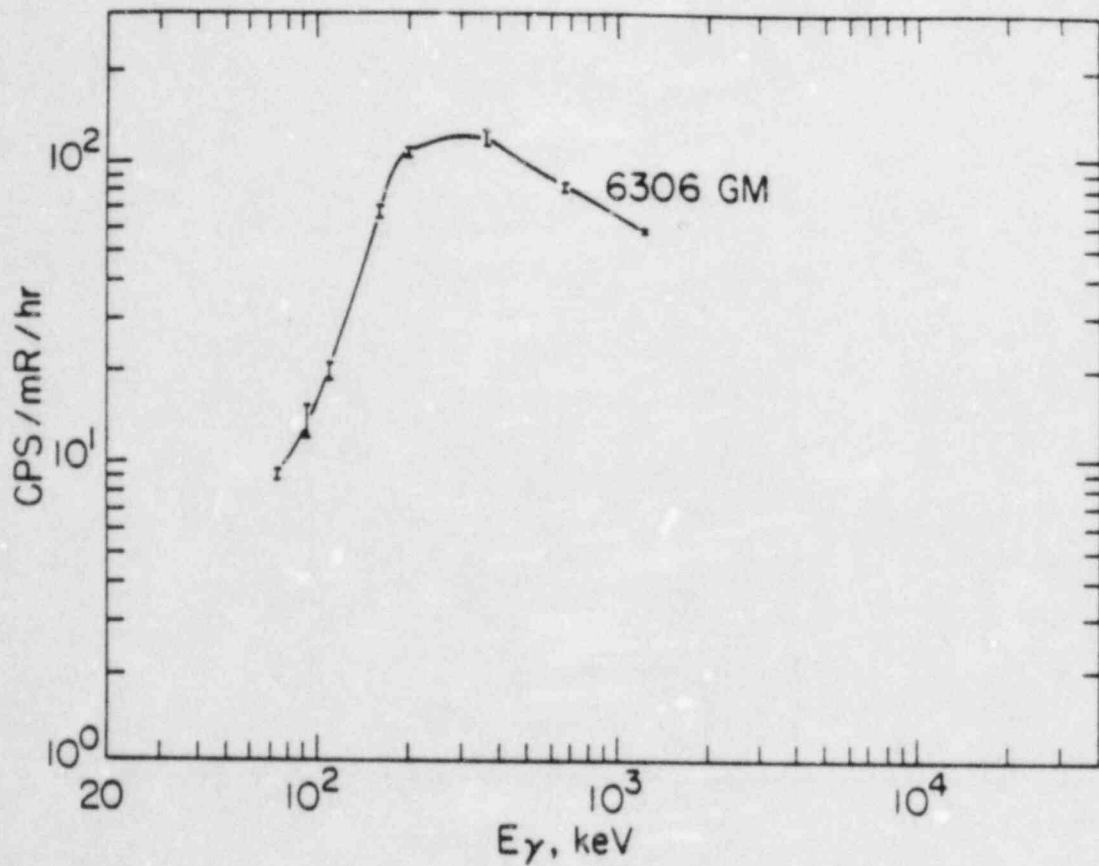


Figure B.9 Shielded probe exposed in  
4% Ag-gel canisters.

## B.6 Summary of Results

- a. The critical GM detector requirement was taken to be the evaluation of air samples containing mixed fission products.
- b. A filter was designed to attenuate the xenon decay photons more than  $^{131}\text{I}$  photons.
- c. The energy response for a probe having a filtered 6306 detector was measured. The energy response was also determined with a 6306 GM tube in a 4% Ag-gel loaded canister.
- d. In general, the 6306 GM tube was found to be more sensitive for photons from 0.25 to 0.5 MeV than the CD V-700 GM instrument with its standard GM tube.

### AIR SAMPLING PROCEDURE

Procedures are given for equipment check and field air sampling, evaluation of the exposed filter-adsorber canisters, and internal thyroid dose equivalent predictions for the people living in the measured area. In order they are:

#### I. Equipment Check and Field Air Sampling

##### A. The air sampling system

1. Air mover.

2. Automobile, 12 volt cigar lighter adapter.
3. One or more quart cans each containing one filter-adsorber canister. Take one can for each location you are to measure and one spare.
4. CD V-700 GM counter modified with a 6306 GM tube.
5. Screwdriver or 25 cent coin to open the quart can lids (immediately before use).
6. Pocket or wristwatch to time the 5 minute  $\pm 6$  second sampling period.
7. Respirator, one per person, optional.

B. Equipment checkout

1. Turn on the modified CD V-700 and test for an on-scale meter deflection of about 50 to 100 counts per minute on the X 1 range. The meter will jitter around on an average reading. Read the midpoint value within the jitter band.
2. Test the air sampler for operation with normal household a.c. electric power. Plug cord into a wall outlet and push the start switch near the handle. For proper operation, the sampler will sound and feel like a small vacuum cleaner.
3. Take all of the 7 items of part A plus a map and/or route instructions to a car or truck.
4. Plug the d.c. adapter on the end of the sampler power card into the cigar lighter or using the adapter make contact across the battery terminals and test sampler operation using the car

electrical systems with the engine running. Turn the sampler off.

C. Air sampling procedure

1. Drive to the first location, keeping vehicle windows closed.
2. Park at the first location, leave engine running, open the first quart can, and remove the filter-adsorber canister.
3. Mount filter-adsorber canister over central suction tube and stretch rubber retainer over the outer end of the canister.
4. Check to see that the air sampler is plugged into the cigar lighter socket and step out of the vehicle to the relaxed extent of the power cord. Keep vehicle door closed to the extent possible while allowing the power cord outside vehicle.
5. While holding the sampler about 4 feet above the ground, turn on for 5 minutes  $\pm 6$  seconds.
6. While the sample is being taken, mark the location code of this first location on the can using a two-part peel-away label similar to Figure B-13. After filling out both parts of the label, remove the peel-away part and mount on the page of the data notebook. Include any supplementary information on the sample next to the label in the notebook. During this sampling period a team member will make gamma measurements at 6 inches and 4 feet above the ground and inside the vehicle. These readings will be added to both parts of the label with any supplementary notes added in the notebook.



7. When the air sample is completed, carefully remove the canister from the sampler and insert the modified CDV-700 probe into the air suction tube of the canister. This measurement will be made at either 4 feet above the ground or inside the vehicle (depending on which location has the lowest reading). Record which location is used, the reading obtained and the reading of the canister on the part of the label marked Evaluation, as illustrated in Figure B-13.
8. If the reading at 4 feet or inside the vehicle is greater than 10% of the count rate obtained from the canister, the measurement should be performed at another location where these readings are below this level. For example, if the canister count rate is 2,000 c/m, then the reading at either 4 feet or inside the vehicle should be less than 200 c/m.
9. Locate the tape on the outside of the canister. Pull the tape and remove the glass fiber cloth. Return the filter into quart can using a paper tissue for handling.
10. Read the bare adsorber canister and record this final entry and date on the label.
11. Return the canister to its quart can containing the filter cloth and reseal with the correct lid.
12. Report data to EOC by radio or whatever communications system has been made available.
13. Drive to the next location and using a new canister repeat steps C2 through C12. If previous canisters have indicated high activity, stack them away from a newly measured one.

## II. Internal Dose Predictions

The following calculations should be made at the EOC as the data is received from the monitoring teams in the field.

### A. Glass filter cloth evaluation

1. Use Figure B-10 to account for the radioiodine on the glass filter cloth for each set of measurements received. Note the type of reactor (BWR or PWR), and determine the number of hours between shutdown and time of measurement.
2. Find the iodine to total released fission products correction factor (CF) on the vertical axis and calculate the difference in filter-adsorber and adsorber readings. This difference (D) is due to total fission product activity on the filter. The product  $CF \times D$  is the corrected filter reading (F) at the time of the measurement due to iodine on the filter.

### B. Filter-adsorber evaluation

1. The adsorber net counting rate (N) is determined by subtracting background (B) from the bare adsorber measurement (G), i.e., the adsorber with a glass fiber cloth removed.

$$N = G - B$$

Figure B-10

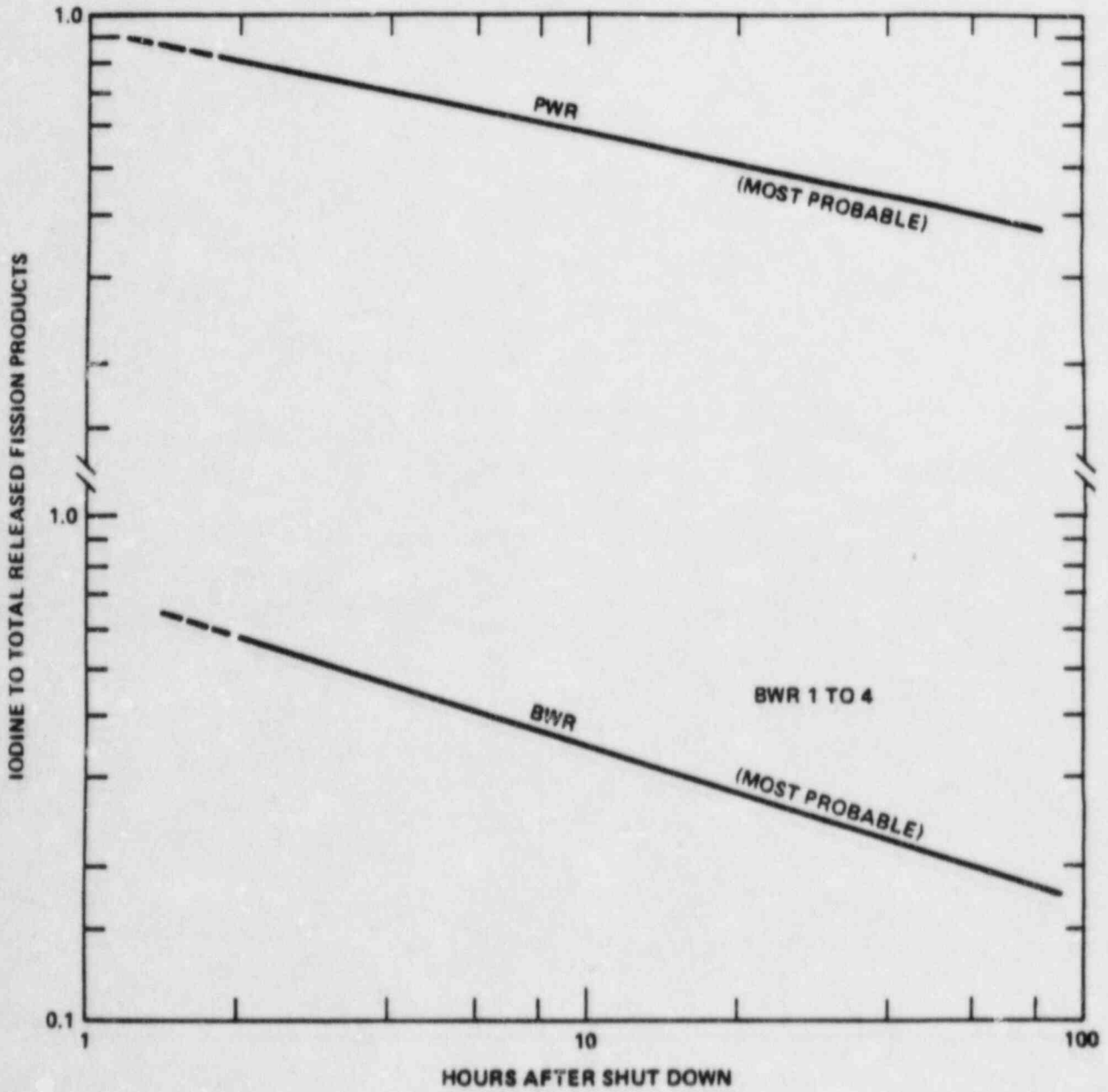


Figure B.10 Iodine to total fission products correction factor for shielded CD V-700 instruments.

2. Add the corrected filter reading (F), step 2 of Section A, to the net adsorber reading to obtain the total iodine counting rate (R).

$$R = F + N$$

3. Enter on your label the total iodine counting rate found in step 2, on Section B. From Figure B-11 follow a vertical to the number of hours after reactor shutdown that the bare reading (G) was made. The ordinate is the predicted thyroid dose commitment to a 5 year old child at the site of the air sample for a 2 hour immersion.
4. If the immersion time is greater than 2 hours, then Figure B-12 can be used for the dose commitment to the 5 year old child. For example, where the dose commitment ( $H_{50}$ ) for a 2 hour immersion is 1 rem, and the anticipated immersion time is 5 hours, multiply 1 rem x 2.5 = 2.5 rem.

#### C. Evaluation of results

The projected dose commitment values can be posted on a map corresponding to their locations. If sufficient measurements were made, the location of the plume should be defined by significantly higher readings.

Predictions can be made of the dose commitment along the plume pathway. This should improve the data base so that decisions can be made about stable iodine feeding, evacuation of exposed persons to reduce exposure to resuspended radioactive particles, and designations of contaminated pasturage.



FIGURE B-11

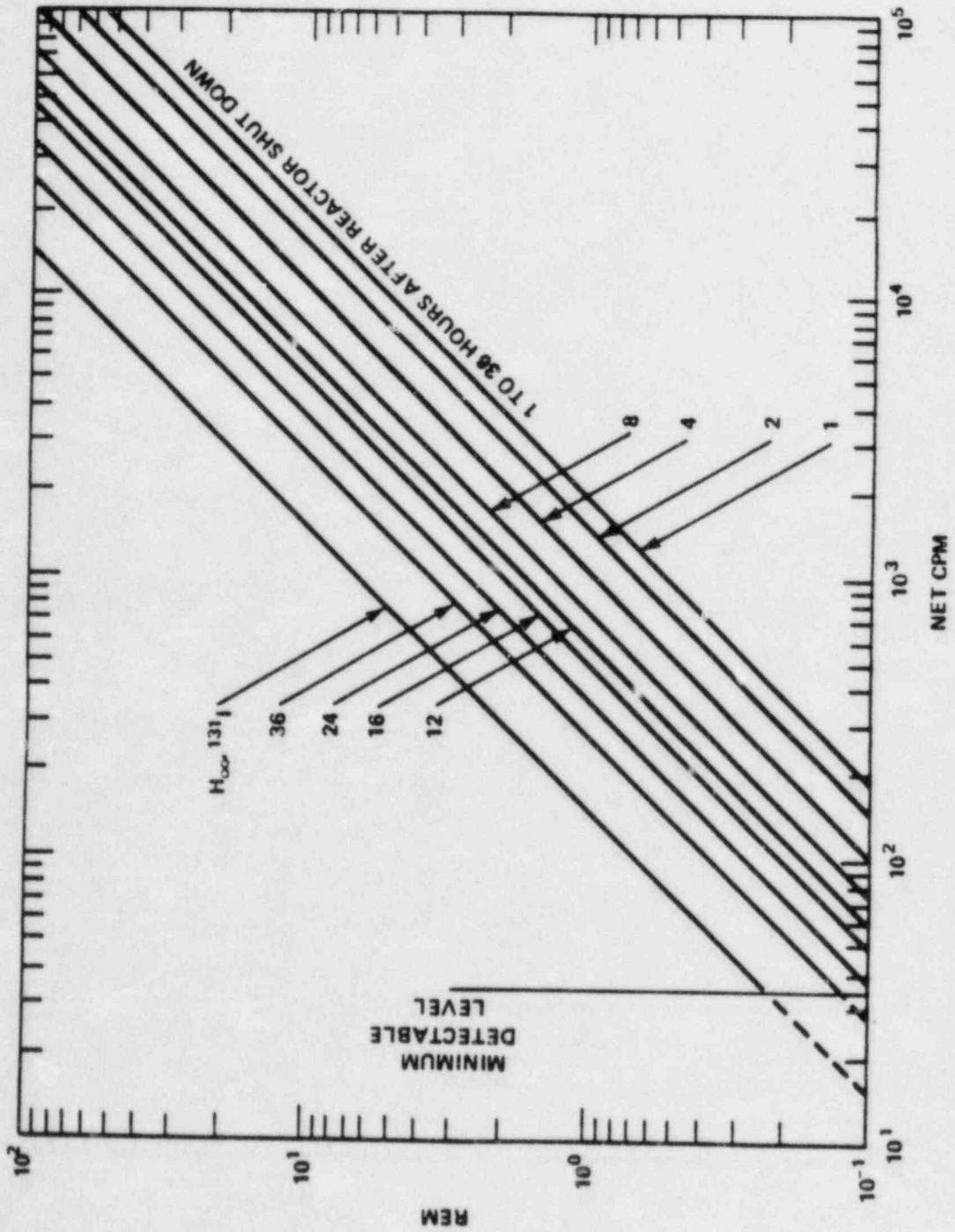


Figure B.11 Conversion of 6306 probe response to 5 year old child thyroid dose commitment for 2 hr immersion.

FIGURE B-12

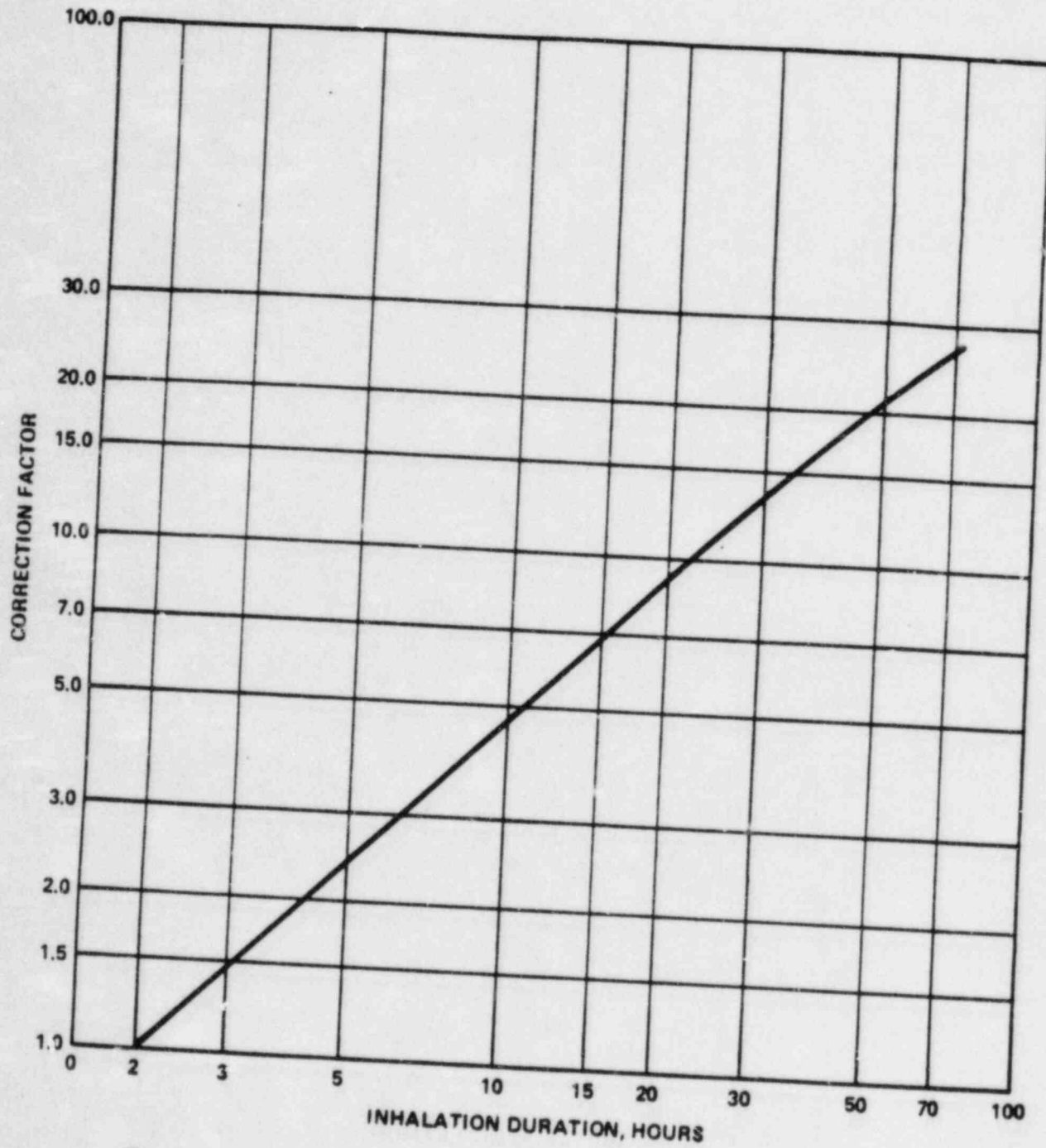


Figure B.12 Correction factors for cloud immersion times longer than 2 hours.

Figure B-13

Location \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Time (Air Sample) \_\_\_\_\_

Date \_\_\_\_\_

Area Reading at 4' \_\_\_\_\_ c/m

Area Reading at 6" \_\_\_\_\_ c/m

-----  
EVALUATION

Location \_\_\_\_\_

Reading (at \_\_\_\_\_) \_\_\_\_\_ c/m

Canister \_\_\_\_\_ c/m

Adsorber \_\_\_\_\_ c/m

Canister-particulate filter

Time \_\_\_\_\_

Date \_\_\_\_\_

Figure B.13 Sample filter-adsorber canister label.

Appendix B. Bibliography

1. U.S. Nuclear Regulatory Commission. • Reactor Safety Study - An Assessment of Accident Risks in U.S. Commercial Nuclear Power Plants, WASH-1400 (NUREG-75/014), U.S. Nuclear Regulatory Commission, Washington, D.C. 20555 (October 1975).
2. C. Distenfeld and J. Klemish, An Air Sampling For Evaluating The Thyroid Dose Commitment Due To Fission Products Released From Reactor Containment, NUREG/CR-0314, BNL-50881 (November 1978).
3. C. Distenfeld and J. Klemish, Environmental Radioactive Monitoring To Control Exposure Expected From Containment Release Accidents, NUREG/CR-0315, BNL-50882 (November 1978).



Attachment 3

and record these readings on Attachment 2. (If the 4 foot reading is noticeably higher than the 3 inch reading, it should be assumed that the predominant gamma source is the airborne plume).

- b. If readings increase with decreasing height above the ground, assume that the source is on the surface. In this case, take several smear samples (with gloves) over a 4" x 4" area of the ground and/or a soil sample when conditions permit.
- c. Use a plastic bag for the soil sample and fill out a label to tag the bag. Label all samples with proper ID information: sample number, sample location, initials, date, time, and team ID.
- d. When monitoring, periodically check beta (open window of RO-2A) reading at 3 inches and 4 feet above ground. Record any readings significantly different from the window-closed readings.

5.3.7 At the survey location, take an air sample, as required by the Radiological Survey Briefing Form, Attachment 1, Item 10 (2), as follows:

- a. Leaving the vehicle engine running, plug in the TCS-EAS-1 air sampler. Run it for about a 1/2 minute, warm-up period without the filter/canister installed.
- b. Open the TCS EAS-1 one quart can containing the canister. Inspect the canister for visible defects; the canister is not acceptable for use if the moisture check dot is blue.
- c. Turn off the warmed-up sampler, center the canister over the suction opening on the side of the sampler. Stretch the elastic retainer over the outer end of the canister, making sure the fit is tight.
- d. Position the air sampler 4 feet above the ground, as far away from the vehicle exhaust pipe as the cable will allow.

- e. Adjust the flow rate to approximately 5 CFM. Set the timer to  $\frac{25}{\text{CFM}} = 5$  minutes.  
(Rotate dial past the 5-minute mark, then turn back.)
- f. Start the sampler and record the starting flow rate on the ORS Data Sheet, Attachment 2. Use a stop watch to verify the run time.
- g. When the air sample time is completed, record the final flow rate reading on the ORS Data Sheet, Attachment 2. Carefully remove the canister from the sampler and put it in a plastic bag. Avoid contact with the white filter cloth wrapped around the outside and the bare filter. Be sure to record start/stop times and flow rates on the ORS Data Sheet, Attachment 2.
- h. Connect the brass-shell GM-1 probe cable to the RM-14 count rate meter to "DETECTOR" input connection (see Attachment 5, Operation of Eberline Model RM-14). Switch "RESPONSE" to "SLOW". In this position, allow 20 seconds meter response time for each measurement.
- i. Using the above setup, measure the background at 4 feet above the ground or inside the vehicle. Record this background cpm on the ORS Data Sheet, Attachment 2.
- j. Insert the GM-1 probe into the center hole of the canister and adjust the scale of the RM-14 as necessary. Record the stabilized filter/canister reading (cpm) on the ORS Data Sheet, Attachment 2. Remove the GM-1 probe.
- k. Carefully remove the white fiber cloth which is wrapped around the canister by pulling the red tape on the top rim of the canister. Hold the canister in the plastic bag while doing this to avoid contacting the cloth and to prevent silver zeolite crystal bits from falling out after the cloth wrapping is removed. Return the fiber cloth to the quart can.

- l. Insert the GM-1 probe into the center hole of the canister and record the stabilized bare canister reading and time of measurement on the ORS Data Sheet, Attachment 2.
  - m. Place the bare canister with the plastic bag into the quart can and label the can with the following information:
    - Date and time of sample
    - Map location
    - Start and stop time
    - Starting and ending flow rate
    - Sample number (sequential)
    - Team ID
  - n. Place the quart can inside a plastic sample bag and ensure that a label is attached.
  - o. Report the ORS Data Sheet information for the air sample to the ESF.
- 5.3.8 Report dosimeter readings to the ESF at regular intervals (see OPIP 3.9.1, Dosimetry and Exposure Control).
- 5.3.9 Immediately report any equipment or supply shortages to the ESF.
- 5.3.10 Repeat Steps 5.3.2 through 5.3.8 as necessary for other survey locations.
- 5.3.11 When all survey and sampling activities are completed and the team receives no further requests from the ESF or the team is relieved by a second team, return to the Emergency Worker Decontamination Center, in Brentwood, unless instructed otherwise by the ESF or the RAP Team Captain.
- 5.3.12 Do not remove protective clothing or respirator until instructed by Emergency Worker Decontamination Facility personnel (see Attachment 6, Section 5.5, Removing Protective Clothing; Attachment 6, Section 5.7, Step-off Pad Use; Attachment 7, Section 5.5, Removing Respirator).



Attachment 4

- d. Move vertically down until the time between reactor shutdown and time of measurement, item 8, is intercepted; if the start of radiation exposure coincides with the time of measurement, move to the line marked  $T_e = T_m$ .
- e. Move horizontally to the right until duration of exposure, item 13, is intercepted.
- f. Move vertically up until the sample collection interval, item 2, is intercepted.
- g. Move horizontally to the right to read off the thyroid dose commitment for the bare canister. Record this in item 14a on the Thyroid Dose Commitment Worksheet, Attachment 9.

#### 5.6.7 Filter Component

NOTE: If core or fuel damage has not occurred, no iodine release in particulate form is expected and any filter radioactivity will be void of iodine. The total dose commitment value, item 15, will be the bare canister component only. Otherwise, complete the steps below.

- a. Locate the net filter adsorber reading, item 5, on the lower left-hand axis of the Thyroid Dose Commitment Nomogram, Attachment 11. Move horizontally to the right until the slanted line corresponding to the number of hours between reactor shutdown and time of measurement, item 8, is intercepted.
- b. Move vertically up until the time between reactor shutdown and measurement, item 8, is intercepted; for time values greater than 72 hours, use the line marked I-131.
- c. Move horizontally to the right until the time between reactor shutdown and start of exposure, item 12, is intercepted; if the start of radiation exposure coincides with the time of measurement, move to the line marked  $T_e = T_m$ .

THYROID DOSE COMMITMENT WORKSHEET  
(continued)

6. Has core or fuel damage occurred?  
(yes or no) \_\_\_\_\_
7. Time of reactor shutdown \_\_\_\_\_ hours
8. Time between shutdown and measurement  
(item 7 - item 1n) \_\_\_\_\_ hours
9. Time release started \_\_\_\_\_ hours
10. Plume travel time  
(item 1c/ground or elevated windspeed (mph)) \_\_\_\_\_ hours
11. Time exposure started  
(item 9 + item 10) \_\_\_\_\_ hours
12. Time after shutdown exposure started  
(item 11 - item 7) \_\_\_\_\_ hours
13. Release duration \_\_\_\_\_ hours
14. Thyroid Dose Commitment
- a. Bare canister component \_\_\_\_\_ rem
- b. Filter/canister component \_\_\_\_\_ rem
- NOTE: If item 6 is "No," then filter/canister component is zero.
15. Total thyroid dose commitment  
(item 14a + item 14b) \_\_\_\_\_ rem

Attachment 5



## Preparedness and Response in Radiation Accidents

Bernard Shleien, Pharm.D.  
Certified Health Physicist, ABHP

•  
Office of Health Physics



WHO Collaborating Centers for:

- Standardization of Protection Against Nonionizing Radiations
- Training and General Tasks in Radiation Medicine
- Nuclear Medicine



August 1983

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Food and Drug Administration  
National Center for Devices and Radiological Health  
Rockville, Maryland 20857

## APPENDIX H-4

### AIR SAMPLING PROCEDURE

(from Distenfeld & Klemish, NUREG/CR-0314,  
USNRC, December, 1978)

Procedures are given for three phases of the task. They are equipment check and field air sampling, evaluation of the exposed filter-adsorber canisters, and internal thyroid dose equivalent predictions for the people living in the measured area. In order they are:

#### I. Equipment Check and Field Air Sampling

##### A. The air sampling system

1. Air mover, similar to a vacuum cleaner
2. Automobile, 12-volt cigar lighter adapter
3. One or more quart cans each containing one filter adsorber canister. Take one can for each location you are to measure and one spare.
4. CDV-700 G-M counter
5. Pocket ionization chamber
6. Screwdriver or 25-cent coin to open the quart can lids (immediately before use).
7. Pocket or wristwatch to time the 5-minute  $\pm$  6-second sampling period.
8. Respirator, one per person, optional.

##### B. Equipment checkout

1. Turn on the CDV-700 and test for an on-scale meter deflection of about 10 to 30 counts per minute on the times 1 range with probe shield closed. The meter will jitter around on an average reading. Read the midpoint value within the jitter band. Reject an instrument for zero reading or too high a reading in place where other CDV-700's read much lower. Twist metal shield open on probe and move toward the test spot on right side of instrument. Meter should go upscale as probe moves toward spot. Close the probe shield and allow the instrument to remain on.
2. Test the air sampler for operation with normal household AC electric power. Plug cord into a wall outlet and push the start switch near the handle. For proper operation, the sampler will sound and feel like a small vacuum cleaner.
3. Reserve pocket ionization chamber.
4. Take all of the seven items of Part A plus a map and/or route instructions to a car or truck that has a working cigar lighter.
5. Plug the DC adapter on the end of the sampler power cord and test for sampler operation using the car electrical system with the engine running. Turn the sampler off.

### C. Air sampling procedure

1. Keeping vehicle windows closed, drive to the first location.
2. Arriving at the first location, leave engine running, open the first quart can, and remove the filter-adsorber canister.
3. Mount filter-adsorber canister over central suction hole and stretch rubber retainer over the outer end of the canister.
4. Check to see that the air sample is plugged into the cigar lighter socket and step out of the vehicle to the relaxed extent of the power cord.
5. Turn on the sampler for exactly 5 minutes  $\pm$  6 seconds.
6. During this period, the other team member will measure the general area outside of the vehicle with the CDV-700 and will record the time of day, location, and general area reading on the empty quart can top label similar to Figure A-4.
7. When the air sample is finished, remove the cannister, replace in its quart can, and reseal can. Note: The canister may be warm to hot due to adsorption of moisture from the air, NOT radioactivity.
8. Go to the next location and use a new canister.
9. After the last measurement return promptly to the center for analysis of the filter-adsorber canisters.

## II. Evaluation of the Filter-Adsorber Canisters

- A. Filter-adsorber readout can be accomplished by the measurement team or by another designated person.
  1. First check out a special modified CDV-700 instrument for operation. This instrument should have a background reading of 50 to 100 cpm on the times IX range. The probe does not open so the instrument will not respond to the test spot. Reject instruments that do not have on-scale readings.
  2. Locate a measurement place where the modified CDV-700 will have a background reading of 50 to 70 cpm. A basement location near the floor and in a corner may be suitable. If the recommended sandshield was constructed, use this device for all measurements including background.
  3. Stack used canister assemblies within their quart cans several yards away from the measurement point.
  4. Open the first quart can and take the filter-adsorber out with a paper towel or facial tissue.
  5. Insert the special CDV-700 probe into the air suction hole of the filter-adsorber.
  6. Record the time of day, background reading, and the filter-adsorber reading on the quart can label.
  7. Locate the rip cord-like thread on the outside of the canister and pull to remove the glass fiber filter cloth. Using facial tissue for handling, return the filter into its quart can at the storage point.

8. Read the bare adsorber canister and record this final entry and date on the label.
  9. Return the canister to its quart can containing the filter cloth and reseal with the correct lid.
  10. Start on the next measurement.
8. Upon conclusion of the measurements, mark the location code on each can with a felt marking pen and remove the peel-away labels. The labels should be mounted on pages of a school notebook or composition book in measurement sequence for each team. The location information should be checked and supplemented, if necessary, with additional information. The data should then be taken or phoned to the local emergency coordination center.

### III. Internal Dose Predictions

#### A. Glass filter cloth evaluation

1. Use Figure H-5 to account for the radioiodine on the glass filter cloth for a set of measurements noted on a transfer label. Enter the curve for the type of reactor and the number of hours between shutdown and time of measurement.
2. Find the iodine to total fission products correction factor, CF, above the vertical axis and calculate the difference in filter-adsorber and adsorber readings. This difference, F, is due to total fission product activity on the filter. The product  $CF \times F$  is the corrected filter reading due to iodine at the time of the measurement.

#### B. Filter-adsorber evaluation

1. The adsorber net counting rate is determined by subtracting background from the bare adsorber measurement.
2. Add the corrected filter reading, step A.2, to the net adsorber reading.
3. Select the appropriate curve that corresponds to the total inhalation time in the clouds for the people in the area.
4. Enter Figure H-6 with the total iodine counting rate found in step B.2. Follow a vertical to the number of hours after reactor shutdown that the bare reading was made. The ordinate is the predicted thyroid dose commitment to a 5-year-old child at the site of the air sample.
5. Correct the dose commitment for the part that could have been received prior to the time of the prediction. Figure H-7 can be used to make the correction by following instructions included on the Figure.
6. Multiply the correction factor obtained in step 5 by the dose commitment found earlier in step 4.
7. Figure H-8 is a sample canister label.

#### C. Evaluation of result

The projected dose commitment values can be posted on a map corresponding to their locations. If sufficient measurements were made, the path of the cloud should appear as significantly higher readings.



Predictions can be made of the dose commitment along the cloud track. This should improve the data base so that decisions can be made about stable iodine feedings, evacuation of exposed persons to reduce exposure to resuspended radioactive particles, and designations of contaminated pasturage.

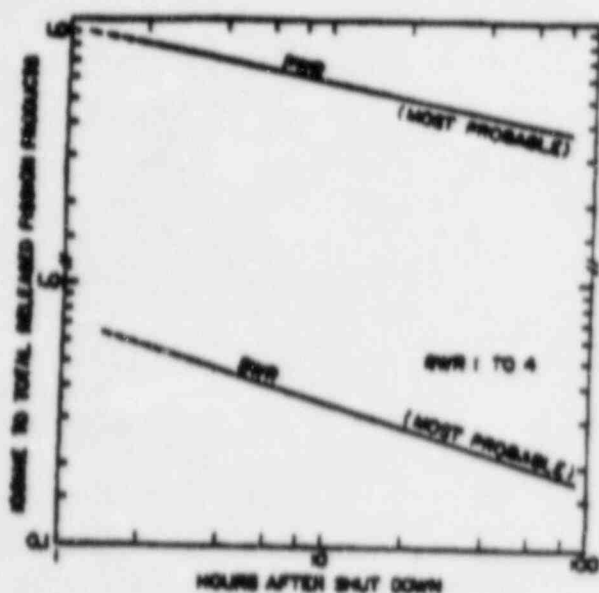


Figure H-5. Iodine to total fission products correction factor for shielded CDV-7000 instruments.

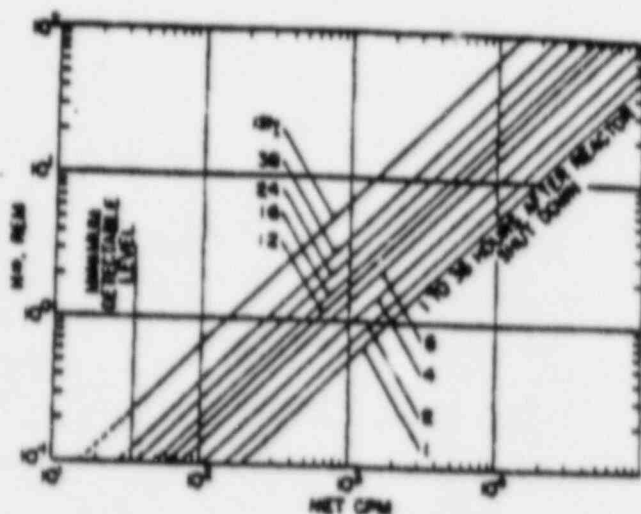


Figure H-6. Conversion of 6306 probe response to 5-year-old child thyroid dose commitment for 2-hour immersion.

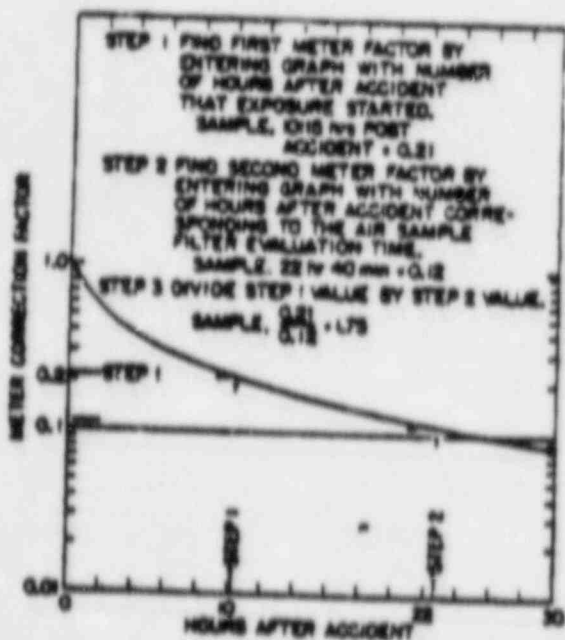


Figure H-7. Correction for iodine isotope composition.

Location \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Time (Air Sample) \_\_\_\_\_

Date \_\_\_\_\_

Area Reading \_\_\_\_\_ cpm

-----

EVALUATION

Background \_\_\_\_\_ cpm

Filter-Adsorber \_\_\_\_\_ cpm

Adsorber \_\_\_\_\_ cpm

Time \_\_\_\_\_

Date \_\_\_\_\_

Figure H-8. Sample filter-adsorber canister label.

Sim 6-6

1 JUDGE SHON: One very minor point on page  
2 8 of the testimony, seven lines from the bottom. The  
3 first variable mentioned is "the iodine to total fission  
4 product," and I think it is missing a word. It needs  
5 "ratio" or "fraction" or something like that, doesn't it?

6 MS. McCLESKEY: Witnesses, would you like  
7 to clarify this portion of your testimony?

8 WITNESS WATTS: Yes, that certainly would help  
9 to clarify it. That was the intent of that particular  
10 sentence, yes.

11 JUDGE SHON: It should be the word "ratio" or  
12 something like that.

13 WITNESS WATTS: Yes.

14 JUDGE LAURENSEN: Where do you want to put that  
15 word?

16 WITNESS WATTS: Right after the word "product."

17 MS. McCLESKEY: All right. Then that portion  
18 of the testimony will read "The iodine to total fission  
19 product ratio."

20 JUDGE SHON: Thank you. Please go on.

21 MS. McCLESKEY: Judge Laurenson, these  
22 witnesses are ready for cross-examination.

23 JUDGE LAURENSEN: Mr. McMurray.  
24  
25

Sim 6-7

## CROSS-EXAMINATION

2 BY MR. McMURRAY:

3 Q Mr. Watts, did you have a hand in developing  
4 this nomogram, which is the subject of this contention?

5 A (Witness Watts) No, I did not develop the  
6 nomogram.

7 Q Did you have a hand in determining whether or  
8 not it should be incorporated into the procedure for  
9 determining thyroid dose?

10 A No, I did not.

11 Q Did you have anything to do with developing  
12 OPIP 3.5.2?

13 A No, I did not.

14 Q Mr. Daverio, did you have anything to do with  
15 developing OPIP 3.5.2?

16 A (Witness Daverio) As I previously stated,  
17 as Assistant Manager of LERIO, I had been involved with  
18 the development of all of the procedures, including OPIP  
19 3.5.2 in a supervisory capacity and in a review capacity.

20 I would like to point out that this is a  
21 procedure that really is an outgrowth of a procedure which  
22 we had previously used as an EPIP on site. The same  
23 methodology and the same instrumentation is used as a  
24 part of our on-site program, and I also was involved with  
25 that development.

Sim 6-8

1 Q Was the extent of your review function just  
2 to make sure that the procedure made sense, or did you  
3 actually help to develop it even in its EPIP form?

4 A I helped develop it to the extent of the review  
5 and the overall concept of the procedure.

6 Q So, Mr. Daverio, it is safe to say that you  
7 know how this nomogram works, correct?

8 A Yes, I do know how it works.

9 Q Mr. Watts, you know how it works, right?

10 A (Witness Watts) Yes, I do.

11 Q Dr. Cordaro, you know how it works?

12 A (Witness Cordaro) Yes, I do. I haven't  
13 utilized it for some time, but I have used it in the past.

14 Q Gentlemen, I understand also from your testimony  
15 that you believe the nomogram, which by the way is  
16 Attachment 1 to your testimony, is a realistic tool that  
17 would provide reliable data on which to base a protective  
18 action recommendation?

19 A (Witness Watts) Yes, I believe that is correct.  
20 I might also mention that there are other tools that would  
21 also be used in conjunction with this method for formulating  
22 protection action recommendations, and these would include  
23 consideration of plant conditions, the possibility of  
24 release, the potential amount of activity for release, other  
25 dose projections that are being performed based on the



Sim 6-9

1 release rate from the plant and existing meteorological  
2 conditions, as well as field survey measurements of which  
3 this is included.

4 Q All right. This is the tool though that would  
5 give you the thyroid dose?

6 A This is a tool that could be used to predict  
7 the thyroid dose. It is not the only means in which the  
8 thyroid dose could be estimated. It is a means to do that.

9 Q Mr. Daverio, you also believe that this is a  
10 realistic tool that could be used to provide a reliable  
11 indication of thyroid dose?

12 A (Witness Daverio) I agree completely with  
13 Mr. Watts.

14 Q And, Dr. Cordaro, you believe that also?

15 A (Witness Cordaro) Yes, for the purpose  
16 that it is intended. As Mr. Watts indicated, there are  
17 a lot of other things that play a role in assessing  
18 what the potential for thyroid exposure is and other  
19 techniques which are, you know, even preferable to  
20 computerized techniques, if available are much more  
21 preferable.

22 As a backup system for calculating thyroid  
23 dose in a quick manner to take protective actions, it is  
24 indeed reliable and realistic, at least from my knowledge  
25 of the tools that are available it is probably the most

Sim 6-10

1 reliable that is out there for that purpose.

2 Q Mr. Watts, could you quickly state for the  
3 record what the preventive level of contamination is for  
4 iodine and what the emergency level is? I am talking  
5 about the levels, and I think we briefly touched on them  
6 yesterday and I would just like to establish them again.

7 A (Witness Watts) This levels that we talked  
8 about yesterday do not apply to this situation, because  
9 yesterday we were talking about ingestion pathway.

10 The protective action guidelines for the  
11 thyroid in this case are with concern to the inhalation  
12 pathway.

13 Q Okay. Could you please state what the  
14 protective action guidelines are?

15 A The protective action guidelines are outlined  
16 in OPIP 3.6.1. I do not have a copy of that in front  
17 of me. However, the protective action guidelines, the  
18 numbers that I recall are 5 rem and 25 rem that apply  
19 to the thyroid regarding inhalation and exposure and  
20 uptake of iodine resulting in a thyroid dose, and these  
21 are in reference to whether sheltering or evacuation of  
22 the general public would be recommended. But these are  
23 different than the types of protective action recommendations  
24 that we talked about yesterday, a different pathway.

25 Q Okay. Now the 5 rem level for thyroid, anything

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

between 1 and 5 there would be no special protective action recommendation, isn't that correct, to the thyroid?

A Do you have a document in front of you?

Q Let me show you 3.6.1.

(Pause while the document was shown to the witness.)

Do you have in front of you OPIP 3.6.1?

A (Witness Watts) Yes. I do.

Q And the table showing the protective action guides?

A Yes.

Q Okay. Now what are the threshold levels for various protective actions, and I am talking about thyroid dose?

MS. McCLESKEY: Objection. I believe that table has been entered into the record and I see no need for the witnesses to read it in now.

MR. McMURRAY: It is a foundation question and we can move on quickly, Judge Laurenson.

JUDGE LAURENSEN: Overruled.

WITNESS WATTS: In reference to the thyroid dose, and we are looking at page 44 of Attachment 4. This refers to thyroid doses that are projected to be less than 5 rem. There are no planned protective actions, although it does indicate that LERO may issue an advisory

Sim 6-12

1 to seek shelter and await further instructions and also  
2 to monitor environmental radiation levels.

3 For projected doses that are 5 rem to less  
4 than 25 rem, the table indicates a recommended action to  
5 seek shelter as a minimum, consider evacuation, evacuate  
6 unless constraints make it impractical, monitor environ-  
7 mental radiation levels and to control access.

8 And for projected thyroid doses of 25 rem and  
9 above, to conduct mandatory evacuation, monitor environ-  
10 mental radiation levels and to adjust the area for mandatory  
11 evacuation based on those levels and also to control  
12 access.

13 Q Thank you. The nomogram, which is Attachment  
14 1 to your testimony, includes several different variables  
15 isn't that correct?

16 A Yes, it does.

17 Q The first one in the lower-left-hand corner  
18 of the nomogram is an iodine measurement net CPM. Do  
19 you see that?

20 A Yes, I do.

21 Q Now that is taken from reading the TCS air  
22 sampler, which is taken out into the field and used to  
23 get an indication of dose levels out in the field, correct?

24 A Yes. The TCS air sampler is used to collect  
25 airborne material in the field and from that a measurement



Sim 6-13

end Sim  
Joe Fols

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25

is made with a Geiger Mueller Tube and survey meter to  
get counts per minute to get a count rate, and from that  
a determination is made of the resultant projected dose.

1 Q Because you are trying to make protective action  
2 recommendations promptly, this type of measurement is made  
3 out in the field, isn't that correct? Measuring what is  
4 in the PCS air sampler?

5 A Yes. The capability is there to take that  
6 reading out in the field.

7 Q And what is the level of uncertainty, or margin  
8 of error for those types of readings taken out in the  
9 field.

10 A If you could define what you mean by, 'level  
11 of uncertainty.'

12 Q Well, do you believe that measurements taken  
13 out in the field, using the TCS air sampler, are absolutely  
14 accurate?

15 A Absolutely accurate, meaning no uncertainty?

16 Q No uncertainty.

17 A No, I believe that there is some uncertainty.

18 Q Could you define what that uncertainty is,  
19 and can you qualify what the uncertainty is?

20 A I can estimate it. My best judgment, I would  
21 estimate it to be within about twenty percent.

22 And the twenty percent is in reference to the  
23 instrumentation itself.

24 Q The instrumentation, that is the thing that  
25 is measuring what is in the TCS air sampler.

1           A       The equipment, yes.

2           Q       Okay. There are some time factors variables  
3 on here, one being T-sub-e. You will agree that that is  
4 the time interval between reactor shut down and the start  
5 of exposure?

6           A       Yes; that is defined at the bottom of the  
7 nomogram.

8           Q       How is T-sub-e determined?

9           A       That would have to do with the time that the  
10 release takes place, and the length of time it takes the  
11 plume to reach a certain point of interest downwind.

12          Q       How is it determined when the plume reaches  
13 the point of interest downwind?

14          A       That is based on the time that the release  
15 begins, and the rate of travel of the plume, which is a  
16 function of the prevailing wind speed.

17                   That is determined on the worksheet that is  
18 part of the procedure.

19          Q       This is the wind speed that is measured at the  
20 plant?

21          A       Yes.

22          Q       And this assumes that the plume is traveling  
23 in a straight line, towards the point of interest?

24          A       It is traveling in the direction of the point  
25 of interest, yes.

1 Q Plumes can meander, correct?

2 A Yes, they can. However, again I am still  
3 referring to the forward motion of the plume in the X  
4 direction, the X-axis, which is the downwind direction,  
5 and that still can proceed at the rate that is estimated,  
6 even if meander is taking place.

7 Q How -- what is the margin of error, or the level  
8 of uncertainty for determining when the plume has reached  
9 a certain point of interest?

10 A I can't give you a number on that, because it  
11 can depend on the types of conditions involved.

12 Q For instance, wind velocity can vary between the  
13 plant and the point of interest, correct?

14 A Yes, it can.

15 Q Let's go to your testimony on page 13. You  
16 say in answer to Question 13, that the procedure uses a  
17 most probable iodine to total fission product ratio for  
18 the accident scenarios analyzed.

19 Do you see that?

20 A Yes, I do.

21 Q What is the iodine to total fission product  
22 ratio that is assumed for this nomogram?

23 A That ratio is referenced -- the technical basis  
24 for that ratio, which is a time-varying ratio, is based  
25 on information that was developed in the FEMA REP-2 report



1 that we have as an attachment to our testimony.

2 Q What does it mean: A most probable iodine to  
3 total fission product ratio; what is meant by that?

4 A My understanding of the meaning of that is that  
5 there was a series of radio nuclide mixtures that were  
6 considered, depending on various release conditions from  
7 a boiling water reactor, and the make up of that mixture  
8 was analyzed for these different sequencies, as it varied  
9 as a function of time.

10 And then through a weighting process, a most  
11 probable iodine to fission product ratio was derived, and  
12 the outcome of that analysis, again, is referenced in the  
13 FEMA REP-2 document.

14 Q Well, when it says, 'most probable,' are the  
15 authors, or whoever developed this ratio, referring to  
16 most likely kind of accident, where iodine is going to be  
17 released?

18 A There -- my understanding is there was a band  
19 of possible mixtures that varied as a function of time,  
20 and that this particular ratio was more or less an average  
21 of the range of values that could occur.

22 Q So it could be higher, or it could be lower,  
23 depending on the accident?

24 A That is correct. I might add that when you are  
25 dealing with an emergency, you don't know immediately what

1 the exact mixture of nuclides is, and that it is important,  
2 and we have testified to this before, it is important to  
3 refine whatever estimates are made as quickly as possible  
4 with actual isotopic information. Whether that is gathered  
5 at the plant, by taking in-plant measurements, or stack  
6 affluent measurements, and analyzing them for radio nuclides,  
7 as well as taking the sampler information that we have and  
8 having that analyzed for the actual radio nuclide content,  
9 but this particular procedure has been put together with a  
10 correction that makes a scientific estimate as to what that  
11 initial mixture could be.

12 Q The part of the nomogram which is in the lower  
13 right hand corner, talks about duration of exposure. Do  
14 you see that?

15 A Yes, I do.

16 Q Now, that is the duration of exposure at the  
17 point of measurement, correct?

18 A Yes. It refers to the duration of release, which  
19 would also translate to duration of exposure at a point of  
20 measurement, yes.

21 That is assuming, however, that the wind is  
22 persisting in that same direction.

23 Q It is true, isn't it, that the exposure could be  
24 different at other points within the plume?

25 A That is correct, and that is why you would take

1 several measurements at different point downwind of the  
2 plume.

3 Q Did you finish?

4 A Yes.

5 Q How many measurements would be taken?

6 A I can't give you a precise number, but in terms  
7 of arriving at an adequate base of information, we would  
8 be interested in measurements that are taken at several  
9 different points along the plume center line.

10 For instance, at the site boundary at two  
11 miles, at five miles, at ten miles. We would also be  
12 interested in traversing the plume in a perpendicular  
13 line to the center line, so that we are also getting some  
14 measurements along the -- in the crosswind direction as  
15 well.

16 It has been my experience to direct survey  
17 teams in that manner. That is a standard practice to do  
18 so, and we have done in the LERO -- in LILCO drills as  
19 well, and it is a standard approach that is used throughout  
20 the industry.

21 You are interested in refining your estimates  
22 of what the downwind concentrations are. You make  
23 initial dose projections. You go out and you dispatch  
24 survey teams to take direct radiation measurements, and  
25 to collect air samples to confirm whether your predicted

1 downwind concentrations and doses are correct. It is a  
2 constant refinement process. You are making estimates.  
3 You are taking measurements to refine those estimates, and  
4 you continue that iteration throughout the event.

5 Q How accurate -- the premeasurement exposure  
6 correction variable is at the middle of the bottom of the  
7 nomogram, correct?

8 A It is actually in the middle portion of the  
9 nomogram, yes.

10 Q Okay. Is that time premeasurement exposure  
11 subsumed within the variable to the right of it, duration  
12 of exposure?

13 A No. Duration of exposure comes -- that is a  
14 later thing that is accounted for. If you have the  
15 reactor shut down, you take a certain measurement -- say  
16 at four hours after reactor shut down. The exposure may  
17 have started at some time before the time that the measurement  
18 was taken.

19 For instance, if the reactor shut down at twelve  
20 midnight, an exposure may have started at a particular point  
21 downwind at two o'clock, but you may be taking your measure-  
22 ment as part of your survey analysis, four hours after  
23 shut down. So the time of exposure may have started two  
24 hours before the measurement was taken.

25 This nomogram allows you to account for the



1 amount of exposure, or dose that would have been received  
2 prior to the time of measurement. You are accounting for  
3 that.

4 Q Now -- then the duration exposure is the time  
5 -- duration of exposure is the time after the measurement  
6 is taken?

7 A The duration of exposure is the time of exposure  
8 that begins from the time exposure starts, to the time  
9 that exposure stops.

10 The measurement may happen in the middle of  
11 that period of time.

12 Q And the premeasurement exposure correction  
13 includes that portion of time of the total duration of  
14 exposure before the measurement is taken, right?

15 A Yes.

16 Q That is what I meant by whether or not pre-  
17 measurement exposure was susumed within duration of  
18 exposure.

19 A You are accounting for the amount of exposure  
20 that has accrued prior to the measurement, and accounting  
21 for the total amount of exposure that will have also  
22 followed the time of measurement.

23 Q Premeasurement exposure assumes that you know  
24 what time exposure started, correct?

25 A That is right.

1 Q Again, that is the -- depending on the T-sub-e  
2 variable, correct?

3 A Well, that is what the T-sub-e -- the T-sub-e  
4 begins with the determination of the time that exposure  
5 started, and the T-sub-e is the time interval between the  
6 time of the start of exposure and reactor shut down.

7 Q The reason that these premeasurement exposures  
8 have to be corrected for is that there is a decay that  
9 occurs -- that could occur between the time that one  
10 is exposed and one is measured, correct?

11 A You are right that some decay in the mixture  
12 is occurring at that time. The primary reason for doing  
13 that is to account for the amount of iodine that might have  
14 been inhaled during that period of time prior to the time  
15 of measurement.

16 What you are trying to do is account for the  
17 various time periods at which inhalation can be occurring.

18 Q What is the half-life for iodine.

19 A What radio nuclide?

20 Q 131.

21 A The half life of 131 is approximately eight  
22 days. I believe it is 8.06.

23 Q Is it true that T-sub-m, minus T-sub-e equals  
24 the premeasurement exposure?

25 A Could you repeat that, please?

1 Q Does T-sub-m, which is the interval between  
2 reactor shut down and survey measurement, minus T-sub-e,  
3 equal the premeasurement exposure?

4 A Yes, I believe so.

5 Q Is this then part of the duration of exposure?

6 A Yes, it is.

7 Q Using this nomogram, what level of certainty  
8 would there be in the results for thyroid dose?

9 (Witnesses conferring)

10 A What we were doing was just considering the  
11 various factors in that determination. We are not, in this  
12 case, dealing with an estimate release rate in and of  
13 itself, because we are taking a measurement in the field.  
14 And we are also, in a sense, already accounting for the  
15 meteorology because we are taking the measurement in place  
16 downwind.

17 My judgment at this point would be that the  
18 overall -- my judgement for the measurement would be within  
19 about fifty percent.

20 End 7.  
21 Sue fols.

21

22

23

24

25

#8-1-SueT<sub>1</sub>

2 That's taking the gross readings on the air  
3 sampler which again we are taking readings of the gaseous  
4 as well as particulate forms of iodine. And the bulk of  
5 the activity would be trapped, in my judgment, in the bare  
6 cannister and in the silica gel.

7 There is a correction that is done for the  
8 iodine to total fission products that may be collected on  
9 the particulate filter; however, that is probably a small  
10 component of the dose.

11 Q When you say accuracy would be within about  
12 fifty percent, are you saying that it could -- well, let's  
13 just take, if the reading was X the level of uncertainty  
14 would go up to 2X and down to zero, or that it would go up  
15 to one point five X and down to point five X?

16 A My reference to fifty percent was one point five  
17 X.

18 JUDGE SHON: One point of clarification, Mr.  
19 Watts. Actually, Mr. McMurray asked you for the error in  
20 using the nomogram, but I think the error you are quoting  
21 is the overall error of the entire technique, isn't it?

22 Or is it just the error introduced by the nomo-  
23 gram itself?

24 WITNESS WATTS: I would say introduced by the  
25 nomogram itself.

JUDGE SHON: I see. And that doesn't encounter --



#8-2-SueT1

2 include any error that may be inherent in the count rate  
3 or in the technique of using the cannister to adsorb iodine  
4 or any of that sort of thing?

5 WITNESS WATTS: That's right.

6 JUDGE SHON: Thank you.

7 BY MR. MC MURRAY: (Continuing)

8 Q Just to clear this up. You were talking about  
9 the error introduced just by using this technique; that is,  
10 this straightedge along these various lines and coming up  
11 with a final value, correct?

12 A That's right.

13 Q Gentlemen, at this time I would like to give  
14 each of you a copy of the nomogram along with some values  
15 printed at the top. I would like each of you please to  
16 not confer. As a matter of fact, I would like to ask you  
17 not to look at one another or watch each other work.

18 (Copies of the nomogram are distributed to  
19 the parties, the Board members and the witnesses.)

20 MR. MC MURRAY: At this time, the witnesses and  
21 the parties and the Board have been given the nomogram  
22 which is the attachment to their testimony.

23 BY MR. MC MURRAY: (Continuing)

24 Q Mr. Watts, there are some values printed at  
25 the top of this nomogram, correct?

A Yes, there are. But I don't think you have

#8-3-SueT1

given us all the information we need --

2 Q Okay. Well, I --

3 A -- to do the procedure correctly.

4 MR. MC MURRAY: Okay. We will go into that.

5 Judge Laurenson, at this time I would like to have this  
6 exhibit marked as Suffolk County Exhibit EP-91.

INDEXXXX

7 JUDGE LAURENSON: It will be so marked.

8 (The above-referred to document  
9 is marked Suffolk County  
10 Exhibit EP-91 for identifica-  
11 tion.)

12 BY MR. MC MURRAY: (Continuing)

13 Q Now, Mr. Watts, you said that there is some --  
14 we are also providing straightedges for the witnesses.

15 A How about the procedure?

16 Q You don't have the procedure in front of you?

17 A (Witness Daverio) We don't have three copies.  
18 If you want us not to look, we need three copies. I have  
19 one.

20 Q Do you have your testimony? Does that not  
21 have the procedure in it?

22 A (Witness Watts) I don't believe it has the  
23 complete procedure in it.

24 Q While we are getting other copies of the pro-  
25 cedures, Mr. Watts, you stated that you don't believe you

#8-4-SueT 1

2 have all the information here to do the calculation on  
3 this nomogram.

4 What information is missing?

5 A You haven't given us background reading. You  
6 have not given us the filter cannister reading.

7 Q Assume that the bare cannister reading is the  
8 net cpm, that there are no particulates on the filter.

9 A You mean that the filter cannister reading is  
10 zero?

11 Q The filter is zero, the bare cannister reading  
12 net cpm is four point five times ten to the third.

13 A I understand that. The bare cannister reading  
14 you are considering is the net?

15 Q That's right.

16 A And are you also considering that the filter  
17 cannister reading, the net filter/cannister reading, is  
18 zero?

19 Q Are you saying --

20 A I'm a little puzzled by the assumptions that you  
21 have given us.

22 Q Are you saying that -- we are saying that the --  
23 assume that the value given is what you need to enter the  
24 value on the lower left hand part of the nomogram, it's  
25 four point five times ten to the third.

JUDGE SHON: Mr. McMurray, I might note that it

8-5-SueT1

2 seems a little odd that one of the principal reasons the  
3 Board carried this particular contention on in the form  
4 it did was that there was a question raised by FEMA as  
5 to the correction made on the particulate filter by this  
6 nomogram inherently, and it appears that the example you  
7 have asked them to work has discarded the particulate filter  
8 and looks only at the bare cannister.

8 Is there some particular reason for that?

9 MR. MC MURRAY: Yes, Judge Laurenson, because  
10 the reason is to determine how -- whether or not mechanically  
11 working through the nomogram presents more error than Mr.  
12 Watts has stated. It is not really to determine what the  
13 reading is when you include the particulate measurement on  
14 the filter.

15 JUDGE SHON: And because the nomogram uses  
16 essentially the same sort of motions and alignments and  
17 such regardless, you just took this simplified case?

18 MR. MC MURRAY: That's right.

19 JUDGE SHON: Thank you.

20 MR. MC MURRAY: I'm told I called you Judge  
21 Laurenson, I'm sorry. I'm so used to saying Judge Laurenson.

22 JUDGE SHON: That's fine. I'm flattered.

23 JUDGE LAURENSEN: Now I'm flattered.

24 MS. MC CLESKEY: If the purpose of this exercise  
25 is to determine whether these gentlemen can use the nomogram



#8-6-SueT 1

2 and whether the nomogram is difficult or easy to use, I  
3 object to it as outside the scope of the contention.

4 MR. MC MURRAY: That's not what I said that  
5 it was being used for or introduced for.

6 BY MR. MC MURRAY: (Continuing)

7 Q Gentlemen, now that you have these values in  
8 front of you, I would ask each of you to work through the  
9 nomogram --

10 A (Witness Daverio) Also, the sample collection  
11 interval violates our procedure.

12 (Witness Watts) I have a very difficult time  
13 proceeding with using this nomogram because again I do  
14 not understand your assumptions. And I would be very  
15 reluctant even to proceed with this calculation until I  
16 fully understand how you have set this up.

17 Q Do you --

18 MS. MC CLESKEY: Judge Laurenson, I have  
19 objected to the witnesses proceeding and doing this  
20 exercise on the grounds that it is outside the scope of  
21 the contention.

22 MR. MC MURRAY: It certainly is not. The scope  
23 of the contention is whether or not it can come up with  
24 reliable values. And I don't think that this is outside  
25 the scope of the testimony at all.

As a matter of fact, on Page 15 they say the

#8-7-SueT 1

2 method identified will provide an accurate and dependable  
3 means of determining the thyroid dose to the exposed  
4 population.

5 JUDGE LAURENSEN: Before we get to the point  
6 of ruling on LILCO's objection, I think that the panel  
7 of witnesses have indicated that they still have some  
8 problems or reservations concerning the assumptions that  
9 they are to make in doing the calculation.

10 So, I would defer a ruling on the LILCO objection,  
11 at least until these matters have been aired here.

12 BY MR. MC MURRAY: (Continuing)

13 Q Mr. Watts, you cannot put down on the lower left  
14 hand corner of this nomogram a value of four point five  
15 times ten to the third cpm?

16 You don't know how to do that?

17 A (Witness Watts) Yes. I certainly know how to  
18 do that. I don't understand what to assume for some other  
19 values.

20 Q What other values do you need?

21 A Well, first of all, let's clarify what you mean  
22 by bare cannister reading. If you were giving me --

23 Q Bare cannister reading is the reading, the value  
24 you are supposed to put down in the lower left hand corner  
25 of the diagram.

A Okay. Are we referring to the bare cannister

#8-8-SueT 1

reading minus background?

2

Q Does it matter at all? If whatever value you have to put down is four point five times ten to the third, can you do that?

3

4

A As long as I understand that you are referring to the net bare cannister reading.

5

6

Q I've told you that.

7

A That hasn't been clear to me. Now, that's one problem.

8

9

Q Okay. Now that we have cleared that one up, what is the next one?

10

11

A Okay. The other question is, what is the net filter reading that we are to use?

12

13

Q Where does it say --

14

A You are not following the protocol of the procedure by withholding that information.

15

16

Q I thought that Judge Shon had already cleared up this problem.

17

18

Did you understand what Judge Shon had said?

19

20

A No, I'm sorry. I didn't hear what Judge Shon said.

21

22

JUDGE SHON: It seemed to me that the problem as posed assumed the filter reading as zero. And, thus throughout the filter reading entirely you are calculating only the dose due to the gaseous, not the particulates.

23

24

25

#8-9-SueT1

2 It can be done obviously. But it is -- the thing I brought  
3 up is the fact that one of the things at issue in the  
4 contention was the correction which the inherent process  
5 made for the particulates which doesn't enter here.

6 WITNESS WATTS: Yes. But my problem is in  
7 following the protocol of the procedure. That is a bit  
8 of data that I have to see.

9 BY MR. MC MURRAY: (Continuing)

10 Q The data that you are supposed to put down for  
11 the net cpm is four point five times ten to the third.  
12 That is the total value for the lower left hand corner.  
13 Now --

14 A Let me explain how the procedure works.

15 Q I don't think we need to go into that, Mr.  
16 Watts. Judge Shon has clarified this. I've clarified  
17 this.

18 The only value that we -- and we may do this in  
19 the hypothetical -- are giving you is four point five times  
20 ten to the three.

21 A And only that?

22 Q And only that.

23 A And then if I were to ask you what the net filter  
24 reading is, you would tell me it's zero?

25 Q It's zero.

A Okay. But we assume that that has been done and



#8-10-SueT

that the result from that is zero?

2 Q Is zero.

3 A Okay, fine. Also, the collection sample interval  
4 is not in accordance with the procedure.

5 Q Mr. Watts, this is meant to be an example. It's  
6 not meant to simulate an actual condition. We are talking  
7 about the mechanics of going through the nomogram and coming  
8 out with reliable data.

9 So, please assume for me that the sample col-  
10 lection interval is three minutes. Can you do that for the  
11 purposes of going through this nomogram?

12 A I would like to note that the procedure calls  
13 for a sample collection interval of five minutes.

14 Q That's fine. Let's just assume now three  
15 minutes. Are there any other problems that you have with  
16 this, with this data that has been given to you?

17 A (No reply.)

18 (The witnesses are conferring.)

19 Q You are not starting the calculation yet, are  
20 you?

21 A No. I'm not starting the calculation. I'm  
22 thinking through your assumptions.

23 (Pause.)

24 Okay. Yes.

25 Q Now, gentlemen, I would like each of you to take

#8-11-SueT 1

2 your straightedges and go through for me, please, the  
3 process of calculating thyroid dose using this nomogram  
4 and the assumptions that I have given to you, which are  
5 set forth on the top of Suffolk County EP-91.

6 JUDGE LAURENSEN: Before you do that, I think  
7 we have to rule on the LILCO motion that I had deferred a  
8 ruling on.

9 And at this point, I would like to hear from  
10 both LILCO and the County and anyone else who has a  
11 position concerning this, if you can call it, a courtroom  
12 demonstration of this technique. Specifically, what are  
13 the objections to it, and then what is the answer to those  
14 objections.

15 MR. MC MURRAY: Judge Laurenson, before we go  
16 on, I would just like to ask that the witnesses not now  
17 confer.

18 MS. MC CLESKEY: Judge Laurenson, my objection  
19 is that the courtroom demonstration is irrelevant, and I  
20 have two grounds for that. First, that it won't shed any  
21 light on the contention. The contention says that this  
22 nomogram is not realistic. And, as I understand it, the  
23 reason that it -- it was taken from the FEMA review, and  
24 the reason that FEMA thought it may not be realistic had  
25 to do with the particulate filter reading, and we are  
assuming a zero particulate filter reading.

#8-12-SueT

2 In addition, the County is not following the  
3 procedure that would be used by LERO members in actually  
4 using the nomogram, in that they are assuming a three  
5 minute sample collection interval, where the procedure,  
6 I believe Mr. Watts stated, assumes a five minute. And  
7 again they are assuming a zero particulate filter reading.

8 So, there has been no connection between the  
9 exercise that these gentlemen are about to be asked to  
10 perform and either the contention or the LILCO plan.

11 That's my objection.

12 MR. MC MURRAY: Judge Laurensen, Ms. McCleskey  
13 has stated only one of the problems that FEMA found. The  
14 other one is exactly the problem that we are going into  
15 now, that is whether or not it can be used reliably and  
16 whether the assumptions on which it is based are valid.

17 The other point that Ms. McCleskey makes about  
18 violating the procedure is irrelevant, because the only  
19 thing we are doing is trying to determine whether or not  
20 when one uses the nomogram, using values that are given,  
21 one can reliably estimate the thyroid dose.

22 Now, if Mr. Daverio comes up with a number and  
23 Mr. Watts comes up with a number, and Dr. Cordaro comes  
24 up with a number, and those numbers are not in the same  
25 ball park, then I think we will have demonstrated a problem  
with the reliability of the use of this technique.

#8-13-SueT

2 Now, the testimony -- or, the contention as  
3 written by the Board says: Thus, there is no assurance  
4 that this procedure will provide reliable data for use  
5 in making protective action decisions.

6 JUDGE LAURENSEN: All right. At this point,  
7 the Board is going to consult.

8 MS. MC CLESKEY: Judge Laurenson, may I respond  
9 very briefly to Mr. McMurray's remarks?

10 I'm going back to the original contention,  
11 part of which was summarily disposed of, and that contention  
12 raised the precise issue that these witnesses are now being  
13 asked to do the calculation to respond to, which was  
14 whether this dose assessment calculation is reliable and  
15 can be performed by the people who are supposed to perform  
16 it.

17 And the Board ruled on that issue and narrowed  
18 down Contention 49 to a much narrower issue that we are  
19 dealing with now. And for that reason, I don't think  
20 that this exercise is responsive to what is left of the  
21 contention.

22 And the use that Mr. McMurray wants to make of  
23 the exercise has already been summarily disposed of.

24 MR. MC MURRAY: Judge Laurenson, I don't think  
25 that is right. It's still within the corners of the  
26 contention as rewritten by the Board.

#8-14-SueT

2 And it's directly responsive or relevant to  
3 these witnesses' statement on Page 15, that the method  
4 identified will provide an accurate and dependable means  
5 of determining the thyroid dose to the exposed popula-  
6 tion.

7 MR. PIRFO: If I may, Judge Laurenson, may I  
8 get a clarification with regard to the Board's request  
9 for the parties position?

10 Are you asking -- is your inquiry just as to  
11 the relevancy before ruling on this, or do you want --  
12 are you seeking our position with regard to the appropriate-  
13 ness of this exercise?

14 I'm not clear.

15 JUDGE LAURENSEN: If anyone has any comment  
16 concerning the request by the County and the objection by  
17 LILCO, this is the time to make it.

18 Did you have something to add, Mr. Pirfo?

19 MR. PIRFO: No, I thought you were seeking our  
20 position as to whether the demonstrative evidence was  
21 appropriate or not.

22 JUDGE LAURENSEN: Well, the Board is well aware  
23 of the situations in which these calculations or similar  
24 calculations have been allowed in court.

25 The question is to what extent does it help  
the decision maker and is it relevant. I don't think we



#8-15-SueT 1

a discussion of that aspect of it.

2

MR. PIRFO: No. I agree. And I thought you

3

were asking for that earlier, and I just wanted to make

4

sure that you were not.

5

(The Board members are conferring.)

end #8 6

Mary flws 7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 JUDGE LAURENSEN: The Board conferred concerning  
2 the request to perform the calculation and the objection  
3 made by LILCO.

4 LILCO's objection is sustained.

5 The request to perform the calculation is not  
6 relevant to Contention 49 which states "The nomogram  
7 which relates iodine to total fission products for the  
8 calculation of thyroid dose (OPIP 3.5.2, Attachment 11)  
9 is not realistic. Thus, there is no assurance that this  
10 procedure will provide reliable data for use in making  
11 protective action decisions. Accordingly, there is no  
12 compliance with 10 CFR Section 50.47(b)9."

13 The contention challenges only the realism  
14 of the nomogram and not its readability. The testimony  
15 contained in the answer to Question 17 on page 15 relied  
16 on by the County relates the words "accurate" and  
17 "dependable" to the basic assumptions of the nomogram.

18 The LILCO objection is sustained.

19 MR. McMURRAY: Judge Laurenson, one minute  
20 please while I check my notes.

21 (Pause.)

22 MR. McMURRAY: I will advise the Board that  
23 I am very close to the end and advise LILCO as well.

24 (Pause.)

Sim 9-2

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

BY MR. McMURRAY:

Q Gentlemen, do you have a copy of the procedures with you? Do you have a copy of 3.5.2 with you?

A (Witness Daverio) Yes.

Q And that is the OPIP that is relevant to this contention, correct?

A Yes, it is one of them.

Q Let me refer you to page 19 of the OPIP.

(Pause while the witnesses find the reference.)

The last item in Section 5, which is 5.6.9, says "Utilize the results of data for input to OPIP 3.6.1, plume exposure pathway protective action recommendations, Section 5.1.1(h)."

Do you see that, Mr. Daverio?

A (Witness Daverio) Yes.

Q And the results of the data we are talking about here is the results of using the nomogram, correct?

(Pause.)

Mr. Watts, is that what you understand?

A (Witness Watts) Yes.

Q Let me refer you then to 3.6.1, OPIP 3.6.1.

(Pause.)

You don't have that?

A (Witness Daverio) We don't have a copy of that with us.

Sim 9-3

1 Q I believe Dr. Cordaro has it.

2 Would you please turn to Section 5.1.1(h).

3 (Witnesses comply.)

4 MS. McCLESKEY: Mr. McMurray, I am sorry,  
5 did you say Section 5.1.1(h) in 3.6.1?

6 MR. McMURRAY: Yes.

7 MS. McCLESKEY: Do you have a page number? I  
8 am having trouble locating it.

9 MR. McMURRAY: Well, I think that is the problem.

10 WITNESS DAVERIO: I think what has happened  
11 is we revised a few -- let me get the book out.

12 (Pause.)

13 The page in 3.5.2 needs to be corrected. We  
14 have revised 3.6.1 since this page was written. It is  
15 a Rev. 2 where this is a Rev. 0, and it is just an  
16 incorrect reference that needs to be corrected.

17 BY MR. McMURRAY:

18 Q What is the proper reference?

19 A (Witness Watts) The part of the procedure  
20 which is utilized for formulating the protection action  
21 recommendation begins on page 35 of 44 in OPIP 3.6.1,  
22 which would be items 18 and 18(a), and the results of  
23 18(a) can then be placed in Item 19 of that particular  
24 attachment. That would be or could be the basis for  
25 the protective action recommendation that it is forwarded

Sim 9-4

1 with regard to the thyroid dose.

2 Q I guess what you are saying is that any future  
3 reference is not going to be to a particular section,  
4 but instead to this data sheet that you went into?

5 A (Witness Watts) The data sheet, if the  
6 calculation is being done manually, is utilized for making  
7 the protective action recommendation.

8 Also, there will be a reference, if I cannot  
9 find it now, there will be a reference for using the  
10 survey team data to enter into the HP-85, the computer  
11 program for then utilizing that in the protective action  
12 recommendation routine.

13 Q But, Mr. Davario, the plan as we have it right  
14 now has an incorrect reference, correct?

15 A (Witness Daverio) That is correct.

16 MR. McMURRAY: Judge Laurenson, I have no  
17 further questions.

18 JUDGE LAURENSEN: Mr. Zahnleuter?

19 MR. ZAHNLEUTER: No questions.

20 JUDGE LAURENSEN: Mr. Pirfo?

21 MR. PIRFO: I have no questions.

22 JUDGE LAURENSEN: Any redirect?

23 MS. McCLESKEY: One question.

24 REDIRECT EXAMINATION

25 BY MS. McCLESKEY:

Q Mr. Daverio, are you going to fix page 19



Sim 9-5

1 of 56 in OPIP 3.5.2 so that it refers to the proper page  
2 in OPIP 3.6.1?

3 A (Witness Daverio) Yes, we will.

4 MS. McCLESKEY: Thank you.

5 That is all I have, Judge Laurenson.

6 MR. McMURRAY: No further questions.

7 JUDGE LAURENSEN: All right. This completes  
8 the testimony on Contention 49.

9 The panel is excused.

10 (Panel excused.)

11 JUDGE LAURENSEN: Are we ready to go to 33?

12 MS. McCLESKEY: Yes, sir. If you will just  
13 give us two minutes, we will get the witnesses.

14 (Short recess.)

15 JUDGE LAURENSEN: Back on the record.

16 This brings us to LILCO's testimony on  
17 Contention 33.

18 Ms. McCleskey.

19 MS. McCLESKEY: Judge Laurenson, Dr. Cordaro<sup>a</sup>  
20 and Mr. Daverio have remained on the stand and Mr. Renz  
21 has resumed the stand.

22 Will each of you please identify yourselves  
23 for the court reporter.

24 WITNESS CORDARO: Matthew C. Cordaro.

25 WITNESS RENZ: William F. Renz.

Sim 9-6

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

WITNESS DAVERIO: Charles A. Daverio.

MS. McCLESKEY: I believe each of these witnesses have been previously sworn.

JUDGE LAURENSEN: That is correct. You are still under oath.

Whereupon,

MATTHEW C. CORDARO

CHARLES A. DAVERIO

- and -

WILLIAM F. RENZ

were recalled as witnesses on behalf of LILCO and, having been previously duly sworn, were further examined and testified as follows:

DIRECT EXAMINATION

BY MS. McCLESKEY:

Q Do each of you have before you a document consisting of nine pages of testimony entitled "Testimony of Matthew C. Cordaro, Charles A. Daverio and William F. Renz on Behalf of Long Island Lighting Company on Phase II Emergency Planning Contention 33"?

A (Witness Cordaro) Yes.

A (Witness Renz) Yes.

A (Witness Daverio) Yes.

Q Is this your testimony?

Sim 9-7

- 1 A (Witness Cordaro) Yes.
- 2 A (Witness Renz) Yes.
- 3 A (Witness Daverio) Yes.
- 4 Q Was it prepared by you and under your  
5 supervision?
- 6 A (Witness Cordaro) Yes.
- 7 A (Witness Renz) Yes.
- 8 A (Witness Daverio) Yes.
- 9 Q Is it true and correct to the best of your  
10 knowledge and belief?
- 11 A (Witness Cordaro) Yes.
- 12 A (Witness Renz) Yes.
- 13 A (Witness Daverio) Yes.
- 14 Q Do you have any changes to make to the testimony?
- 15 A (Witness Renz) No.
- 16 A (Witness Daverio) Just a point of clarification  
17 because I may be confusing people. Sometimes I am  
18 correcting my title and sometimes I am not. There were  
19 two forms of what my title was. This one happens not  
20 to have the old title in it. So I am not correcting it.
- 21 MS. McCLESKEY: Judge Laurenson, I move  
22 this testimony into evidence and ask that it bound into  
23 the record as if read.
- 24 MR. PIRFO: The staff has no objection.
- 25 MR. MILLER: Judge Laurenson, a point of

Sim 9-8

1 clarification. The testimony is 10 pages long I thought,  
2 to make sure we have the same testimony here.

3 MS. McCLESKEY: I only have nine and the  
4 witnesses are whispering that they only have nine.

5 What does your 10th page start with?

6 JUDGE LAURENSEN: The Board has 10 pages as  
7 well. It starts at the top, it says "Dose assessment  
8 functions."

9 MR. MILLER: That is what mine says.

10 MR. ZAHNLEUTER: I have nine.

11 (Laughter.)

12 JUDGE LAURENSEN: Let's go off the record.

13 (Discussion off the record.)

14 JUDGE LAURENSEN: We are back on the record  
15 now.

16 There is no objection on the part of the  
17 County; is that correct?

18 MR. MILLER: It is appears that the testimony  
19 is the same testimony. There are different pages because  
20 of the way the testimony was produced. So the County  
21 has no objection.

22 JUDGE LAURENSEN: The testimony will be  
23 received in evidence and bound into the transcript as  
24 indicated.

25 (The testimony of Messrs. Cordaro, Renz and  
Daverio on Contention 33 follows):

LILCO, May 8, 1984

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

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

TESTIMONY OF MATTHEW C. CORDARO, CHARLES A. DAVERIO,  
AND WILLIAM F. RENZ ON BEHALF OF LONG ISLAND  
LIGHTING COMPANY ON PHASE II  
EMERGENCY PLANNING CONTENTION 33

Hunton & Williams  
P.O. Box 1535  
707 East Main Street  
Richmond, Virginia 23212  
(804) 788-8200



LILCO, May 8, 1984

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

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

TESTIMONY OF MATTHEW C. CORDARO, CHARLES A. DAVERIO,  
AND WILLIAM F. RENZ ON BEHALF OF LONG ISLAND  
LIGHTING COMPANY ON PHASE II  
EMERGENCY PLANNING CONTENTION 33

PURPOSE

This testimony discusses Contention 33, which deals with communications between DOE-RAP monitoring teams and the EOC. The testimony demonstrates that there are direct telephone communications between the EOC and the DOE Brookhaven Area Office, and direct radio communications between the DOE Brookhaven Area Office and the DOE-RAP monitoring teams.

TESTIMONY

1. Q. Please state your name and business address.
- A. [Cordaro] My name is Matthew C. Cordaro. My business address is Long Island Lighting Company, 175 East Old Country Road, Hicksville, New York, 11801.
- [Daverio] My name is Charles A. Daverio. My business address is Long Island Lighting Company, 100 East Old Country Road, Hicksville, New York, 11801.
- [Renz] My name is William F. Renz. My business address is Long Island Lighting Company, 175 East Old Country Road, Hicksville, New York, 11801.
2. Q. Please summarize your professional qualifications and your role in emergency planning for the Shoreham Nuclear Power Station.
- A. [Cordaro] I am Vice President, Engineering, for LILCO. My professional qualifications have been offered into evidence as part of the document entitled "Professional Qualifications of LILCO Witnesses." I am sitting on this panel to provide the LILCO management perspective on emergency planning and to answer any questions pertinent to management. My role in emergency planning for Shoreham is to ensure that the needs and requirements of emergency planning are being met, and that the

technical direction and content of emergency planning are being conveyed to corporate management.

[Daverio] I am Assistant Manager of the Local Emergency Response Implementing Organization for LILCO. My professional qualifications have been offered into evidence as part of the document entitled "Professional Qualifications of LILCO Witnesses." My familiarity with the issues raised by these Contentions stems from my work in developing and implementing the LILCO Transition Plan.

[Renz] I am employed by the Long Island Lighting Company as Offsite Emergency Preparedness Coordinator in the Nuclear Operations Support Department and Manager of the Technical Support Division of the Local Emergency Response Implementing Organization (LERIO). My professional qualifications have been offered into evidence as part of the document entitled "Professional Qualifications of LILCO Witnesses." My familiarity with the issues raised by these Contentions stems from my work in developing and implementing the LILCO Transition Plan, particularly my work in developing the communications system.

3. Q. What issue is raised by Contention 33?

A. [Cordaro, Daverio, Renz] Contention 33, as revised by in the Board's Order of April 20, 1984, states:

The LILCO plan fails to demonstrate that there are any direct communications between DOE-RAP monitoring teams and the EOC.

4. Q. What communications are provided between DOE-RAP monitoring teams and the Emergency Operations Center?

A. [Cordaro, Daverio, Renz] The DOE-RAP monitoring teams are dispatched by the DOE Brookhaven Area Office.

There are direct communications between the EOC and the DOE Brookhaven Area Office by means of a dedicated telephone line and commercial telephone. Back-up communications between the EOC and the Brookhaven Area Office are also provided by a Federal Telecommunications System (FTS) line from the Shoreham Control Room. The Shoreham Control Room can be contacted by the EOC by means of the RECS line, the LILCO Centrex System, commercial telephone, and the ESO radio frequency.

There are also direct communications between the DOE Brookhaven Area Office and the DOE-RAP radiological monitoring teams by means of multi-channel portable radios. These three channel radios can operate off of a portable repeater station through the use of paired

frequency channels, or support direct unit to unit communications through the use of a single frequency channel.

5. Q. Are there direct communications between the EOC and the DOE-RAP monitoring teams?
- A. [Cordaro, Daverio, Renz] If "direct" is construed to mean communications between LERO personnel at the EOC and the personnel comprising the DOE-RAP monitoring teams while they are in the field, without any intermediate communications link, the answer is no. Unless the DOE Brookhaven Area Office personnel are located in space provided for them at the EOC, personnel at the EOC will communicate with DOE personnel at the Brookhaven Area Office to obtain information assimilated from reports by DOE-RAP monitoring teams.
6. Q. Must there be direct communications between LERO personnel at the EOC and the personnel comprising the DOE-RAP monitoring teams while they are in the field?
- A. [Cordaro, Daverio, Renz] No. Applicable regulations and guidelines do not require such direct communications.

10 C.F.R. § 50.47(b)(9) provides:

Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.



10 C.F.R. Part 50, Appendix E, IV.E.9.c. provides:

Provision for communications among the nuclear power reactor control room, the onsite technical support center, and the near-site emergency operations facility, and among the nuclear facility, the principal State and local emergency operations centers, and the field assessment teams. Such communications systems shall be tested annually.

NUREG-0654, II.F.1.d.

Each plan shall include:

. . . .

d. provision for communications between the nuclear facility and the licensee's near-site Emergency Operations Facility, State and local emergency operations centers, and radiological monitoring teams.

If these provisions are construed to require communications between the offsite response organization at the EOC and the DOE-RAP monitoring teams, they do not require "direct" communications. The communications between the EOC and the DOE-RAP field monitoring teams, as described above, satisfy these provisions.

7. Q. Should the LILCO Transition Plan specify equipment for direct radio communications from the EOC to DOE-RAP monitoring teams?
- A. [Cordaro, Daverio, Renz] No. Such direct radio communications are not required. Under the LILCO

Transition Plan, the radio links will be between the DOE-RAP monitoring teams and the DOE Brookhaven Area Office. The FEMA RAC review (at 26), in its discussion of § II.H.11 of NUREG-0654, commented that "Communications equipment. . . should include radio links between the field teams and the EOC." NUREG-0654, II.H.11 does not require direct radio links between the EOC and DOE-RAP field teams. The communications equipment linking the EOC and the DOE Brookhaven Area Office is specified in the LILCO Transition Plan. The radios to support field survey operations are provided by the DOE-RAP. The radios are part of the DOE-RAP response which is subsumed within the LILCO Transition Plan.

8. Does NUREG-0654, II.C.1.c, which was cited by the County in its Supplemental Opposition to LILCO's Motion for Summary Disposition, have any bearing on Contention 33?
- A. [Cordaro, Daverio, Renz] No. NUREG-0654, II.C.1.c simply indicates that the plan should identify licensee, state and local resources available to support the federal response. It does not require direct communications between the EOC and DOE-RAP monitoring teams. In any event, the LILCO Transition Plan identifies communications links between the EOC and the DOE

Brookhaven Area Office. The radios providing communications between the DOE-RAP monitoring teams and the DOE Brookhaven Area Office are DOE-RAP's; they are not a resource provided by LILCO.

9. Q. Why does the LILCO Transition Plan, p. 3.5-2, appear to indicate that there might be radio communications between the EOC and the DOE-RAP monitoring team?
- A. [Cordaro, Daverio, Renz] The page referred to is a page from Revision 2 of the LILCO Transition Plan, which was not changed when LILCO issued Revision 3. The LILCO Transition Plan originally contemplated that the coordination of field survey teams would be performed at the EOC, and therefore a radio frequency and space within the EOC was provided to support this operation. Subsequently, DOE decided to conduct these operations from the Brookhaven Area Office using DOE-RAP radio equipment. It is presently contemplated that field survey information will be transmitted, via DOE-RAP radio equipment, to the Brookhaven Area Office where it will be assimilated and used in support of dose assessment functions. This information is to be transmitted to the EOC, as is the information provided by the licensee's emergency response organization. Protective action recommendations are ultimately decided upon at the EOC.

Sim 9-9

1 MS. McCLESKEY: Judge Laurenson, these  
2 witnesses are ready for cross-examination.

3 JUDGE LAURENSEN: Mr. Miller.

4 CROSS-EXAMINATION

5 BY MR. MILLER:

6 Q Gentlemen, would you look at page 5 and  
7 specifically Answer 4 to your testimony.

8 (Pause while witnesses comply.)

9 There is a statement that the DOE-RAP monitoring  
10 teams are dispatched by the DOE Brookhaven Area Office.  
11 Do you see that?

12 A (Witness Renz) Yes.

13 Q Could you tell me, Mr. Renz, is the Brookhaven  
14 Area Office referred to staffed 24 hours a day?

15 A Yes, it is.

16 Q And can you tell me briefly, if you know,  
17 how the monitoring teams are dispatched by that office?

18 A It is my understanding that monitoring  
19 teams are called out to that office. They pick up  
20 equipment, they go through an equipment check, they  
21 are briefed and dispatched into the field.

22 Q How are they called to the office?

23 A By either a telephone -- I think primarily  
24 by telephone. There may be a few pagers involved.

25 Q Commercial telephone?

Sim 9-10

1 A That is correct.

2 Q How many teams are there, Mr. Renz?

3 A I believe the LILCO transition plan contemplates  
4 the use of two teams. They do have more personnel available  
5 to field more teams, although I don't think that transition  
6 plan contemplates that.

7 Q How many persons per team?

8 A Two.

9 Q Now Answer 4 goes on to talk about the  
10 communications between the EOC and the Brookhaven Area  
11 Office. But with respect to communications between the  
12 field monitoring teams and the Brookhaven Area Office, can  
13 you tell me, Mr. Renz, is there a radio provided for each  
14 team or for each member of the team?

15 A I believe that is for each team.

16 Q And I gather by looking at the paragraph towards  
17 the bottom of page 5 of your testimony that the radios  
18 are portable radios, correct?

19 A That is correct.

20 Q Do you know the range of those radios?

21 A It depends upon which channel it is on. In  
22 other words, one channel operates off of a repeater station  
23 and the other two operate unit to unit. The range off  
24 of the repeater station is something in excess of 12 miles.  
25 The range unit to unit I believe is somewhere in the area



Sim 9-11

1 of five or six miles.

2 Q You are referring to, Mr. Renz, the sentence  
3 at the bottom of page 5 that says "These three-channel  
4 radios can operate off of a portable repeater station  
5 through the use of paired frequency channels, or support  
6 direct unit to unit communications through the use of a  
7 single frequency channel"? Is that what you are referring  
8 to?

9 A Exactly, yes.

10 Q Now it is your understanding that the repeater  
11 station using the paired frequencies has a range of  
12 approximately 12 miles?

13 A Something in excess of 12 miles. It has been  
14 tested to 12 miles without any mishaps, as I understand  
15 it.

16 Q What kind of weather conditions was that  
17 test made under?

18 A I do not know.

19 Q What kind of terrain, do you know that?

20 A I know it was made -- I can say out to 12  
21 miles because I was shown on a map the locations that  
22 they went out to. The three locations that individuals  
23 were where they tried out the radios, one was up in  
24 Shoreham, one was over in Patchogue and the other was  
25 in West Hampton.

Sim 9-12

1 Q And it is your understanding that this test  
2 was conducted by someone from Brookhaven just going to  
3 those three locations?

4 A This test was conducted by three individuals  
5 from Brookhaven going to those locations.

6 Q And then just seeing if they could reach the  
7 repeater station that was at Brookhaven?

8 A Yes, and in turn reach another person at one  
9 of the other locations.

10 Q Now the five to six mile estimate that you gave  
11 with respect to the single frequency channel, was that  
12 estimate provided based upon a test of some sort as well?

13 A That information was provided to me based upon  
14 experience, I believe, more than a formal test.

15 Q So someone at Brookhaven just told you they  
16 think the range is five or six miles?

17 A The person responsible for that, yes.

18 Q Has LILCO done anything to attempt to establish  
19 the range of either the paired frequency channels or the  
20 single frequency channel?

21 A Other than discussions held with Brookhaven  
22 people, we have not.

23 Q Now, Mr. Renz, when it says there is this  
24 portable repeater station which uses the paired frequency  
25 channels, where is the portable station located?

Sim 9-13

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

A The antenna for that station is located on top of the old graphite reactor at the Brookhaven complex. The portable station is located below that I understand.

Q And, Mr. Renz, there is means for communications between the EOC and the Brookhaven Area Office by means of a dedicated telephone line, correct?

A That is correct.

Q Now where is this dedicated telephone line located at Brookhaven?

A In their security office which is where they perform dose assessment activity functions.

Q So the dedicated telephone line is located at a different location than the repeater station for the paired frequencies, correct?

A That is correct. The repeater station is unmanned.

end Sim  
Joe fols

1 Q You say the repeater station is unmanned?

2 A Correct.

3 Q Now, with respect to the single frequency  
4 channel, where is the transmitter for that channel?

5 A Anywhere someone happens to be with a radio --  
6 portable radio. In other words, you are transmitting.

7 Q Whe. you say in your testimony direct unit  
8 to unit communications, you are saying direct portable  
9 radio to portable radio communications?

10 A Correct.

11 Q And are you saying that the power for those  
12 radios is simply the battery power that is in the radio  
13 itself?

14 A That is correct.

15 Q Do you believe, Mr. Renz, that -- well, why  
16 don't you tell me: What is the power of these portable  
17 radios for Brookhaven?

18 A It is my understanding it is in the range of  
19 six watts per unit.

20 Q You think a six-watt portable radio can go  
21 five to six miles on the average?

22 A I am not that familiar. I make that statement  
23 based on conversations with communications people from  
24 Brookhaven.

25 Q What is the power wattage of the paired frequency

1 channels?

2 A On the same radios? It is still six watts,  
3 portable.

4 Q Do you know what the base station wattage is?

5 A I believe they use a portable as a base station.

6 Q They use a portable radio as their base station?

7 A They use a portable radio in their dose assessment  
8 facility.

9 Q So that would mean that the range of the paired  
10 frequencies would be approximately twelve miles, using a  
11 six watt portable radio, is that what you are saying?

12 A I am saying twelve miles out from the repeater  
13 station. Obviously, if you are standing at -- twelve miles  
14 west, you can talk to somebody twelve miles east, so I  
15 would say the range overall, depending on where that  
16 repeater station is located is approximately twenty-four  
17 miles. In excess of twenty-four miles.

18 Q But the repeater is located at Brookhaven?

19 A That is correct.

20 Q Mr. Renz, have you ever used a portable radio?

21 A Beyond the demonstration I received at Brookhaven,  
22 no.

23 Q Mr. Daverio, have you?

24 A (Witness Daverio) If you mean by a portable  
25 radio a CB or boat radio, yes, I have.



1 Q Have you ever used a portable radio with  
2 comparable power of these that we are talking about; that  
3 is, about six watts?

4 A I think the boat radios have up to 25 watt  
5 range on the high band to be used, and I have used it.

6 Q Anything about the level of power of a six  
7 watt portable radio?

8 A I think I have had a CB in my car, and I think  
9 that was around a four or five watt range. That was years  
10 ago, and I can't remember the exact numbers.

11 Q Do you remember what kind of range you had with  
12 that CB radio in your car?

13 A I never really did a test, because when you use  
14 a CB on Long Island, you never got that far because of other  
15 people being around. You really were talking close. I  
16 never checked for distance.

17 Q Doctor Cordaro, have you ever used a portable  
18 radio? I am distinguishing here, gentlemen, between a  
19 portable radio, hand-held radio, and a mobile radio such  
20 as you would find in an automobile. Have you ever used  
21 a portable radio under my description, Doctor Cordaro?

22 A (Witness Cordaro) No. Just the car radios.

23 A (Witness Daverio) I will take that back, then.  
24 If you are talking about hand-held radio, my boat radio and  
25 CB weren't hand-held radios.

1 Q Mr. Renz, I take it that the portable radios  
2 that will be used by Brookhaven are hand-held radios,  
3 correct?

4 A (Witness Renz) Correct.

5 Q Is the single frequency channel, Mr. Renz, is  
6 that a simplex frequency channel?

7 A That is correct.

8 Q Are the frequencies used by Brookhaven UHF or  
9 VHF?

10 A It is my understanding they are VHF.

11 Q All three?

12 A All three channels.

13 Q Tell me, Mr. Renz, what determines whether  
14 Brookhaven personnel would use their paired VHF frequency  
15 channels or the single frequency channel?

16 A I imagine that is determined by the application  
17 intended.

18 Q Well, let's assume the application intended is  
19 that Brookhaven personnel are going out to the field to  
20 monitor radiation levels. Which channel would they use?

21 A I believe they would use the repeater.

22 Q And what is the basis of that belief?

23 A In order -- they are aware of the area of the  
24 plume exposure emergency planning zone. They have tested  
25 their own radios in conjunction with the LERO or LILCO

1 Transition Plan out to ten miles -- twelve miles, excuse  
2 me.

3 That is my general understanding. I have not  
4 gone through their plan to pull that information out.  
5 That information is based on conversations.

6 Q Do you know if Brookhaven area office, and  
7 DOE-RAP personnel have any procedure which sets forth  
8 which of these channels they would use in the event  
9 of an emergency at Shoreham?

10 A I know they have procedures addressing operation  
11 of the radios. Operation of the equipment that they pick  
12 up, check out. Check out before they are dispatched into  
13 the field. I don't know that any of their procedures are  
14 addressed specifically to Shoreham or not, I don't know.

15 A (Witness Daverio) One think I would just like  
16 to add. I think they may have a procedure that says that,  
17 because they do have their own emergency plan for the  
18 reactors on site, and do have to drill that. So within  
19 one of their procedures they may have a way of using their  
20 radio frequencies, and it may be only they pick the  
21 appropriate frequency that you think is available.

22 But they probably have something like that.

23 Q Mr. Daverio, do you know if they have any  
24 procedure which sets forth which channel their personnel  
25 are to use?

1 A I do not have personal knowledge of that, no.

2 Q Now, Mr. Renz, am I correct in assuming that  
3 field personnel using these portable radios would make  
4 their measurements in the field and radio the results back  
5 to the Brookhaven area office?

6 A Yes.

7 Q And to whom would they radio those results?

8 A They would radio those results back to the  
9 dose assessment function that is performed at the Brookhaven  
10 area office that is headed up by a RAP team captain.

11 Q Another DOE-RAP person?

12 A That is correct.

13 Q The Court Reporter understands when we say  
14 DOE-RAP, it is DOE dash RAP. The person to whom the  
15 information in the field would be provided, I take it  
16 that person would also have one of these six watt portable  
17 radios?

18 A That is the person in the dose assessment area  
19 that I referred to earlier, yes.

20 Q To your knowledge then, Mr. Renz, there is no  
21 base station as such which would be utilized by Brookhaven  
22 in performing these functions under the LILCO Plan.

23 A No. Their operation is mobile in nature, and  
24 the use of the hand-held unit at Brookhaven, in the Brookhaven  
25 area office is consistent with that mode of operation.

#11-1-Sueff

2 Q Base stations are utilized at the EOC by LILCO,  
correct?

3 A (Witness Renz) Correct.

4 Q And, I'm trying to think back, Mr. Renz, the  
5 power wattage of those base stations. Can you tell me  
6 what the power wattage is?

7 A As I recall, the power wattage of those base  
8 stations were in the range of 45 or 50 watts.

9 Q And Brookhaven is going to be using a 6 watt  
10 portable radio?

11 A The hand-held units are 6 watts. The repeater  
12 station is on the order of 30 watts.

13 Q And for the single frequency, it's your  
14 understanding that there is no transmitting station?

15 A It's portable unit to portable unit.

16 Q Do you know, Mr. Renz, how often the Brookhaven  
17 radio equipment is tested?

18 A Not specifically. I know that they do run  
19 exercises, radiological emergency response exercises, in  
20 support of their own emergency plan onsite. I do know  
21 that they run other exercises in support of the DOE-RAP  
22 response in the northeast region. I do know that equipment  
23 and documentation is periodically checked. The documentation  
24 I saw had a date on it of 4/84.

25 So, I would say it's probably in the order of



#11-2-Sue

quarterly or semi-annually. But I don't know definitively.

2           Q       Mr. Renz, the statement on Page 5 says backup  
3           communications between the EOC and the Brookhaven area  
4           office are also provided by a Federal telecommunications  
5           system line from the Shoreham control room.

6                    Do you see that?

7           A       Yes.

8           Q       This backup communications is not direct  
9           communications between the EOC and Brookhaven, correct?

10          A       No, it is not.

11          Q       Your two means of direct communications between  
12          the EOC and the Brookhaven area office are the dedicated  
13          telephone line and commercial telephone, correct?

14          A       That is correct.

15          Q       When you say at the bottom of Page 5, there is  
16          a statement that talks about multi-channel, portable  
17          radios and points out that the portables are three-channel  
18          radios.

19                    I take it, Mr. Renz, that none of these three  
20          channels operate on any of the same frequencies utilized  
21          by LILCO in its emergency radio system; is that correct?

22          A       The frequencies associated with these channels  
23          are licensed solely to the Department of Energy. They  
24          are only precluded from using those frequencies in a couple  
25          of places, in Canada. They are dedicated to the Department

#11-3-SueT 1

2 of Energy. And we do not -- those frequencies do not  
3 include the ones utilized by LILCO in contentions we have  
4 litigated previous to today.

5 Q Do you know, Mr. Renz, when the teams go out  
6 into the field, would they all necessarily be on the  
7 same frequency, the same channels?

8 A The DOE-RAP monitoring teams?

9 Q Yes.

10 A I believe they would be on the same channels.

11 Q If you have -- let's take the two teams we  
12 have talked about, is there any possibility that one team  
13 would be on the paired frequency channels and the other  
14 team would be on the single frequency channel?

15 A If they wanted to do that for some reason,  
16 they could. I don't know why they would want to do that.

17 Q If they did that, Mr. Renz, there would have  
18 to be two portable base stations manned at the Brookhaven  
19 area office to receive transmissions, correct?

20 A Not necessarily.

21 Q How is that one person at the Brookhaven area  
22 office with one portable radio could receive transmissions  
23 from two different channels?

24 A The configuration of the -- of each channel  
25 allows that capability. In other words, Channel One is  
dedicated to paired frequencies. There is one frequency

#11-4-Sub E T

2 used to transmit and one frequency used to receive. Channel  
3 Two uses the receive frequency from Channel One. If you  
4 are on Channel Two, you can transmit and be received by  
5 someone who is on Channel One.

6 Q If the -- that would assume that the transmissions  
7 would be made at different times, correct?

8 A Yes.

9 Q Assuming transmissions being made at the same  
10 time, that would not be possible?

11 A No. I believe we covered this in earlier  
12 contentions. That would not be possible.

13 Q So, to insure that you would be receiving any  
14 transmission that could be made in the field you would  
15 want to have two separate persons at the Brookhaven area  
16 office; isn't that correct?

17 A I'm sorry. I don't follow you at all.

18 Q If you wanted assurance that any transmission  
19 made from your field monitoring teams back to the Brookhaven  
20 area office would, in fact, be received you would have to  
21 have, under our scenario, two separate persons at the  
22 Brookhaven area office receiving the transmissions; isn't  
23 that correct?

24 A No.

25 Q Let me try it again, Mr. Renz. I don't want to  
get hung up on this, but follow my scenario with me.

#11-5-SueT

2 There are two different teams out in the field. And we  
3 are assuming that they are on the different channels. And  
4 you have one person at the Brookhaven area office who  
5 they are supposed to be reporting to. Okay.

6 Now, you have transmissions being made at the  
7 same time by your field teams to your person at the  
8 Brookhaven area office. How is that one person going to  
9 receive the information from two separate teams on two  
10 different channels?

11 A I'm sorry. I didn't follow your earlier  
12 question. If you have the desire for someone in the  
13 Brookhaven area office to talk to one team, and you have  
14 a second team in the field on another channel, for some  
15 purpose of independent communications capabilities, you  
16 would want to be monitoring both channels back at the  
17 Brookhaven area office.

18 Q And that would require two people?

19 A It can require two people.

20 Q It would require two people, wouldn't it?

21 A Only if the transmissions are simultaneous.

22 (Witness Daverio) Mr. Miller, it wouldn't  
23 necessarily mean two people. It would need two radios  
24 maybe and one person sitting there listening to two  
25 radios.

Q If the field teams were on separate channels,

#11-6-SueT 1

Mr. Renz, could they communicate with one another?

2

A With regard to the use of the first two channels that I described, they could.

3

4

Q Let me make sure I understand. If you have one team on the single frequency channel and the second team on the paired frequency channels, they could communicate back and forth?

5

6

7

8

Is that correct?

9

10

A Yes, they could. I don't have a reason why they would want to. But, yes, they could.

11

12

13

14

15

16

17

18

As I stated earlier, the frequency utilized on the second channel correlates to the received frequency used on the first channel. In other words, if somebody on Channel Two transmits on that frequency it's received on Channel One. If somebody on Channel One transmits on their transmit frequency and it is converted to the received frequency off of the repeater, someone on Channel Two can monitor that transmission.

19

20

So, yes, people can talk back and forth between Channel One and Channel Two.

21

22

Q Do you know why, Mr. Renz, the Brookhaven area office uses multi-channel portable radios?

23

24

A I never asked why specifically that they used multi-channel radios.

25

Q Do you think it could be in part because there



#11-7-SueB

2 is a built-in backup provided when you have a multi-channel  
3 radio?

4 A I think it can be in part that. There is  
5 ability in backup. I think it could be in part that  
6 their response is mobile in nature. They have to respond  
7 to any location in the northeast region; therefore, if  
8 they want unit to unit communications for some form of  
9 response versus repeater communications for another form  
10 of response, they have that flexibility.

11 Q Mr. Renz, the real dispute here between the  
12 County and LILCO is pretty clear I think. The County  
13 says that there are no direct communications between the  
14 field teams and the EOC. And LILCO says, I think, that  
15 there is no direct communications but you don't need  
16 direct communications.

17 Is that a fair statement?

18 A I think LILCO states, or we state, that there  
19 are no direct communications as contemplated by the plan.  
20 The mechanism in place allows for the lack of those direct  
21 communications, and we also are of the position that we  
22 are not required to have direct communications from field  
23 personnel to the EOC.

24 Q But there is clearly no dispute between us,  
25 I think, that there are no direct communications between  
the field personnel and the EOC; is that correct?

#11-8-SueT 1

A I believe so. Yes.

2

Q Now, in Answer 6, Mr. Renz, you are asked to

3

discuss whether direct communications are required. And

4

there is a fairly long discussion about the applicable

5

regulations and guidelines.

6

I take it, Mr. Renz, that Answer 6 is your

7

understanding, the panel's understanding, of the regula-

8

tions and guidelines in question, correct?

9

A As emergency planners, that's correct.

end #11 10

Mary flws 11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

Sim 12-1

1 Q Now, Mr. Renz, you are aware that in the  
2 RAC report regarding the LILCO plan there was a statement,  
3 which is set forth on page 8 of your testimony in fact,  
4 regarding the fact that communications equipment should  
5 include radio links between the field teams and the EOC?  
6 Are you aware of that?

7 A (Witness Renz) Yes.

8 Q Are you then disagreeing with the RAC report  
9 with respect to the fact that there is some requirement  
10 that there be such direct communications?

11 A I don't think the RAC report at Section 2(h)11  
12 says that or implies that there should be direct  
13 communications. It simply implies that communications  
14 equipment should be stipulaed.

15 If you will refer to that section of NUREG  
16 0654, it discusses to a certain degree what an equipment  
17 inventory should include, and it specifically states as  
18 one of the examples communications equipment.

19 I believe the person reviewing that aspect  
20 of the plan picked up that communications equipment were  
21 not identified in that inventory, but the reason for that  
22 is because the communications equipment is the responsibiity  
23 of in this case the support organization, DOE.

24 Q Are you saying, Mr. Renz, that you believe  
25 the statement that was made in the RAC report was only

1 made because the reviewers of the LILCO plan were not  
2 aware of all of the information?

3 A That would be speculation on my part, but  
4 I would say that could be possible.

5 Q Do you have any indication from anyone at  
6 FEMA or anyone on the RAC committee that given all of  
7 the information in your review the comment made in the  
8 RAC report with respect to element 2(h)11 would change  
9 in any way?

10 A I personally have no indication from FEMA  
11 that that element would change.

12 A (Witness Daverio) Mr. Miller, if I might  
13 add, if my memory serves me correctly, we had a meeting  
14 with the DOE RAP team concerning their comments and I am  
15 not sure if exactly this issue would be disposed of because  
16 of that conversation and subsequent changes to the plan  
17 in Rev. 4 to respond to FEMA's comments.

18 But my impression from discussions with  
19 FEMA at that meeting were that they were under the  
20 impression that the RAP team captain, who would be  
21 controlling the field teams, would be at the EOC and  
22 not at Brookhaven National Laboratory.

23 In Amendment 4 to the plan and procedures,  
24 we have made that clear, that the RAP team captain does  
25 stay at Brookhaven National Lab while an alternate RAP

Sim 12-3

1 team captain goes to the EOC to be the link between the  
2 Brookhaven Area Office and our EOC.

3 That may be part of why that comment came about.

4 JUDGE LAURENSEN: Excuse me, Mr. Daverio,  
5 just to clarify. You prefaced your last answer by saying  
6 you had a meeting with the DOE RAP team. Did you mean  
7 FEMA?

8 WITNESS DAVERIO: I have had meetings with  
9 them also, but it was the FEMA meeting that I was referencing.

10 MR. MILLER: Judge Laurenson, I need to move  
11 to strike Mr. Daverio's answer because his answer references  
12 Revision 4 of the LILCO plan. Of course, I did not ask  
13 a question regarding Revision 4, nor is Revision 4 of the  
14 LILCO plan in evidence before this Board.

15 MS. McCLESKEY: Judge Laurenson, I believe  
16 that Mr. Miller's question asked if changes were made,  
17 what would FEMA's view be and whether there was any  
18 understanding on the part of these witnesses of why FEMA  
19 found what it did in its review regarding this item.

20 I think Mr. Daverio's comments were responsive  
21 to that question.

22 JUDGE LAURENSEN: I think the question of  
23 whether FEMA had indicated that it would change its view  
24 opens the door for what the changes have been since the  
25 FEMA report came out.



Sim 12-4

1 MR. MILLER: My question, Judge Laurenson,  
2 went to, yes, is there any reason for you to believe that  
3 FEMA would change its view, and Mr. Daverio's response  
4 regarding the meeting I think in May of this year with the  
5 RAC committee, that is responsive, but not to go into  
6 what LILCO has done in Revision 4, which is not in  
7 evidence before the Board. That part is not responsive.

8 JUDGE LAURENSON: I think it is all tied  
9 together and I don't think we can separate out what the  
10 response to FEMA was from Rev. 4.

11 The motion to strike is denied.

12 BY MR. MILLER:

13 Q Mr. Renz, on page -- well, it is page 8 of  
14 my testimony. It is Question and Answer 7 at the top.  
15 You are asked a question, "Should the LILCO plan specify  
16 equipment for direct radio communications from the EOC  
17 to the monitoring teams," and the answer is "No, such  
18 direct radio communications are not required."

19 Do you see that?

20 A (Witness Renz) Yes, I do.

21 Q Are you saying, Mr. Renz, that because in  
22 your opinion direct radio communications are not required  
23 that therefore there is no reason for the plan to specify  
24 such equipment?

25 A No. What we are saying is that there is no

Sim 12-5

1 need for the plan to specify that equipment because the  
2 radio links will be between the DOE RAP monitoring teams  
3 and the DOE Brookhaven Area Office.

4 And, in additino, it is not required that they  
5 be in our plan in any event, that there be direct  
6 communications in the plan in any event.

7 Q If there was a need for direct communications,  
8 Mr. Renz, between the field monitoring teams and the EOC,  
9 but there was no requirement under NRC regulations or  
10 guidelines for such direct communications, would you have  
11 them?

12 A Yes. If there is a need for direct communication  
13 from the field to your dose assessment function, if that  
14 function was performed in the EOC as opposed to in the  
15 Brookhaven Area Office, I would have direct communication.

16 Q Even if there was no requirement under the  
17 regulations for such direct communications, under that  
18 scenario you would still have them; is that correct?

19 A Under the scenario I gave you, yes, I would  
20 have them.

21 Q Do you agree, Dr. Cordaro?

22 A (Witness Cordaro) Yes.

23 Q And Mr. Daverio?

24 A (Witness Daverio) Yes.

25 Q Who performs the dose assessment function at

Sim 12-6

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

the Brookhaven Area Office?

A Members of the DOE RAP team.

Q And then that information needs to be passed along to the EOC, correct?

A The result of the dose assessment, correct.

Q So that appropriate protective action recommendations can be made at the EOC by the Director, correct?

A Yes.

End Sim

Joe Fols

1           Q       When you say, in the last sentence in Answer 7,  
2 Mr. Renz, the radios -- referring to the DOE-RAP radios --  
3 are part of the DOE-RAP response, which is subsumed within  
4 the LILCO Plan.

5                   What do you mean the radios and the DOE-RAP  
6 response are subsumed within the LILCO Plan?

7           A       (Witness Renz) To provide this function, the  
8 LILCO Plan relies upon a support organization. The actions  
9 of that support organizations, although the details of those  
10 actions are not included specifically within the pages  
11 of the LILCO Transition Plan, the details of the DOE  
12 response, which are included in DOE procedures, and other  
13 plans that they may have, are under the umbrella of the  
14 LILCO Transition Plan in this context.

15           Q       Is it fair to say, Mr. Renz, that it is your  
16 opinion and belief that the DOE-RAP teams are subsumed  
17 within the LILCO Plan because they work and function under  
18 the direction of LERO?

19           A       I don't know that they work and function under  
20 the direction of LERO. I think they support LERO, and  
21 provide LERO with the necessary information it needs to  
22 come up with protective action recommendations from a  
23 radiological standpoint.

24           Q       Under that definition, Mr. Renz, I take it that  
25 it is your opinion that all external support organizations

1           relied upon by LILCO in carrying out its plan are subsumed  
2           by the LILCO Plan?

3                       MS. McCLESKEY:  Objection.  Outside the scope  
4           of the contention.

5                       JUDGE LAURENSEN:  Sustained.

6                       BY MR. MILLER:  (Continuing)

7                       Q       Mr. Renz, Answer 8 in your testimony, again,  
8           is it fair to say that this answer sets forth the panels  
9           opinion regarding NUREG 0654's criteria?

10                      A       (Witness Renz)  That is correct.

11                      Q       Now, Answer 9, Mr. Renz, there is a statement  
12           about half way down in the answer, that says that DOE  
13           decided to conduct these operations from the Brookhaven  
14           area office, using DOE-RAP radio equipment.

15                      Do you see that statement?

16                      A       Yes, I do.

17                      Q       And before that, you discussed the fact that  
18           originally the coordination of the field survey teams  
19           was to be performed at the EOC, correct?

20                      A       Originally, the Plan contemplated that that  
21           function could be performed at the EOC, and as I recall  
22           during the communication issues in late March or early  
23           April, the topic of radios that we had intended to supply  
24           for DOE to support this came up.

25                      This response addresses DOE's decision to



1 conduct these operations out of their own offices at  
2 Brookhaven.

3 Q Can you tell me why DOE decided to conduct their  
4 operations from the Brookhaven area office rather than at  
5 the EOC?

6 A As far as I know, it was in conjunction with  
7 using equipment and facilities that they are most familiar  
8 with, and maintaining a certain amount of independence.  
9 I think Mr. Daverio can elaborate on that response.

10 A (Witness Daverio) I had discussions with the  
11 DOE area office in regard to this, and basically what Mr.  
12 Renz said is correct.

13 They felt that they would be more comfortable  
14 using the equipment they used all the time in their drills,  
15 or their equipment they might use to respond anywhere in  
16 the country, or in the region that they cover for the DOE.

17 Also, they felt that their equipment being  
18 stored at the DOE area office was more expeditious for  
19 them to dispatch their teams and control their teams from  
20 that point, and we had no reason to dispute them on that  
21 and made the changes, and I agree with Mr. Renz.

22 Q Mr. Daverio, when you refer to equipment and  
23 facilities, you are talking about with respect to the dose  
24 assessment function performed by DOE-RAP, correct?

25 A No. Their monitoring equipment. They take kits

1 out into the field that we have been talking about with  
2 Mr. McMurray. The samplers. The RM-14's. All that  
3 equipment is stored at the Brookhaven National Lab. I am  
4 sure they use the RM-14, but that type of equipment.

5 They also have laboratory facilities there that  
6 if they wanted to make use of it to analyze the sample in  
7 more details. We were discussing ingestion pathway, they  
8 could do it there.

9 They just felt that it was more comfortable  
10 and more efficient to set up headquarters where they were  
11 familiar with.

12 Q Mr. Daverio, the equipment used in performing  
13 field monitoring could be stored at Brookhaven area office,  
14 and the field monitoring teams could still be dispatched  
15 from the Brookhaven area office, but notwithstanding that,  
16 communications could be direct communications from the field  
17 to the EOC, isn't that correct?

18 A They felt it was important for their DOE-RAP  
19 team captain, who is the chief DOE respondent to an  
20 emergency, to be available to brief the teams, give them  
21 their missions, explain to them what he wanted done before  
22 sending him in the field.

23 And since they were going to be dispatched  
24 from the Brookhaven area office, that was an additional  
25 reason they felt that they wanted to do it there.

1           Q       So, it is important to DOE-RAP, you say, for  
2 the captain to brief the field personnel before they are  
3 dispatched into the field.

4           Q       Now, where is Brookhaven area office in relation  
5 to the EOC?

6           A       Somewhere between fifteen to seventeen miles.  
7 That is probably as the crow flies also.

8           Q       So, is the concern, Mr. Daverio, that the RAP  
9 capital, team captain, could not get from the Brookhaven  
10 area office to the EOC before the first reports from the  
11 field would start being transmitted?

12          A       I don't remember them specifically bringing  
13 it up, but that is a possibility.

14          Q       I am just trying to understand what you were  
15 telling me. If the reason for having the team captain  
16 of RAP at the Brookhaven area office is so that that  
17 team captain can brief his people before they go out  
18 to the field, I would think that the briefing could be  
19 done and the team captain could then go to the EOC, and  
20 you would still, therefore, have direct communications.

21          A       They prefer to keep their RAP team captain at  
22 their location, particularly if the event escalated and  
23 they wanted to bring additional teams in, or thought they  
24 needed additional teams, they would have to send them back  
25 to rebrief them again, and they just felt that it was

1 efficient to stay there and do their job from their normal  
2 facilities.

3 Q How is this system going to work, Mr. Daverio?  
4 You have the dedicated telephone line between the EOC and  
5 Brookhaven area office, and that gives you your primary  
6 means of direct communications, correct?

7 A That is correct.

8 Q And that is located at the security office at  
9 the Brookhaven area office, correct?

10 A That is where they work, that is my understanding.

11 Q Now, and then you have your base station for the  
12 field monitoring teams located at the old graphite reactor  
13 building, correct?

14 A No, that is not correct. The repeater station  
15 is there. Mr. Renz stated they use a mobile radio at the  
16 -- hand-held radio at the EOC, their EOC, which is their  
17 security building. It would go to the repeater station,  
18 and then out to the teams if they used that frequency.

19 Q Is the dedicated telephone line located at the  
20 same place where the RAP team captain would be with his  
21 hand-held radio?

22 A Yes.

23 Q And that would be at the security building?

24 A That is my understanding.

#14-1-SueT

2 Q The next to last sentence of the testimony,  
3 just a point of clarification on my part really. When  
4 you say that this information is to be transmitted to the  
5 EOC, that refers to the information that will be assimilated  
6 by the RAP team captain at the Brookhaven area office,  
7 correct?

8 A (Witness Renz) Yes.

9 Q And then it goes on and says: As is the  
10 information provided by the licensee's emergency response  
11 organization.

12 Now, what information are you talking about  
13 there, onsite information?

14 A We are talking about information, in this  
15 context, monitoring information that is gathered in the  
16 field, processed at an onsite facility, or a licensee  
17 facility, and put into the form of a protective action  
18 recommendation or given directly as the basis for a  
19 protective action recommendation, given to offsite  
20 authorities.

21 (Witness Daverio) As we discussed yesterday,  
22 the onsite organization has three field monitoring teams  
23 that it sends out with one team on standby which would be  
24 providing data that would be analyzed, calculations made,  
25 and recommendations from the onsite organization to the  
EOC by a dedicated line.



#14-2-Sub<sup>1</sup>T

2 Q Mr. Daverio, how far is the Brookhaven area  
office from the plant?

3 A Approximately eight miles.

4 Q Eight miles?

5 A Seven or eight miles, somewhere in that range.

6 Q If there were an evacuation of the ten mile  
7 EPZ, I assume then that the Brookhaven area office would  
8 be evacuated; is that correct?

9 A It depends why we would be evacuating out to  
10 ten miles. If it was a precautionary evacuation because  
11 of inplant condition with no radiological release, I  
12 wouldn't see that the Brookhaven area office would evacuate.

13 Q Can you picture any scenario where the Brookhaven  
14 area office would have to evacuate?

15 MS. MC CLESKEY: Objection. The issue of what  
16 would happen if the Brookhaven area office had to evacuate  
17 was in the original Contention 33, and the contention that  
18 emerged after the motions for summary disposition does  
19 not include that language. In addition, LILCO's filing on  
20 the motion for summary disposition did include information  
21 regarding the Brookhaven area office.

22 So, I believe that this issue has been disposed  
23 of on the merits and is not in the scope of the contention  
24 that remains on 33.

25 MR. MILLER: Judge Laurenson, I agree with Ms.

#14-3-SueT

2 McCleskey that the contention as originally presented to  
3 the Board had language regarding the evacuation of  
4 Brookhaven area office and how that would affect this  
5 aspect of the LILCO plan.

6 And I agree with Ms. McCleskey that the  
7 contention, as restated by the Board, does not contain  
8 those words any longer.

9 But I disagree with Ms. McCleskey that that  
10 means the Board decided that issue had no relevancy to  
11 this proceeding. I think what the Board did in rephrasing  
12 Contention 33 is that the Board crystalized a little bit  
13 better than the County and other Intervenors had done  
14 what the issue was between the parties, the issue of  
15 dispute.

16 And the issue of dispute is clear. Are there  
17 means of direct communications. The answer is no, there  
18 are not. I think we are in agreement on that. And, two,  
19 are they necessary, required, needed. And that's where  
20 we have a dispute.

21 I think the issue regarding the evacuation of  
22 the Brookhaven area office and how that would affect the  
23 means of communication from these field monitoring teams  
24 and the EOC is directly relevant and a very important  
25 issue to this contention.

(The Board members are conferring.)

#14-4-SueT

JUDGE LAURENSEN: LILCO's objection is sustained.

2 Our decision on the motion for summary disposition re-  
3 moved the part of the contention dealing with the evacua-  
4 tion of the Brookhaven area office.

BY MR. MILLER: (Continuing)

6 Q Mr. Renz, would you agree with me that under  
7 the current LILCO plan the only means of communications  
8 between the EOC and field monitoring teams of DOE-RAP  
9 personnel is through the Brookhaven area office?

10 A (Witness Renz) As contemplated within the  
11 LILCO Transition Plan, yes. However, that doesn't preclude  
12 other ad hoc actions that might be taken --

Q Well --

14 A -- if for some reason those communications  
15 lines contemplated were not available.

16 Q Mr. Renz, I realize the ad hoc procedures and  
17 provisions are never precluded; that's why they are ad hoc.

18 Under the plan, there is one means of communi-  
19 cations and that requires going from the field personnel  
20 through the Brookhaven area office to the EOC; isn't  
21 that correct?

22 A That's what is contemplated in the plan.  
23 That's correct.

24 MR. MILLER: Judge Laurenson, I have no further  
25 questions.

#14-5-SueT 1

JUDGE LAURENSEN: Mr. Zahnleuter?

2

MR. ZAHNLEUTER: No questions.

3

JUDGE LAURENSEN: Mr. Pirfo?

4

MR. PIRFO: No questions.

5

JUDGE LAURENSEN: Any redirect?

6

MS. MC CLESKEY: No, sir.

7

JUDGE LAURENSEN: The panel of witnesses is

8

excused.

9

(The witnesses stood aside.)

10

That completes our schedule for this week. Since

11

we took the time yesterday to review the schedule between

12

now and August 14th when we reconvene up here, I don't

13

think there is any need to reiterate that.

14

Is there anything further for the record at

15

this point?

16

(No reply.)

17

All right. The hearing is adjourned. We will

18

reconvene at about 10:00 a.m. on Tuesday, August 14th.

19

(Whereupon, at 1:05 p.m., the hearing is

20

adjourned, to reconvene on Tuesday, August 14th,

21

at 10:00 a.m.)

22

\* \* \* \* \*

23

24

25

CERTIFICATE OF PROCEEDINGS

This is to certify that the attached proceedings before the  
NRC COMMISSION

In the matter of: LONG ISLAND LIGHTING COMPANY

Date of Proceeding: Friday, July 20, 1934

Place of Proceeding: Hauppauge, New York

were held as herein appears, and that this is the original  
transcript for the file of the Commission.

GARRETT J. WALSH, JR.

Official Reporter - Typed

*Garrett J. Walsh, Jr.*  
Official Reporter - Signature

MYRTLE H. TRAYLOR

Official Reporter - Typed

*Myrtle H. Traylor*  
Official Reporter - Signature

MARY SIMONS

Official Reporter - Typed

*Mary C. Simons*  
Official Reporter - Signature